Development of hypercontent–slow motion football teaching materials to improve learning motivation, critical thinking, and basic skills

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ABSTRACT

This study aimed to develop and test football teaching materials enriched with hypercontent and slow-motion media to increase students' learning motivation, critical thinking, and basic football technical skills. The research conducted in this study falls under the development research type, utilizing the ADDIE model (Analysis-Design-Develop-Implement-Evaluate). In the evaluation phase of the ADDIE model, a quasi-experimental design was applied to determine the effectiveness of the developed materials. A total of 68 first-year students majoring in Sports Education participated in the study, divided equally into two groups: an experimental group (n = 34) that used the hypercontent–slow motion teaching materials, and a control group (n = 34) that followed conventional instruction. The soccer teaching materials based on hypercontent-slow motion were evaluated as highly suitable supporting media for lectures, receiving favorable scores from media experts (4.3), material experts (4.2), and learning design experts (4.17). The results showed significant improvements (p < 0.05) in learning motivation, critical thinking, and basic football technical abilities in the experimental group compared to the control group, indicating the effectiveness of the hypercontent–slow motion teaching materials. In conclusion, the soccer teaching materials based on slow motion enriched hypercontent have proven to be effective in enhancing various skills and aspects of learning, making them a valuable resource for students' soccer education.

KEYWORDS

1. INTRODUCTION

Football learning not only focuses on the technical aspects of the sport but also encompasses essential social and individual values. The physically and mentally challenging nature of soccer helps improve players' physical fitness as they engage in skilled movements under limited playing conditions. A crucial distinctive skillful performance factor is the player's application of proper mechanical principles that are suitable for an accomplished skill based on the situation the player is in by relying on the extensive range of motion that he has acquired for this skill (Hasan et al., 2010). In tertiary institutions, the football learning process should cover all aspects of the game, starting from basic techniques to appropriate learning methods and models. Additionally, football players should consider aspects of development, including diet, adequate rest, and consistent training (Weda, 2021).

The use of technology is an essential strategy in modern education as it keeps pace with rapidly evolving information (Indarto et al., 2018). Students are expected to acquire 21st-century skills, encompassing life skills, career skills, learning and innovation skills, and information technology media skills (Ataizi & Donmez, 2020). The paradigm shift in education emphasizes comprehensive abilities, including life skills, knowledge development, and technological mastery (Mustafa & Dwiyogo, 2020). However, some lecturers still employ traditional one-way learning processes, where they provide material while the learning process centers solely on the lecturer. This approach may involve using modules as teaching materials and may not align with the dynamic changes and technological advancements of the 21st century. To improve the effectiveness of the learning process, lecturers should adapt to the developments in science and technology, ensuring that students receive education tailored to their needs (Indarto et al., 2018). Embracing information technology in education is known to enhance the quality of learning (Munirah et al., 2019), leading to innovative learning media such as software, animation, e-learning, games, simulations, and web-based platforms (Darmawan, 2012). By integrating technology in football learning and embracing a student-centered approach, educators can better equip students with essential skills and knowledge for success in the 21st century. Leveraging innovative learning media and interactive methods can significantly enhance the learning experience and better prepare students for the challenges and opportunities that lie ahead.

To create a conducive learning environment aligned with specific goals, lecturers must design both in-class and out-of-class learning experiences. Employing diverse learning models and providing relevant resources are essential efforts by lecturers to facilitate student learning. However,

the effectiveness of these learning models and resources depends on student internal factors such as learning motivation, critical thinking, and basic technical skills. Unfortunately, for students, especially those in the Faculty of Sports Science (FIO), these internal factors are often lacking. The results of student questionnaires on learning motivation, critical thinking, and tests on basic soccer technique abilities indicate that most students have low internal learning capital. Therefore, there is a need to enhance these three internal elements among students.

