

Development of basic pencak silat e-book teaching materials based on OBE

Albadi Sinulingga¹, Indra Kasih¹, Nurhayati Simatupang¹, Suandi Silaen¹, Ali Budiman^{2*}

¹ Universitas Negeri Medan, Indonesia.

² STKIP Pasundan, Indonesia.

* Correspondence: Ali Budiman; aliitock01@gmail.com

ABSTRACT

The study presented the development of an Outcome-Based Education (OBE)-based pencak silat e-book as a learning media for coaching education students. The materials included a discussion on the history of pencak silat, followed by core content on basic pencak silat techniques, starting from basic stances, hand attacks, blocks, dodges, kicks, catches, sweeps and takedowns, falls, to step patterns, all explained in detail based on OBE principles. The population of this study was students of the 2022 cohort who took the pencak silat course at Universitas Negeri Medan, totaling 93 students. This study employed the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model. Data were collected using questionnaires and documentation. The small-group test results showed a percentage value of 87% with a very good category. The large-group test results showed an average overall assessment score of 86%, also in the very good category. The research results obtained show that the OBE-based e-book teaching media for pencak silat courses that was developed is suitable for use as a teaching medium.

KEYWORDS

Pencak Silat; Learning Media; E-book; Outcome-Based Education

1. INTRODUCTION

In the contemporary era of globalisation, technological media are undergoing rapid development in all domains, including communication and learning. This has led to a shift in human behaviour from conventional to modern methods (Budiman et al., 2024). Media technology is a field which is developing at a rapid pace. It has a wide range of applications in both audio and visual

domains (Servilio et al., 2017). Media can be utilised for a variety of purposes, one of which is its application in digital learning through mobile phones, computers, and other devices (Holmberg, 2023). The development of a teaching and learning system that utilises computer and mobile phone aids is underway, with the potential to enhance the educational process between educators and students (Forsler & Guyard, 2023). Online learning that utilises applications and websites, such as mobile phones and computers, or multimedia technology, has the capacity to present information in both audio and visual formats simultaneously (Biswas et al., 2020; Rapanta et al., 2020).

It is vital for the world of education to leverage technological media to their full potential. The optimal teaching media is a medium that aligns with the developments of the current era, particularly at the university level (Sudarmo et al., 2021). contemporary learning media in higher education institutions have been found to be utilised extensively. A notable illustration of this can be observed in the utilisation of audio-visual media in the Faculty of Medicine at Tarumanagara University, which has been demonstrated to enhance student comprehension (Sophia & Santoso, 2022). The utilisation of digital media has been demonstrated to be a successful strategy in the revitalisation of a love of reading among students enrolled in the Faculty of Islamic Studies at Unismuh Makassar (Sumiati et al., 2022). In accordance with the aforementioned points, the Bachelor of Medicine, Bachelor of Surgery (MBBS) degree programme at Shalamar Medical & Dental College (SMDC) in Lahore, Pakistan, utilises electronic reference materials, such as e-books, to support students in their academic endeavours. This approach aligns with the findings reported in the study by Farid et al., (2021). The study of how individuals engage with digital media is of significant importance, given its integration into the lives of the majority, particularly the generation known as 'millennials' who have been born into the digital era. Empirical evidence has demonstrated its efficacy in enhancing confidence, self-esteem and motivation in students (ElAdl & Musawi, 2020; Zhou & Tian, 2017).

So, from that perspective, it feels like the utilization of digital technology media, such as e-books, is important. This applies to every student engaged in learning (Sun & Pan, 2021). However, not yet all study subjects' have digital media ebook as a learning medium. One of them is pencak silat subject which is eye studying sport self-defense traditional which is usually taught at the faculty sports in Indonesia. The Basic Pencak Silat course contains basic movement materials such as, standing position, respectful position, stance, step patterns, blocking punches, etc. The pencak silat book and media must be synergistic with the Indonesian national curriculum because it is very important to ensure the quality of education, equality of graduates, and cultural preservation. This

book is not only a teaching medium, but also a strategic tool in developing student competencies as a whole in accordance with national standards.

Field findings show that currently the availability of learning resources for the Pencak Silat subject is still minimal and there are no learning resources for Pencak Silat in the form of ebooks based on the OBE curriculum. Several textbooks that are currently available in printed form such as those developed by Lubis & Wardoyo, 2016 with 3 (three) printed editions, namely in the year 2014, 2016 with the title “Pencak Silat”. Another printed book is “Pendidikan Pencak Silat: Membangun Jati Diri dan Karakter Bangsa” (Mulyana, 2013). Next Kriswanto (2015) has created a printed book entitled “Pencak Silat: Sejarah dan Perkembangan Pencak Silat, Teknik-Teknik dalam Pencak Silat, Pengetahuan Dasar Pertandingan Pencak Silat”. All of these books are in printed form and are still not digitized. So that student moment this is very rare own motivation for study, impact from matter is seen in the low quality results of pencak silat learning, that occurred at the faculty sports of Universitas Negeri Medan, Indonesia because low interest as well as motivation they in the pencak silat learning process.

It is imperative that this matter be addressed expeditiously and that improvements be made accordingly. In order to achieve objective learning, particularly in the context of pencak silat, it is essential to cultivate students' motivation and commitment to learning. The integration of contemporary learning media and technological resources that are tailored to the needs of students can significantly enhance the learning process. One such initiative is the creation of educational materials for pencak silat, utilising electronic book format to facilitate the attainment of graduate competencies in accordance with the stipulated OBE curriculum. The purpose of this study is to develop a product in the form of pencak silat materials.

2. METHODS

To support this research, a type of development research was used. The ADDIE development model is deemed suitable for use in this study, because it is in accordance with its five main stages, namely (A) *analysis*, (D) *design*, (D) *development*, (I) *implementation*, and (E) *valuation*. in accordance with initial expectations or not (Omega et al., 2021). Research design stages can be seen in Figure 1 below:

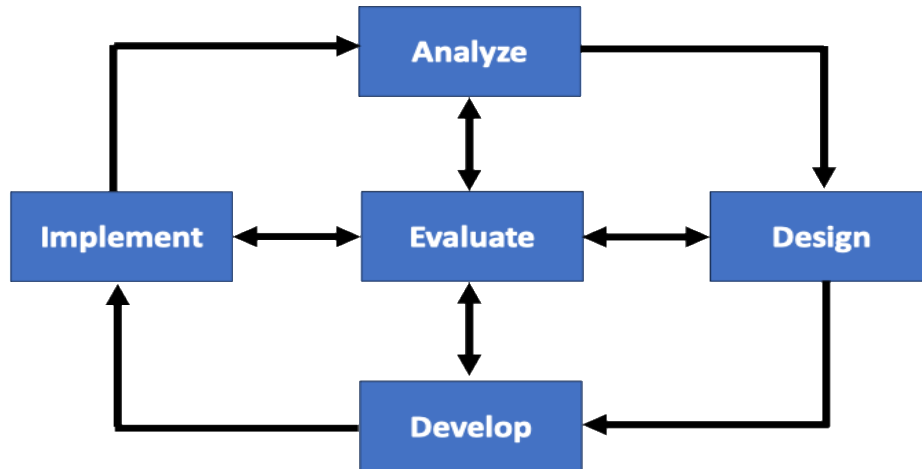


Figure 1. Research design stages

At the stage analysis done interviews and observations of pencak silat course lecturers, students, and stakeholders at Universitas Negeri Medan, then interview with experts/trainers pencak silat in North Sumatra. Next, at the Design and Development stage, the product validated by several expert among others by practitioner (lecturer and pencak silat coaches), media experts (media lecturers), and experts' language. The assessment used in this development stage uses a score scale of 1-4 on each assessment item and then the data was analyzed using the simple percentage technique. Next, implementation stage conducted on 93 students from Universitas Negeri Medan who were studying undergo lectures pencak silat. The Sample selection at this stage using a total sampling technique.

3. RESULTS

3.1. Analysis Stage

At the analysis stage, the method used by the researcher was observation of pencak silat lecture activities by conducting interviews with course lecturers, students, pencak silat coaches, and stakeholder. Observations and interviews were conducted to determine the curriculum used on campus, lecture activities, and the use of media and curriculum for pencak silat teaching materials (Table 1).

Table 1. Observation results of pencak silat lecturers

No	Observation Results
1	Plan Inter- Semester Learning (RPS) lecturer not yet uniform
2	The curriculum used for learning eye studying pencak silat not yet complete
3	Still exist difference in delivery material from between lecturer especially for learning practice move
4	Limited literature / books Supporter for support lectures pencak silat
5	Lack of equality perception from lecturer Group Lecturer Field Expertise (KDBK) of pencak silat
6	There are still differences among lecturers in evaluating students' pencak silat learning outcomes
7	The low understanding as well as knowledge student about pencak silat specifically for understanding movements existing moves in pencak silat because of limited book handle that can made into student for material repeat material

After conducting interviews, observations, and analyses of the RPS and the pencak silat syllabus handled by the lecturers, the following findings were identified from the observations (Table 2):

Table 2. Curriculum observation results

No	Observation Results/RPS Analysis Results
1	There are still differences in the lecturer's drafted study contract
2	The syllabus content is not in accordance with the lesson plan
3	The limited sources of teaching materials contained in the RPS cause students to look for other learning sources.
4	Not all lecturers of pencak silat courses have prepared lesson plans
5	Learning evaluation has not yet been included in the RPS
6	Does not include source books that can be used as references for students

After conducting interviews and observations with lecturers, students, and pencak silat coaches, further interviews were conducted with stakeholders and experts to identify the needs for developing a pencak silat curriculum based on the Indonesian National Qualifications Framework (KKNI). The interview results with stakeholders and experts regarding the expected competencies were as follows (Table 3):

Table 3. Observation results of stakeholders and pencak silat experts

No	Observation Results
1	Student understand the basics pencak silat
2	Student own competence for become coach competent pencak silat
3	Student know regulation arbitration pencak silat
4	Student can develop an appropriate training program with demands pencak silat choice students. So that lecturer must truly notice need student in accordance with demands Framework Indonesian National Qualification (KKNI).

The uniformity of learning resources must support students' ability to become reliable teachers in their respective fields, particularly in pencak silat. The learning materials include the main subject matter and detailed descriptions of the core material.

3.2. The Design Stage

The design process is the stage of designing teaching media for pencak silat lectures. At this stage, research instruments are also designed to measure the feasibility of the developed teaching media.

3.3. The Development Stage

The development stage consists of 2 steps, namely (1) development/creation of pencak silat teaching media and (2) product validation. The results of the development stage of pencak silat teaching media material for pencak silat attitude learning activities.

The pencak silat teaching media that has been consulted with the supervising lecturer and improved, then validated by practitioner, media experts and language experts using the pencak silat teaching media assessment sheet that has been previously created. Material validation is carried out by silat experts, to find out whether the pencak silat teaching media that has been created is suitable for use by users and to receive criticism and suggestions so that the pencak silat media becomes better. The results of the pencak silat validation are as follows:

a. Material Expert Validation

Stage assessment / validation expert material This done during 2 stages. Namely validation stage beginning (1) and stage end (2). Validation results expert material at this stage 1 can be seen in Table 4 below:

Table 4. Subject matter expert validation results (Stage 1)

No	Assessment Aspects	Average	Percentage	Category
1	Content Eligibility	3.5	88%	Very good
2	Linguistics	3.3	83%	Very good
3	Presentation	3.3	83%	Very good
Overall average		3.4	85%	Very good

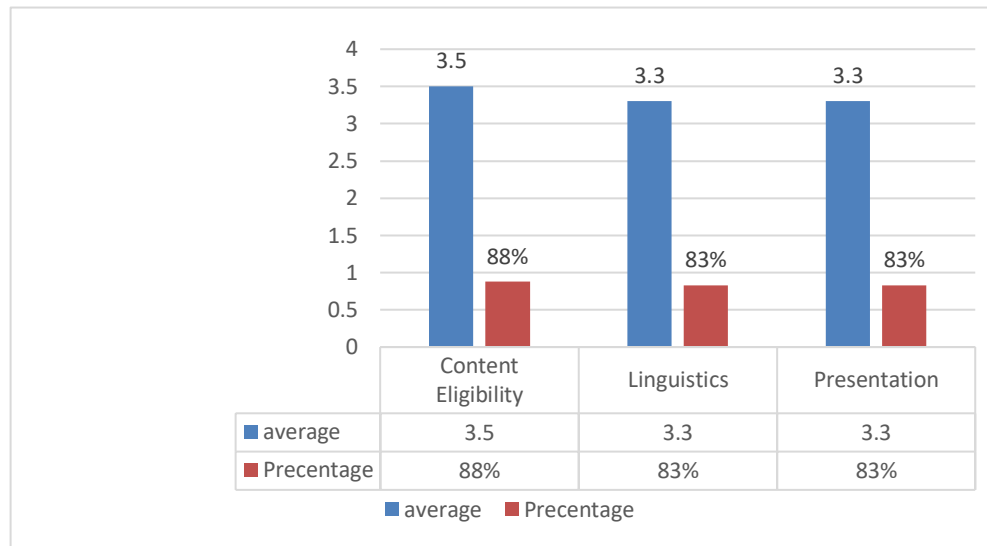


Figure 2. Material expert validation diagram (Stage 1)

Based on the table and diagram in above, the assessment of the pencak silat teaching media carried out by practitioner on the materials in the pencak silat teaching media resulted in an average overall assessment score of 3.4 with a percentage value of 85% of the maximum score of 4.00 with a very good product category, with a general assessment category of suitable for use with revision. The suggestions or input received by researchers from practitioner are as follows: The use of materials is expanded.