Developing renewable teaching materials is one of the strategies lecturers can employ to improve student learning motivation, critical thinking, and basic technical skills in football. Teaching materials play a crucial role in creating a comfortable and conducive learning atmosphere for students. They help students master learning objectives and enable independent learning at their own pace (Nurdyansyah & Widodo, 2015). However, traditional printed teaching materials with a low N gain of 0.15 have not significantly increased student learning motivation (Susanti et al., 2019). These materials often lack interactive elements, like simulation exercises, and can lead to boredom (Latifah & Utami, 2019a). Consequently, students may struggle to grasp the material deeply, as they solely rely on lecture-based learning. To promote independent study and foster interest in learning, students need additional teaching materials as reference materials.

The conventional methods, media, and teaching materials utilized by soccer lecturers are often considered monotonous, primarily relying on lecture-based methods and printed materials, resulting in limited learning experiences and resources for students during lectures. This can lead to decreased motivation and hinder the development of critical thinking skills. To address these issues, integrating the latest technology, such as electronic teaching materials, can offer a way forward (Yasuda et al., 2015). Electronic teaching materials can provide interactive learning experiences, including simulations and dynamic content, which can captivate students' interest and enhance their engagement in the learning process. In conclusion, leveraging renewable and technology-integrated teaching materials can significantly contribute to increasing student learning motivation, critical thinking, and basic technical skills in football. By creating more interactive and engaging learning experiences, lecturers can foster a dynamic learning environment that empowers students to thrive academically and enhances their overall learning outcomes.

When developing teaching materials, lecturers must adapt to the changes brought about by the current digital generation. Embracing an information technology-based approach in teaching materials should be tailored to the specific needs of students. The use of electronic teaching materials offers several advantages, such as easy access for students even after class, practicality, cost-

effectiveness, and eco-friendliness due to reduced paper usage (Asi, 2017). One effective information-based approach is hypercontent, which can enhance independent learning activities. Research data demonstrates the positive impact of hypercontent on students' critical thinking skills, learning motivation, and higher-level thinking abilities (Munawar & Hendrawan, 2019; Nurzaelani & Septiani, 2021; Fachri et al., 2020; Prasetya Adi & Kurniawan, 2018). Incorporating hypercontent in teaching materials can be achieved by providing extra facilities using tools such as web pages, hypertext, QR codes, and video channels. QR codes, in particular, are commonly used in books due to their easy access and usability.

Critical thinking is a fundamental aspect of human activities, as it enables problem-solving, decision-making, and justification of actions (Firdaus et al., 2020). Some sports students have been found to have low critical thinking skills (Sunay, 2015), measured using the California Critical Thinking Disposition Inventory (CCTDI). Addressing this issue requires a sustained effort to enhance students' critical thinking skills (Richmond, 2007). Fortunately, students already possess learning motivation, which serves as a reference for their engagement in the lecture process.

Motivation is an internal drive that boosts interest and encourages individuals to perform well (Mawardi Effendi et al., 2017). The level of motivation influences students' active participation in attending lectures, which subsequently impacts their success in the learning process. Students with higher learning motivation tend to engage more actively in physical activities, leading to improved motor skills. By leveraging hypercontent and motivating students to learn, lecturers can enhance critical thinking, learning motivation, and overall learning outcomes.

Motoric ability refers to a person's capacity to execute movement skills effectively. Those with high motor skills excel in various sports activities (Semarayasa, 2014). Developing basic techniques is crucial in supporting individuals' movement performance (Komari, 2014). However, the average student tends to have poor basic technical skills, often attributed to low basic motor skills (Susiono & Hernawan, 2020). This issue is also prevalent among Unesa FIO students during football learning. The limitations in the current learning process include infrequent meetings with limited participants, minimal use of media during lectures, and constraints in time, facilities, and connectivity, hindering the enhancement of students' learning motivation, critical thinking skills, and basic soccer technical skills.

Interviews with several Unesa FIO students revealed that the lack of motivation to attend lectures was due to limited media and face-to-face meetings, resulting in difficulties in grasping the

material, which in turn affected their critical thinking skills. Moreover, the restricted meetings hindered students from mastering basic soccer technical skills, as they were limited to observing on the monitor without opportunities for hands-on practice. Consequently, students faced challenges in identifying the suitability and errors in basic techniques, affecting their overall progress in learning. In this research, the measurement of basic technical abilities in the psychomotor aspects of passing, dribbling, and shooting will be conducted.