After revising the draft material, a revised Draft 1 of the pencak silat teaching media was produced, which was then re-validated. The results of the material validation are shown in the following Table 5:

Table 5. Material expert validation results (Stage 2)

No	Assessment Aspects	Average	Percentage	Category
1	Content Eligibility	3.6	91%	Very good
2	Linguistics	3.5	88%	Very good
3	Presentation	4	100%	Very good
Overall average		3,7	93%	Very good

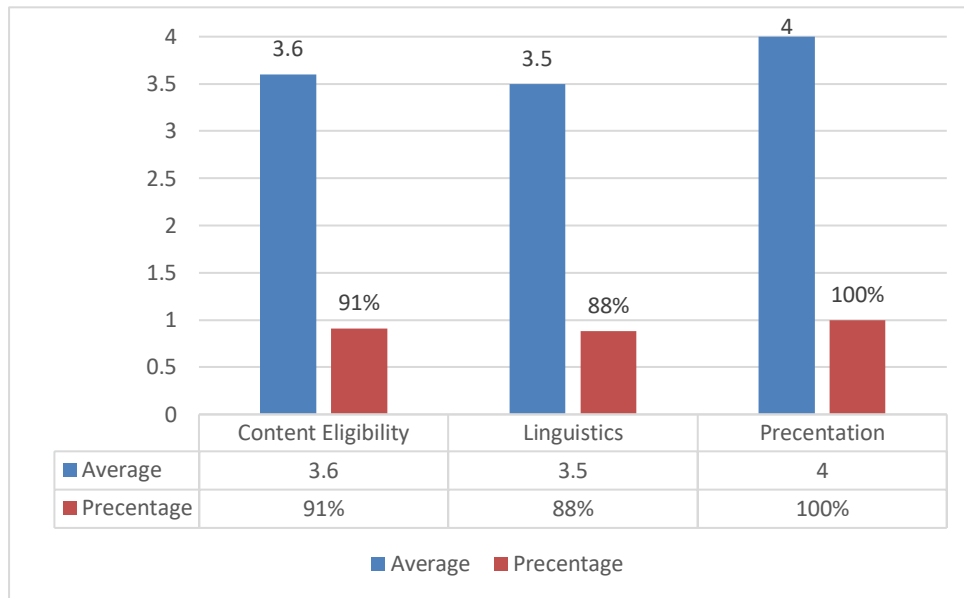


Figure 3. Material expert validation diagram (Stage 2)

The assessment of the pencak silat teaching media conducted by practitioner on the materials in the pencak silat teaching media resulted in an average overall assessment score of 3.7 with a percentage of 93% of the maximum score of 4.00 with a very good product category, with a general assessment category of being suitable for use without revision. Thus, the development of this pencak silat teaching media has succeeded in achieving the objectives of the study, namely material validation.

Based on the table in above, the assessment of teaching media conducted by practitioner on the materials in the pencak silat teaching media resulted in an average overall assessment score of 3.4 with a percentage of 85% of the maximum score of 4.00 with a very good product category, with a general assessment category of suitable for use with revision. The suggestions or input received by researchers from practitioner are as follows: The use of materials is expanded.

b. Media Expert Validation

Validation by media experts includes aspects of screen design appearance, ease of use, consistency, usefulness, and graphic aspects. Validation by media experts aims to obtain information, criticism, and suggestions so that the pencak silat teaching media that is developed becomes a good product in terms of screen design appearance, ease of use, consistency, usefulness, and graphics. Like validation expert material, validation experts also include 2 stages. The results of the media

validation stage 1 are shown in the following Table 6:

Table 6. Media expert validation results (Stage 1)

No	Assessment Aspects	Average	Percentage	Category
1	Screen Design View	3	75%	Good
2	Ease of Use	3.7	92%	Very good
3	Consistency	3.3	83%	Very good
4	Benefits	3	75%	Good
5	Graphics	3.2	80%	Very good
Overall Average		3.2	81%	Very good

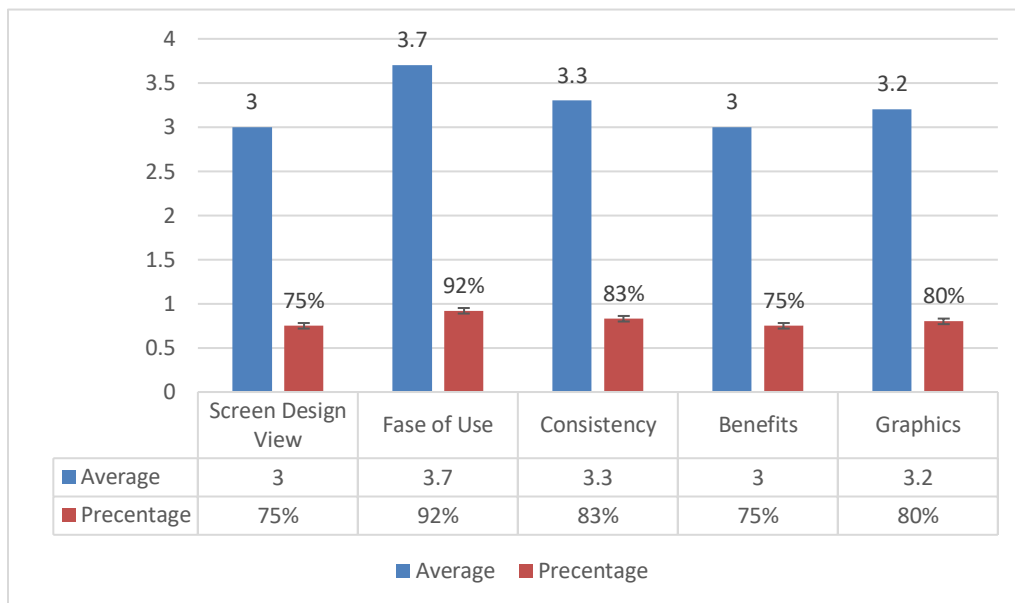


Figure 4. Media expert validation diagram (Stage 1)

Based on the table above, the assessment of the pencak silat teaching media carried out by media experts on the developed pencak silat teaching media resulted in an average overall assessment score of 3.2 with a percentage value of 81% of the maximum score of 4.00 with a very good product category with a general assessment category, namely suitable for use with revision. The suggestions or input received by researchers from media experts are as follows:

- The size of the letters in the E-module, especially in the title section, must be the same.
- The placement of the circle element on the profile slide should be more aesthetic or beautified.

After revising the pencak silat teaching media product, the resulting revision 1 (first) teaching media application product was then validated by media experts again. The results of the validation of the pencak silat teaching media by media experts in stage 2 are shown in the following Table 7.

Table 7. Media expert validation results (Stage 1)

No	Assessment Aspects	Average	Percentage	Category
1	Screen Design View	3.7	93%	Very good
2	Ease of Use	3.8	96%	Very good
3	Consistency	3.7	92%	Very good
4	Benefits	3.3	81%	Very good
5	Graphics	4	100%	Very good
Overall Average		3.7	92%	Very good

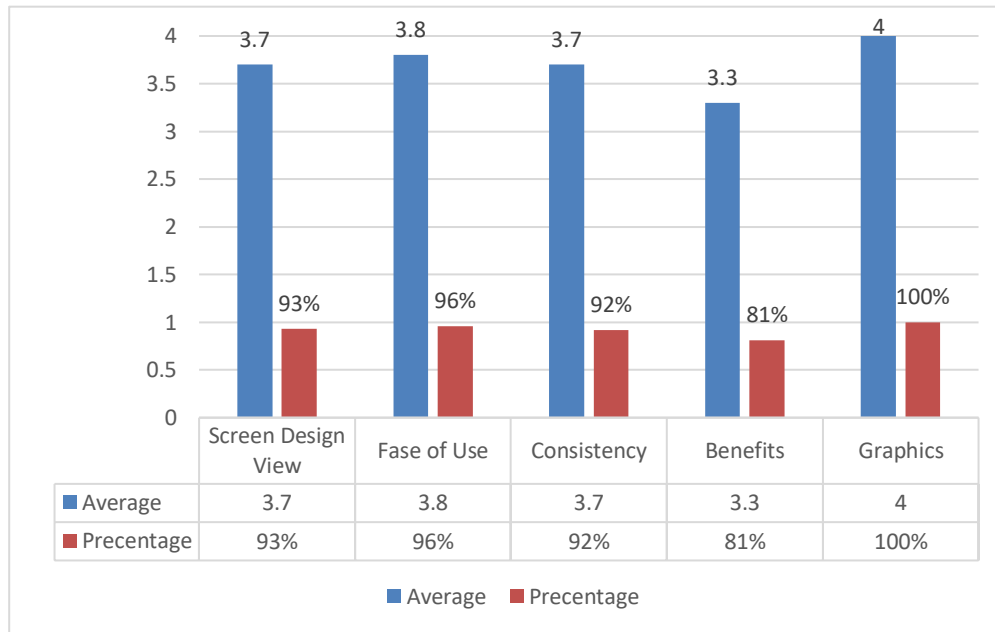


Figure 5. Media expert validation diagram (Stage 2)

Based on the table in above, the assessment of the pencak silat teaching media conducted by media experts on the developed pencak silat teaching media resulted in an average overall assessment score of 3.7 with a percentage value of 92% of the maximum score of 4.00 with a very good product category with a general assessment category, namely suitable for use without revision. Thus, the development of this pencak silat teaching media succeeded in achieving the objective of the study, namely the validation of the final product from media experts.

Based on the results of media validation by practitioner, it can be concluded that the material in the pencak silat teaching media is stated to be very good. Meanwhile, based on the results of the media expert assessment, it can also be concluded that the pencak silat teaching media is stated to be very good based on its media.

c. Linguist Validation

Validation by linguists Validation by linguists aims to obtain information, criticism, and suggestions so that the pencak silat teaching media that is developed becomes a good product in terms of language and is useful for knowing whether the use of language used by researchers has met the applicable rules so that it is easy to understand and comprehend. The assessment includes Self Instruction (Language used to provide instructions), the language of sentence structure in each material, educational diction. Validation language experts are also involved as many as 2 stages. Validation results Linguist expert level 1 can be seen in Table 8 below:

Table 8. Linguist expert validation results (Stage 1)

No	Assessment Aspects	Average	Percentage	Category
1	Self-instruction	3.5	88%	Very good
2	Linguistics	3.3	83%	Very good
3	Educational Diction	3.3	83%	Very good
Overall Average		3.4	85%	Very good

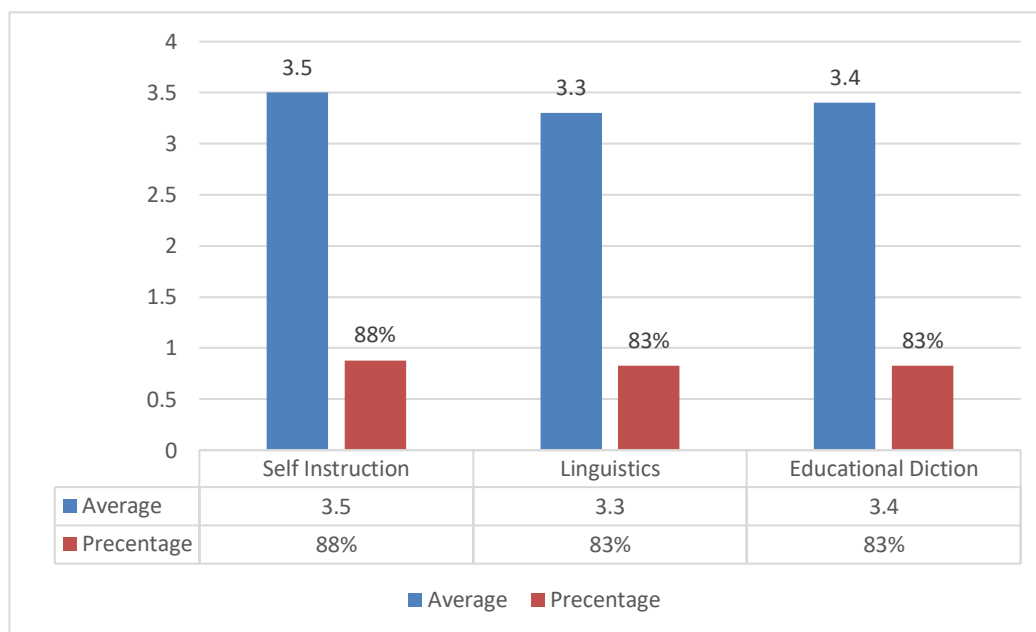


Figure 6. Linguist validation diagram (Stage 1)

Based on the table and diagram in above, the assessment of the pencak silat teaching media conducted by linguist experts on the material in the pencak silat teaching media resulted in an average overall assessment score of 3.4 with a percentage of 85% of the maximum score of 4.00 with a very good product category, with a general assessment category of suitable for use with revision. The suggestions or input received by researchers from linguist experts are as follows: The use of

language in the material is simplified. Furthermore, after revised in accordance with notes given done Re- validation (stage 2) the results of which are can be seen in Table 9 below:

Table 9. Linguist expert validation results (Stage 2)

No	Assessment Aspects	Average	Percentage	Category
1	Self-instruction	3.6	91%	Very good
2	Linguistics	3.5	88%	Very good
3	Educational Diction	4	100%	Very good
Overall Average		3.7	93%	Very good

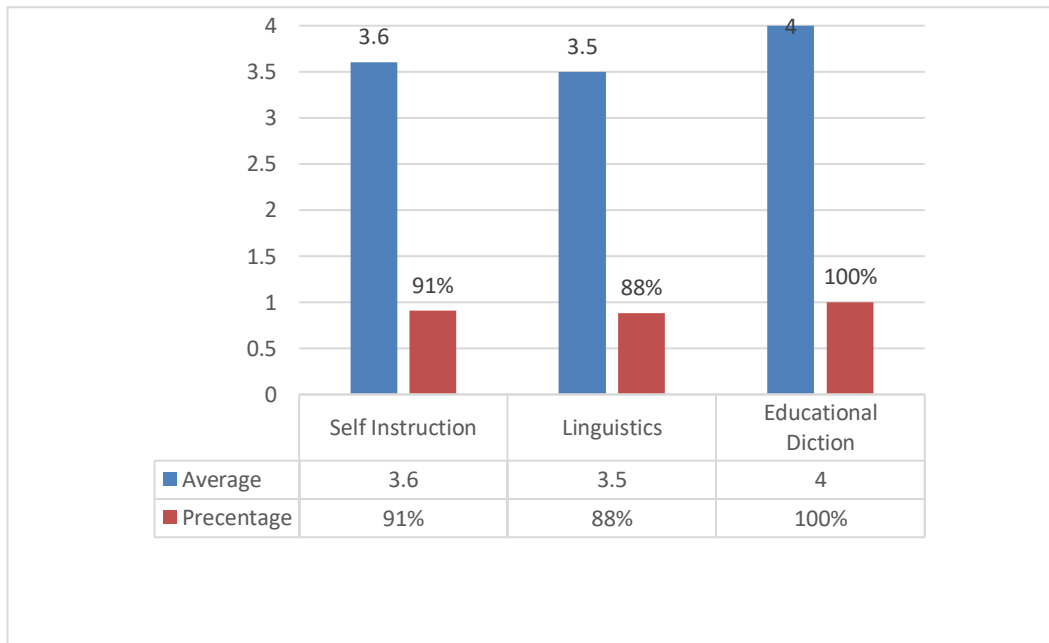


Figure 7. Linguist validation diagram (Stage 2)

Based on the table above, the assessment of the pencak silat teaching media carried out by language experts on the material contained in the pencak silat teaching media resulted in an overall average assessment score of 3.4 with a percentage value of 85% of the maximum score, namely 4.00 with a very good product category, with the general assessment category, namely suitable for use after revision.