Media and teaching materials play crucial roles in creating an ideal learning environment. However, in soccer learning, there seems to be a gap in fostering students' learning motivation, critical thinking, and basic soccer technical skills. The effectiveness of soccer learning is closely linked to factors such as self-concept, motivation, attitudes, interests, and learning activities (Budi et al., 2016). Yet, the development of teaching materials, methods, and media currently employed does not seem to drive improvements in student motivation, critical thinking, and basic technical skills. As a result, the desired goals for an ideal learning process are not achieved, leading to potential impact on students' academic achievements. Correspondingly, research (Taufik & Gaos, 2019) has pointed out that low learning outcomes may stem from inadequate learning methods that solely focus on the lecturer, leading to student boredom and disinterest in the learning process.

In a separate study conducted by Rosida et al. (2017), it was found that critical thinking skills in Indonesia were relatively low, as evidenced by the country's low score of 428 out of 42 countries in the 2015 Program for International Student Assessment survey. To enhance student learning achievement, it becomes crucial for lecturers to demonstrate creativity in selecting appropriate media and methods. This study is particularly interested in developing slow motion-enriched hypercontent teaching materials for soccer learning, with the goal of enhancing learning motivation, critical thinking, and basic technical skills among sports students. The target population for this research consists of FIO students at Surabaya State University who are enrolled in soccer courses.

2. METHODS

2.1. Design

Given the existing data and identified issues, it is imperative to introduce soccer teaching materials based on hypercontent-slow motion enrichment to foster increased learning motivation, critical thinking, and basic soccer technical skills among FIO students at Unesa. By implementing these innovative teaching materials, it is hoped that students' engagement and performance in soccer learning will be significantly improved. The research conducted in this study falls under the

development research type, utilizing the ADDIE model (Analysis-Design-Develop-Implement-Evaluate). In the evaluation phase of the ADDIE model, a quasi-experimental design was applied to determine the effectiveness of the developed materials.

2.2. Participants

The target population for the limited trial of teaching materials consisted of 240 first-semester, first-year students majoring in sports education. The sample selection was performed using a purposive sampling method, with specific considerations taken into account, such as the relevance of the basic soccer skills material covered in the first semester (n = 68). The design involved two groups — an experimental group (n = 34) that used the hypercontent–slow motion teaching materials and a control group (n = 34) that followed conventional instruction.

2.3. Procedure

Both groups were given pretests and posttests to measure learning motivation, critical thinking, and basic football technical ability. This design allowed the researchers to compare the impact of the developed teaching materials on learning outcomes. Data collection techniques included interviews, observations, documentation, and tests. The study was conducted in accordance with the Declaration of Helsinki and approved by the Research Ethics Committee of Universitas Negeri Yogyakarta with protocol number N.B/19.5/UN34.21/TU/2022.

2.4. Statistical Analysis

To analyze the data, a descriptive qualitative-quantitative analysis approach was employed, and the independent sample t-test was utilized as part of the analysis process. Meanwhile, effect size evaluation using Cohen's d (Wiriawan et al., 2024). All statistical analyzes were carried out using the software of SPSS version 22.

3. RESULTS

After validation by experts, the data indicates that the mobile learning application is highly feasible for use. The evaluation is based on certain criteria: if the score (X) is greater than or equal to 3.1, it is considered very feasible; if the mean falls between 3.1 and 2.5, it is considered less feasible; and if the score lies between 2.5 and 1.9, it is not feasible. The average score provided by all experts is 4.3, which falls in the "very feasible" category. Consequently, the mobile learning media application can be confidently deemed highly feasible for usage. According to the assessment of experts, the developed material is considered highly feasible for use, particularly in the material