After the product has been validated by practitioner and media experts, the next stage is to test the product on a medium group. This test aims to see the feasibility of the product being developed. The initial product trial was in a medium group of 30 people. This product trial was conducted on PKO Unimed students using 30 respondents. Students provide an assessment response to the pencak silat teaching media based on aspects of content suitability, linguistic aspects, usefulness aspects, and graphic aspects. The results of the trial assessment can be seen in Table 10 below:

Table 10. Results of the trial assessment product

No	Assessment Aspects	Average	Percentage	Category
1	Content Eligibility	3.5	88%	Very good
2	Linguistics	3.4	86%	Very good
3	Benefits	3.5	87%	Very good
4	Graphics	3.3	88%	Very good
Overall Average		3.5	87%	Very good

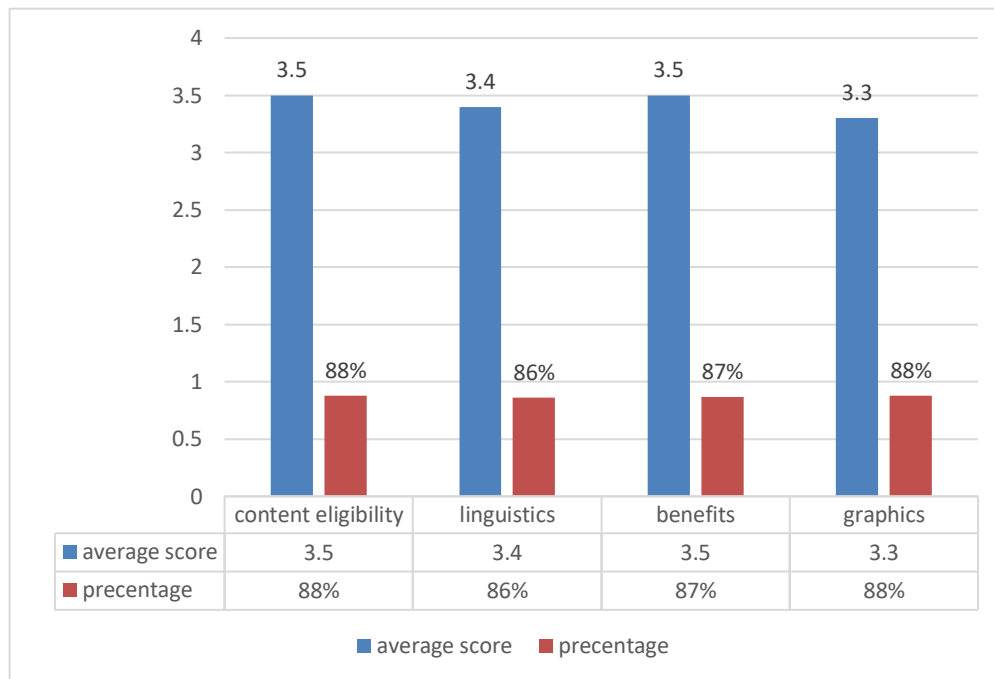


Figure 8. Diagram test results product

Based on the table in above, assessment of pencak silat teaching media carried out by the group small media to the developed pencak silat teaching media produced an average overall assessment score of 3.5 out of a maximum score of 4.00 with a percentage value of 87% and a very good product category. The results of the study above show a fairly good percentage of student responses to pencak silat teaching media.

3.4. Implementation Stage

After the pencak silat teaching media went through a medium-scale trial stage, the pencak silat teaching media was then utilized in the pencak silat learning process for students of the PKO Department, State University of Medan with a total of 93 students. Students as respondents provided assessment responses to the pencak silat media based on aspects of the presentation of the appropriateness of the content, linguistic aspects, usefulness aspects, and graphic aspects to see

student responses to the utilization of pencak silat teaching media in the learning process on campus. Assessment results Responses to the pencak silat teaching media can be seen in Table 11 below:

Table 11. Assessment results implementation product

No	Assessment Aspects	Average	Percentage	Category
1	Content Eligibility	3.5	86 %	Very good
2	Linguistics	3.4	87 %	Very good
3	Benefits	3,3	87 %	Very good
4	Graphics	3.3	85 %	Very good

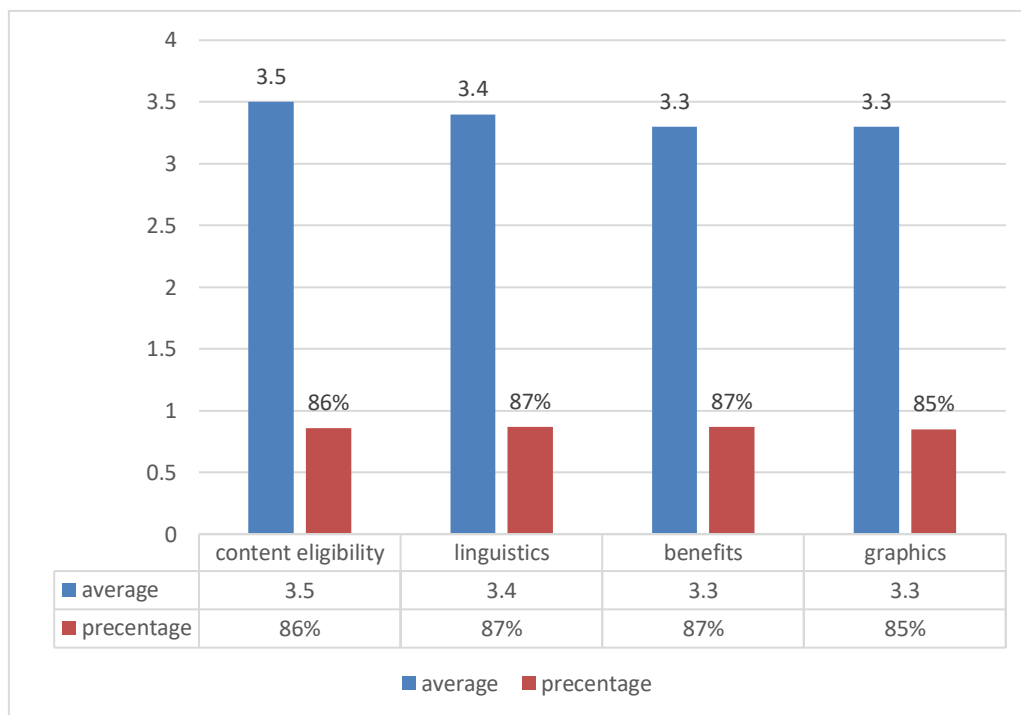


Figure 9. Diagram of product implementation assessment results

Based on the table in above, the assessment of pencak silat teaching media carried out by the group big on the presentation of the developed material produces an average overall assessment score with a percentage of 86% and a very good product category. The pencak silat teaching media carried out by language experts on the presentation of the developed material produces an average overall assessment score with a percentage of 87% and a very good product category. The usefulness of the developed pencak silat teaching media produces an average overall assessment score with a percentage of 87% and a very good product category. The graphics of the developed teaching media produce an average overall assessment score with a percentage of 85% and a very good product category. The results show a fairly good percentage of student responses to the pencak silat teaching media.

3.5. Evaluation Stage

After going through the process of the previous stages, the development of pencak silat teaching media underwent several improvements that had to be made based on the results of assessments by practitioner, media experts, and responses. students on pencak silat teaching media. Evaluation results the is as following.

Table 12. Evaluation results product

No	Suggestion	Status
1	The use of materials is expanded	Already added
2	On this slide, the profile text can be enlarged and made clearer, as well as the elements. The small circle in the profile text box is simply removed	After revision
3	The introduction text is made larger to be in line with the following slides	After revision

4. DISCUSSION

Overall, the OBE curriculum-based ebook pencak silat teaching module is very suitable for use by students. Because the selection of materials that support learning outcomes in the OBE curriculum is very much needed by students as provisions in their work (Chan, 2023). The materials in it begin with a discussion of the history of pencak silat, then core materials on basic pencak silat techniques starting from the details of basic stances in pencak silat, hand attacks, blocks, dodges, kicks, catches, sweeps and lays, falls, to step patterns explained in detail.

The OBE curriculum-based ebook pencak silat teaching module is different from previous teaching modules (Kriswanto, 2015; Mulyana, 2013). The description of the material techniques that are presented are more in accordance with the needs of the students, as it is known that students of the Sports Coaching Education study program, one of the output competencies is to become a coach in a sport, including a pencak silat coach. However, not all students have a sufficient basic knowledge of pencak silat (Kurniawan et al., 2024), so that this ebook module is a very important solution as a provision for them in understanding the sport of pencak silat.

Details of the historical material presented include the history of the origins of pencak silat, which is an original martial art/culture from Indonesia (Melayu group) and not an imitation of foreign martial arts (Mulyana & Lutan, 2021). The sport of pencak silat itself is a cultural heritage passed down from our ancestors whose existence must be preserved as a characteristic of the identity of the Indonesian nation (Budiman et al., 2024). Even this pencak silat sport has begun to be

globalized, seen from the multi-event championship tournament events that have begun to compete in pencak silat such as the SEA Games (South East Asia), Asian Games (Asia) and so on. Apart from the history, the development of the current pencak silat sport is also revealed in relation to the mental spiritual aspect in pencak silat (Kasmahidayat et al., 2024), martial arts aspect, arts and culture aspect (Purwanto & Saputra, 2020), and the sports aspects are explained.

Next, the material on basic position/stance techniques in pencak silat presented in this module includes standing, respectful, stance, eight directions of the wind, and sitting with a kneeling position. First, standing, in pencak silat, this standing position depends on the school of pencak silat (Muhtar, 2020), However, in this module, several standing techniques are explained, such as standing straight with hands straight vertically beside the thighs, standing position with both hands clenched and beside the waist, and standing position with both hands clenched in front of the chest, etc. The second attitude of respect, in pencak silat this attitude reflects the ethics of humility by respecting someone (Cahyani, 2020), The position of the respectful attitude is the silat athlete stands on both feet together and both palms meet in front of the chest while the head is lowered. The third is the pasang attitude which is an important attitude in various matches, the requirement for this attitude is that both palms are not allowed to clench, one must be open and the other clenched, or both palms are open (Bakhtiar & Irawan, 2023). Fourthly, there are eight cardinal directions which are the basis for forming steps, punches, and horse stances for all pencak silat movements. The fifth is the kneeling position which is the traditional sitting position in pencak silat, the position is sitting with both legs folded, and the back of the feet touching the floor, both hands are open and placed on the thighs, the chest is puffed out and the body is straight (Muhtar, 2020).

The next material is about Hand attack techniques. Hand attacks in pencak silat start from the shoulder to the fingers such as fists, back of the hand, palms, joints of the hand, to the elbows (Putra & Yusradinafi, 2021). In particular, elbow attacks consist of various movements ranging from elbows from the outside to the inside, elbows from the inside to the outside, and elbows from the bottom to the top. These hand attack technique movements are often used in pencak silat matches (Putra & Yusradinafi, 2021).

For the material on Blocking Techniques in Pencak Silat that are outlined in this module are blocks from outside to inside, upper blocks, lower blocks, upper cross blocks, lower cross blocks. Blocking techniques in Pencak Silat are very useful for avoiding or warding off attacks from opponents (Youngil, 2016). The speed and accuracy in using this blocking technique is in accordance with the reflex ability of the martial artist himself. The better the reflexes and intuition of the martial

artist in reading the opponent's attacks, the more effective the blocking he uses will be so that the opponent will not get points from the attacks they carry out (Thomas & Thomas, 2018).

Next, the kicking technique material in this module shows how to perform various kicking techniques in pencak silat, including forward kicks, '*tempong*' (sickle) kicks (Sinulingga et al., 2023), side kicks (T) (Irawan et al., 2021), back kicks (T back) (Budiman, 2021), '*jejag*' kicks (Ihsan et al., 2022), roundhouse kick, slap kick, deep kick, heel kick (*gajul*), '*kepret*' kick, front knee, side knee, vertical sweep, heel hook, lying sweep, back sweep (Setyawan & Setiawan, 2022; Soo et al., 2018). Kicking in pencak silat is a dominant technique, although the points obtained in a match are not as large as the points obtained from a fall, this technique is the one that most often earns points and most often knocks out opponents. Therefore, this technique is very important for students to master and explore.

Next material Catching technique. Catching is a self-defense against an opponent's attack done with either one hand or two hands. In general, catches are done against leg attacks, but in certain situations catches can also be done against other body parts, namely the knee or hand/arm. The value of a catch that is continued with valid results in three points plus one (1+3) (Purwanto & Saputra, 2020).

Sweeping and lying material. Sweeping is a series of foot movements in an attempt to knock down an opponent. Sweeping can be done with a direct attack on the opponent's leg, and can also be started with a catch and followed by a sweep. When analyzed, the sweeping movement is very complex because it involves many prime mover muscles, including waist flexibility, abdominal muscle strength, and thigh muscle strength, eye, hand and foot coordination. Many repetitions determine the success of the sweeping movement in an attempt to knock down an opponent. An effective sweeping movement is when done with the sole of the foot (like a ball holding movement) not with the inside of the foot. Sweeps that successfully knock down an opponent are 3 (three), but sweeping movements that begin with an avoidance or catch will get a score of 3 + 1 (Muhar, 2020).

Next is the material on the technique of falling. Falling is one of the techniques of falling in pencak silat which is used in an effort to avoid injury due to being thrown or attacked by an opponent. Mastery of this falling technique is very vital for a silat practitioner in an effort to avoid fatal injury. In general, mastery of the falling technique is very important when being caught which is followed up with an attack, either a leg attack or a hand attack. There are three falls, namely the left side fall, the right side fall and the back fall (Khoirul & Setiawan, 2022; Yondi, 2025).