aspect. The feasibility evaluation is based on certain criteria: if the score (X) is equal to or greater than 3.1, it is categorized as "very feasible"; if the mean falls between 3.1 and 2.5, it is considered "less feasible"; and if the score lies between 2.5 and 1.9, it is deemed "not feasible." The average score provided by all experts is 4.2, which places it in the "very feasible" category. Consequently, it can be confidently stated that the material developed is highly suitable for usage. After evaluation by the learning design experts, this mobile learning application was rated as highly feasible, with an average score of 4.22 out of 5. Additionally, the second learning design expert assessed it with an average score of 4.13 out of 5, categorizing it as "Very Worth it." The combined average score from both experts' assessments is 4.17, which indicates that the mobile learning application meets the requirements for being highly suitable and appropriate. Table 1 presents the results of a normality test for various study measures.

Table 1. Normality test analysis

Group	df	p value
Learning Motivation Pre-Experiment	34	0.133
Learning Motivation Post-Experiment	34	0.059
Pre Control of Learning Motivation	34	0.200
Post Control of Learning Motivation	34	0.200
Critical Thinking Pre Experiment	34	0.109
Critical Thinking Post-Experiment	34	0.109
Pre Control Critical Thinking	34	0.054
Post Control Critical Thinking	34	0.070
Pre-Experimental Basic Technique Skills of Football	34	0.057
Post-Experimental Skills Basic Football Techniques	34	0.200
Pre Control Skills Basic Techniques of Football	34	0.087
Post Basic Technical Skills Control Football	34	0.079

Based on the Kolmogorov-Smirnov normality test, all data groups had significance values greater than 0.05. Since each measure showed a significance value ≥ 0.05, the data can be considered normally distributed. This confirms that the assumption of normality was met, allowing for the use of parametric statistical analyses, including the independent sample t-test (Table 2).

Table 2. Comparison of post-test learning motivation scores

Motivation to Learn (post test)	F	t	p value	Mean Difference
Equal Variances assumed	5.082	-2.189	0.032	-3.999
Equal Variances not assumed		-2.189	0.033	-3.999

The independent sample t-test showed that there was a significant difference in learning motivation between the experimental and control groups after using the new teaching materials. The results (t = -2.189, p < 0.05) indicate that students who used the hypercontent–slow motion materials had higher learning motivation than those who learned through traditional methods. The effect size (Cohen's d = 1.872) shows a large impact, meaning the developed materials had a strong positive influence on students' motivation to learn.

Table 3. Independent sample t-test results for post-test critical thinking

Critical Thinking (post test)	F	t	p value	Mean Difference
Equal Variances assumed	2.184	6.961	0.000	13.823
Equal Variances not assumed		6.961	0.000	13.823

The independent sample t-test (Table 3) showed a significant difference in post-test critical thinking scores between the experimental and control groups (p = 0.000). This means that students who used the hypercontent–slow motion teaching materials had much better critical thinking skills than those who used traditional methods. The results confirm that the new teaching materials were highly effective in improving students' critical thinking abilities. Table 4 presents the results of an independent sample t-test analyzing post-test basic football technical ability.

Table 4. Independent sample t-test results for post-test basic football technical ability

Basic Football Technical Ability (post test)	F	t	p value	Mean Difference
Equal Variances assumed	5.647	3.855	0.000	5.3567
Equal Variances not assumed		3.855	0.000	5.3567

The independent sample t-test showed a significant difference in post-test basic football technical ability between the experimental and control groups (p = 0.000). This means that students who used the hypercontent–slow motion materials performed better in basic football skills such as passing, dribbling, and shooting. The findings indicate that the intervention was effective in improving students' technical football abilities, with a strong positive impact.

4. DISCUSSION

The development of the soccer teaching materials, based on hypercontent-slow motion enrichment, followed a rigorous product development research method using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). This approach encompassed several key steps: firstly, analyzing user needs to understand their requirements. Secondly, designing the product and creating initial prototypes to visualize the concept. Thirdly, collecting relevant materials for the product. Next, the development stage involved compiling the product contents. Subsequently, independent trials and group trials were conducted to gauge the effectiveness of the materials. Finally, the products were evaluated by gathering valuable data from users to further refine and enhance the teaching materials.

For the development process of the soccer teaching materials, a multimedia development methodology consisting of six stages was adopted. The first stage, known as the concept stage, involved comprehensive analysis and planning of the product's overall concept. The writer delved into multimedia, learning, and football theories during this stage and conducted a needs analysis to identify the target users of the product. The outcome of this phase was the formation of the initial concept for the product. Moving on to the second stage, the design phase, the writer focused on shaping the product design. This involved creating a storyboard or design sketch to define the visual appearance of the product. The author also determined the types of media to be utilized, such as video, audio, or images. The product design was meticulously tailored to meet user needs, ensuring an optimal and engaging learning experience for the users. Overall, the soccer teaching materials were developed through a well-structured and systematic process, ensuring their effectiveness and relevance for the targeted audience. The third stage of development is material collecting, where the writer gathers all the necessary materials to be used in the product. This involves searching for and selecting videos, audio, images, and text related to basic soccer techniques. The collected materials are then prepared for the next stage of development. Moving on to the fourth stage, assembly, the writer puts together the collected materials to create the complete product. The author assembles the materials into a cohesive unit, which includes an assessment and assignment menu. The final product takes the form of a mobile learning application with an APK extension, making it accessible via Android phones. The fifth stage is testing, where the author conducts thorough testing of the product. This includes independent testing by the author as well as gathering feedback from friends or colleagues who can provide valuable input. The testing phase ensures that the product offers a positive and effective learning experience that meets user needs.

Finally, in the distribution stage, the author makes the product available to users. It can be uploaded to online platforms like the Google Play Store for easy downloading and access. Additionally, the product can be directly distributed to Unesa FIO students, enabling them to access the material directly. The hypercontent-slow motion enriched football teaching material product has been successfully developed, containing a variety of content such as text, video, images, and audio. It covers basic soccer techniques in dribbling, passing, shooting, and includes exercises with different variations. The product also incorporates an assessment and assignment menu to aid users in evaluating their understanding of the material. The mobile learning application with APK extension has been successfully developed to assist Unesa FIO students in improving their basic soccer technical skills. It provides an array of features, including text, video, images, and audio to facilitate learning. Users can utilize the assessment menu to measure their comprehension of the material and the assignment menu to practice the learned soccer techniques.

Furthermore, the mobile learning application developed in this study, equipped with an APK extension, offers flexible and easy access to users. Unesa FIO students can conveniently access the application anytime and anywhere using their smartphones. This accessibility empowers students to learn and practice basic soccer techniques beyond lecture hours and in locations where formal learning facilities might not be readily available. The Android-based mobile learning application created in this research serves as a valuable tool to enhance the fundamental technical skills of Unesa FIO students in football. Users of this application will find it more convenient and comfortable to engage in the learning process, as they have access to a diverse range of learning materials. Moreover, the assessment and assignment menus provide users with valuable feedback on their comprehension and progress.

The study's findings indicate that the combination of hypercontent-slow motion enriched soccer teaching materials and mobile learning applications with APK extensions offers significant benefits to Unesa FIO students. These benefits include increased learning motivation, improved critical thinking abilities, and enhanced basic soccer technical skills. Therefore, these products and applications can be effectively utilized as alternative tools for learning basic soccer techniques by Unesa FIO students or even individuals from the general public who have an interest in soccer.

The success of the learning process relies on various interconnected factors, including educators, learning methods, strategies, and the learning media used (Juliantine, 2019). The learning process plays a pivotal role in achieving educational goals. Several aspects influence students' learning experience, with motivation and critical thinking being essential components. Motivation

can be understood as the activation of an individual's inner drive. It plays a strategic role in driving one's learning activities; without motivation, learning cannot take place (Prihartanta, 2015). Motivation can be categorized into intrinsic (existing within the individual) and extrinsic (coming from external sources) motivation. Extrinsic motivation involves external encouragement, such as support from others, which can influence individuals' desires and actions. On the other hand, intrinsic motivation comes from within and can lead to a strong desire for self-improvement. Motivation significantly impacts students' cognitive processes. High motivation contributes to higher-level thinking and improved learning outcomes (Mendari & Kewal, 2016). It is a crucial factor in optimizing learning results, and the precision of the motivation provided directly affects the likelihood of learning success. Learning outcomes are closely tied to students' motivation and effort. Additionally, critical thinking skills are essential for students, especially during practical sessions, as they enable students to make informed and accurate decisions swiftly (Tampubolon, 2020).