The last is the material on Step Pattern Technique. Step pattern is one of the characteristics of pencak silat that distinguishes it from other martial arts. This step pattern is a reference for martial artists in moving away from and approaching opponents. Martial artists who do not follow the rules of the step pattern will receive a warning gradually from the referee and at the highest stage the martial artist can be disqualified if they make repeated mistakes in the step pattern. In this module, the Pencak Silat Step Pattern Techniques that are explained are Lift Steps, sliding, jumping, inching or seseran, and rotations (Kriswanto, 2015).

These materials are presented in more detail and in more detail, making it easier for students to understand the material they will study (Karakoç Öztürk, 2021). This ebook module is more practical and more flexible (Farid et al., 2021). Students can read whenever they want and have time. Compared to printed modules that are indeed ineffective if carried everywhere. Student motivation is increased with this ebook module (Casselden & Pears, 2020). Coupled with more detailed materials that make it easier for students to understand the movements of Pencak Silat techniques, it will help them to master what they are learning.

Overall, this pencak silat ebook emphasizes what students should achieve at the end of learning. It provides a conceptual framework of pencak silat as part of sports science and physical education and outlines constructive alignment between learning objectives, teaching methods, and evaluation. This ebook contributes literature in the development of traditional martial arts based on modern approaches and supports the integration of scientific approaches with local wisdom of pencak silat in the context of 21st century learning.

Furthermore, this ebook provides practical benefits in that it contains learning activities that directly lead to the achievement of learning outcomes related to technical skills, understanding of tactics, and ethical values of pencak silat, and provides clarity to students regarding what competencies they must master, so that the learning process is more focused and directed. This ebook is also designed to develop students' cognitive abilities (understanding the strategies, rules, and history of pencak silat), psychomotor development (mastery of movement techniques), and affective development (respect for cultural values, sportsmanship, and discipline). So, this ebook can be used as reference material for other universities because it is based on the same curriculum.

5. LIMITATIONS

This study has limitations, as it has not tested the effectiveness of the pencak silat e-book using an RCT. Therefore, the effectiveness of the pencak silat media in the form of an e-book based

on the OBE curriculum has not been fully established. In the future, further development of this e-book is needed, especially in multilingual versions, so that it can be used by an international audience.

6. CONCLUSIONS

Based on the results of research and discussion regarding the development of pencak silat e-book -based OBE can be concluded as follows: The research results obtained show that the OBE-based e-book teaching media for pencak silat courses that was developed is suitable for use as a teaching medium. This can be seen from the average value of the overall aspect score by the material expert in the first stage of 85% in the very good category and the second stage after revision increased to 93% in the very good category, the average overall aspect score by the media expert in the first stage of 85% in the very good category and the second stage after revision increased to 93% in the very good category, then the average overall aspect score of the media expert in the first validation was 81% category very good and the second stage was revised up to 92% with very good category. This finding indicates that the e-book teaching media for pencak silat is a highly suitable tool for use with students. The objective can be realised through the utilisation of e-books on pencak silat, which are designed to facilitate the attainment of the aforementioned lectures.

This study has limitations which have not tested the effectiveness of the ebook pencak silat in RCT so that the effectiveness of the pencak silat media in the form of an ebook based on the OBE curriculum is truly tested. In the future, further development of this ebook is needed, especially in multilingual development so that it can be used by an international audience.

7. REFERENCES

1. Bakhtiar, A., & Irawan, F. A. (2023). Analisis Kesesuaian Gerak Tendangan Sabit Pada Atlit Pencak Silat Perguruan Perisai Diri Kecamatan Wedung. *Journal of Sport and Exercise Science*, 6(1), 11–16. <https://doi.org/https://doi.org/10.26740/jses.v6n1.p11-16>
2. Biswas, B., Roy, S. K., & Roy, F. (2020). Students Perception of Mobile Learning during COVID-19 in Bangladesh: University Student Perspective. *Aquademia*, 4(2), 1-9. <https://doi.org/10.29333/aquademia/8443>
3. Budiman, A. (2021). Implementasi Media Audio Visual terhadap Hasil Tendangan T pada Pencak Silat. *Musamus Journal of Physical Education and Sport*, 3(2), 50–59.
4. Budiman, A., Nopembri, S., & Supriadi, D. (2024). Sundanese traditional sports: level of knowledge among 21 st century adolescents Deportes tradicionales sundaneses: nivel de conocimiento entre los adolescentes del siglo XXI. *Retos* 51, 1-18. <https://doi.org/10.47197/retos.v51.100567>
5. Cahyani, Y. R. (2020). Integrating life skills into pencak silat training program for positive youth development. *Jurnal Pendidikan Jasmani Dan Olahraga*, 5(2), 168–174. <https://doi.org/https://doi.org/10.17509/jpjo.v5i2.25017>

6. Casselden, B., & Pears, R. (2020). Higher education student pathways to ebook usage and engagement, and understanding: Highways and cul de sacs. *Journal of Librarianship and Information Science*, 52(2), 601–619. <https://doi.org/10.1177/0961000619841429>
7. Chan, J. Y. (2023). Law teachers' adoption and acceptance of OBE: a case study of Hong Kong. *The Law Teacher*, 57(4), 530–547. <https://doi.org/https://doi.org/10.1080/03069400.2023.2258023>
8. ElAdl, A., & Musawi, A. Al. (2020). Effects of students' attitudes towards using E- books on their self-efficacy and academic motivation. *European Journal of Educational Research*, 9(3), 1167–1176. <https://doi.org/10.12973/EU-JER.9.3.1167>
9. Farid, G., Librarian, M., Iqbal, S., & Iftikhar, S. (2021). *Acessibility Usage, and Behavioral Intention of Print Books and Ebooks by Medical Students*. Library Philosophy and Practice. <https://digitalcommons.unl.edu/libphilprac/6020>
10. Forsler, I., & Guyard, C. (2025). Screens, teens and their brains. Discourses about digital media, learning and cognitive development in popular science neuroeducation. *Learning, Media and Technology*, 50(2), 191–204. <https://doi.org/10.1080/17439884.2023.2230893>
11. Holmberg, C. (2023). Schizophrenia in Print, Digital, and Audiovisual Media: Trends, Topics, and Results from an Anti-Stigma Intervention Targeting Media Professionals. *Schizophrenia Bulletin Open*, 4(1), 1-15. <https://doi.org/10.1093/schizbullopen/sgad018>
12. Ihsan, N., Hanafi, R., Sepriadi, S., Okilanda, A., Suwirman, S., & Mario, D. T. (2022). The Effect of Limb Muscle Explosive Power, Flexibility, and Achievement Motivation on Sickle Kick Performance in Pencak Silat Learning. *Physical Education Theory and Methodology*, 22(3), 393–400. <https://doi.org/https://doi.org/10.17309/tmfv.2022.3.14>
13. Irawan, F. A., Nomi, M. T., & Peng, H.-T. (2021). Pencak silat side kick in persinas asad: Biomechanics analysis. *International Journal of Human Movement and Sports Sciences*, 9(6), 1230–1235. <https://doi.org/https://doi.org/10.13189/saj.2021.090617>
14. Karakoç Öztürk, B. (2021). Digital Reading and the Concept of Ebook: Metaphorical Analysis of Preservice Teachers' Perceptions Regarding the Concept of Ebook. *SAGE Open*, 11(2), 1-12. <https://doi.org/10.1177/21582440211016841>
15. Kasmahidayat, Y., Sabaria, R., Badaruddin, S., Kurniati, F., & Sudirman, A. (2024). Spiritual Self-Defense Practices in the “Bendung” Silat Start for Learners at the Mahaputra Pencak Silat Padepokan. *Evolutionary Studies in Imaginative Culture*, 8.2, 168–176. <https://doi.org/10.70082/esiculture.vi.679>
16. Khoirul, I., & Setiawan, I. (2022). Pengembangan Model Latihan Jatuhan Pencak Silat Di Ekstrakurikuler Tingkat SMP Kota Semarang. *Indonesian Journal for Physical Education and Sport*, 3(2), 461–468. <https://doi.org/https://doi.org/10.15294/inapes.v3i2.59122>
17. Kriswanto, E. S. (2015). *Pencak silat: sejarah dan perkembangan pencak silat, teknik-teknik dalam pencak silat, pengetahuan dasar pertandingan pencak silat*. Pustaka Baru Press.
18. Kurniawan, M. F., Ihsan, N., Irawan, R., Puta, A. N., & Ockta, Y. (2024). Development of android-based self-assessment application for basic pencak silat techniques. *Research and Development in Education*, 4(2), 863–875. <https://doi.org/https://doi.org/10.22219/raden.v4i2.33453>
19. Lubis, J., & Wardoyo, H. (2016). *Pencak Silat edisi ketiga*. Jakarta: PT Raja Grafindo Persada.
20. Muhtar, T. (2020). *Pencak silat*. UPI Sumedang Press.
21. Mulyana, B., & Lutan, R. (2021). The Lost Inner Beauty in Martial Arts: A Pencak Silat Case. *International Journal of the History of Sport*, 37(12), 1172–1186. <https://doi.org/10.1080/09523367.2020.1742703>
22. Mulyana. (2013). *Pendidikan pencak silat: membangun jati diri dan karakter bangsa*. PT Remaja Rosdakarya.