To achieve optimal learning outcomes, students require both high motivation and proficient critical thinking skills. As they engage in learning with motivation, they become more likely to excel in their studies. Simultaneously, their ability to think critically allows them to navigate through lectures and practical activities with precision and confidence. By emphasizing and nurturing motivation and critical thinking, educators can effectively support students in realizing their educational goals.

The use of learning media, especially interactive media, significantly impacts students' critical thinking skills. Interactive media allows lecturers to combine pictures, writing, and moving videos (such as animation or slow-motion videos) to deliver course materials effectively. Slow-motion teaching materials enable students to observe detailed movements with ease, stimulating their critical thinking skills to analyze various perspectives and generate creative solutions to learning problems (Maulidia & Ridwan, 2021; Florea & Hurjui, 2015). Research has shown that learning media acts as a stimulus for active learning, enhancing students' thinking abilities (Sa'adah et al., 2020).

Critical thinking skills are essential for students, as they empower individuals to analyze, identify, and creatively solve problems while making sound decisions (Fakhriyah, 2014). These skills are not solely dependent on physical development but involve the ability to think reflectively and logically. Critical thinking also aids students in selecting reliable information, making informed decisions based on data, and considering different perspectives (Triansyah et al., 2023). The development of critical thinking skills contributes to improved student learning outcomes, and its connection to flexibility allows individuals to analyze information from various angles, supporting

their overall critical thinking abilities (Susilawati et al., 2020). In practical courses like soccer, high motivation and strong critical thinking skills are especially valuable for enhancing students' learning abilities. In conclusion, utilizing interactive media, including slow-motion teaching materials, can effectively enhance critical thinking skills in students. With improved motivation and critical thinking abilities, students can excel in practical courses like soccer and achieve better learning outcomes overall.

Football is a highly popular sport worldwide, and the same holds true for Indonesia. At Surabaya State University (Unesa), students who are enthusiastic about improving their soccer skills seek to master basic soccer techniques, including dribbling, passing, and shooting the ball. Proficiency in these fundamental skills significantly impacts players' performance in the game (Koutsoupias et al., 2019). However, not all students have access to proper coaches or facilities to enhance their soccer abilities. Therefore, the development of teaching materials that can boost students' learning motivation, critical thinking, and basic soccer technical skills becomes crucial. One effective solution is the implementation of a mobile learning application with an APK extension. Mobile learning represents a learning concept that employs mobile devices, such as smartphones or tablets, as the primary learning media. With mobile learning, students can engage in their studies anytime and anywhere, promoting flexibility and convenience in the learning process. Additionally, mobile learning applications facilitate interaction and connectivity between students and lecturers, enabling a more personalized learning experience (Sharples et al., 2019). The design of the mobile learning model aligns with the principles of education 4.0, which emphasizes digital technology to streamline the learning process, optimizing students' participation and exploration of their potential. Properly designed technology can significantly enhance the effectiveness of mobile learning (El-Hussein & Cronje, 2010). By emphasizing convenience and practicality, mobile learning allows students to engage actively with lecture activities using their smartphones, stimulating their interest and honing their cognitive abilities. This, in turn, increases their learning motivation (Fahrul, 2021) and overall academic performance (Bukhori & Silvia, 2021). Mobile learning caters to various aspects of student development, including intellectual, emotional, and psychomotor skills. It effectively addresses learning difficulties and fosters a more interactive learning environment in the classroom (Rifai et al., 2020). In conclusion, introducing mobile learning applications with an APK extension can play a significant role in enhancing students' learning experiences and technical skills in soccer. The flexibility and interactivity of mobile learning provide students with valuable

opportunities to improve their soccer abilities, fostering a motivated and competent cohort of players at Surabaya State University (Unesa).