23. Omega, S. A., & Rahma Salsabila, A. R. (2022). Penggunaan Media Video Animasi æYour Bones Video Animation Pada Materi IPA Tentang Kerangka Manusia di Kelas V SD. *EduStream: Jurnal Pendidikan Dasar*, 5(1), 43–50. <https://doi.org/10.26740/eds.v5n1.p43-50>
24. Purwanto, S. A., & Saputra, A. R. (2020). Authenticity and creativity: The development of pencak silat in Sumedang. *Jurnal Etnografi Indonesia*, 5(1), 15–32. <https://doi.org/10.31947/etnosia.v5i1.9641>
25. Putra, M. K., & Yusradinafi, Y. (2021). Pengaruh Latihan Heavy Bag Thrust dan Latihan Medicine Ball Throw Terhadap Hasil Pukulan Lurus Pencak Silat Pada Siswa SMA. *Jurnal Pion*, 1(2), 55–59. <https://doi.org/https://doi.org/10.22437/jp.v1i2.17153>
26. Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online University Teaching During and After the Covid-19 Crisis: Refocusing Teacher Presence and Learning Activity. *Postdigital Science and Education*, 2(3), 923–945. <https://doi.org/10.1007/s42438-020-00155-y>
27. Servilio, K. L., Hollingshead, A., & Hott, B. L. (2017). Partnerships Enhancing Practice: A Preliminary Model of Technology-Based Peer-to-Peer Evaluations of Teaching in Higher Education. *Journal of Special Education Technology*, 32(1), 23–35. <https://doi.org/10.1177/0162643416681161>
28. Setyawan, A., & Setiawan, I. (2022). Kondisi Fisik dan Teknik Atlet Pencak Silat Pagar Nusa Kabupaten Temanggung. *Indonesian Journal for Physical Education and Sport*, 3(2), 449–460. <https://doi.org/https://doi.org/10.15294/inapes.v3i2.60635>
29. Sinulingga, A., Pasaribu, A. M. N., Bangun, S. Y., Ningrum, D. T. M., & Mahyudi, Y. V. (2023). Plyometric Exercise and Speed on the Power of Sabit Kick in Pencak Silat. *International Journal of Human Movement and Sports Sciences*, 11(3), 591–597.
30. Soo, J., Woods, C. T., Arjunan, S. P., Aziz, A. R., & Ihsan, M. (2018). Identifying the performance characteristics explanatory of fight outcome in elite Pencak Silat matches. *International Journal of Performance Analysis in Sport*, 18(6), 973–985. <https://doi.org/10.1080/24748668.2018.1539381>
31. Sophia, L. S., & Santoso, I. D. (2022). Knowledge difference between before and after gonorrhoea counseling through audiovisual media on the faculty of medicine students, Tarumanagara University batch 2021. *Science Midwifery*, 10(4), 2721–9453. <https://doi.org/https://doi.org/10.35335/midwifery.v10i4.742>
32. Sudarmo, S., Arifin, A., Jacob Pattiasina, P., Wirawan, V., & Aslan, A. (2021). The Future of Instruction Media in Indonesian Education: Systematic Review. *AL-ISHLAH: Jurnal Pendidikan*, 13(2), 1302–1311. <https://doi.org/10.35445/alishlah.v13i2.542>
33. Sumiati, S., M, N., Mumtahanah, M., M, R., & Asmi, S. N. (2022). Utilization of Digital Media to Restore Reading Interest for University Students. *AL-ISHLAH: Jurnal Pendidikan*, 14(3), 4513–4522. <https://doi.org/10.35445/alishlah.v14i3.1466>
34. Sun, L., & Pan, C. E. (2021). Effects of the Application of Information Technology to E-Book Learning on Learning Motivation and Effectiveness. *Frontiers in Psychology*, 12, 1–5. <https://doi.org/10.3389/fpsyg.2021.752303>
35. Thomas, R. E., & Thomas, B. C. (2018). Systematic review of injuries in mixed martial arts. In *Physician and Sportsmedicine* (Vol. 46, Issue 2, pp. 155–167). Taylor and Francis Ltd. <https://doi.org/10.1080/00913847.2018.1430451>
36. Yondi, E. P. (2025). analisis teknik jatuhan cabang olahraga pencak silat kelas B putra dalam Sea Games Kamboja 2023. *Jurnal JPDO*, 8(3), 420–427. <https://doi.org/https://doi.org/10.24036/JPDO.8.1.2025.53>
37. Youngil, N. (2016). The future of Asian traditional martial arts. *International Journal of the History of Sport*, 33(9), 893–903. <https://doi.org/10.1080/09523367.2016.1233866>

38. Zhou, X., & Tian, L. (2017). Study on learning motivation for innovative talents of local normal universities. *Journal of Interdisciplinary Mathematics*, 20(6–7), 1401–1405. <https://doi.org/10.1080/09720502.2017.1382145>

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

FUNDING

This research received no external funding.

COPYRIGHT

© Copyright 2026: Publication Service of the University of Murcia, Murcia, Spain.