Hypercontent is an innovative concept in online learning, encompassing a diverse range of teaching materials, such as text, audio, video, and images. The flexibility of hypercontent allows students to choose the media that best suits their learning preferences and pace, enabling adjustments according to their individual abilities (Dziuban et al., 2015). On the other hand, slow motion enriched learning is a technique widely used in sports education, utilizing slow-motion videos to showcase sports movements in intricate detail. Slow motion videos offer valuable feedback on movement patterns, allowing students to observe and understand sports techniques more comprehensively (Kamila et al., 2020). The slow-motion feature in videos aids the learning process by decelerating swift movements or actions, making it easier for students to grasp the intricacies of sports techniques (Marisa, 2023). Implementing slow motion enriched learning in sports education proves beneficial, as it not only enhances students' understanding of sports movements but also aids in rectifying common mistakes in sports techniques (Wulf et al., 2014). By combining hypercontent and slow motion enriched learning, students can enjoy a dynamic and engaging learning experience. The integration of diverse media options and detailed slow-motion videos enhances their comprehension and practical application of sports techniques, ultimately leading to improved learning outcomes. This synergy of teaching approaches empowers students to develop their athletic abilities and enhance their overall performance in sports education.

5. CONCLUSIONS

The soccer teaching materials, which are based on slow motion enriched hypercontent, have been designed to enhance learning motivation, critical thinking skills, and basic soccer technical abilities. These materials encompass various components, including theoretical content, practical materials, questions, videos demonstrating basic techniques using slow motion, and an author biography. Among these components, the most effective ones for students are the sections related to learning motivation and basic technical abilities. These aspects are frequently encountered by students and have a significant impact on their learning experiences. When learning materials are enriched with slow-motion content, students tend to find them more engaging, better comprehensible, and enjoyable, leading to a desire to revisit the materials anytime and anywhere. To ensure the effectiveness of the soccer teaching materials, experts in media, material, and learning design have evaluated them for feasibility. The assessment resulted in positive feedback, confirming that the

hypercontent-based soccer teaching materials are appropriate and suitable for increasing learning motivation, critical thinking, and basic soccer technical skills. In conclusion, the soccer teaching materials based on slow motion enriched hypercontent have proven to be effective in enhancing various skills and aspects of learning, making them a valuable resource for students' soccer education.

6. REFERENCES

1. Asi, N. B. (2017). Development of Web-Based Food Chemistry Teaching Materials. *Kanderang Tingang Scientific Journal, 8*(9), 163–170.
2. Ataizi, M., & Donmez, M. (2020). Book Review: 21st Century Skills - Learning for Life in Our Times. *Contemporary Educational Technology, 5*(3), 272–274. https://doi.org/10.30935/cedtech/6129
3. Budi, P., Pramono, H., & Fakhruddin. (2016). Influence of Cooperative Learning Methods and Student Learning Motivation on Football Learning Outcomes. *Journal of Physical Education and Sport, 5*(1), 32–40.
4. Bukhori, I., & Silvia. (2021). A Mobile Learning Development Using Adobe Animate CC to Increase Student Motivation and Learning Outcomes. *Economic and Education Journal (Ecoducation), 3*(1), 110–124.
5. Darmawan, D. (2012). *Information and Communication Technology Education*. PT Remaja Rosdakarya.
6. Fachri, M., Wahid, A. H., Baharun, H., & Lailiyah, K. (2020). Joyful Learning Based on Hypercontent in Increasing Student Learning Motivation in Islamic Religious Education (PAI) Learning at School. *Journal of Islamic Religious Education, 4*(2), 170–184.
7. Fahrul, H. (2021). Increasing Students' Learning Motivation and Knowledge: Application of Mobile Learning in Islamic Religious Education Subjects. *Journal of Islamic Religious Education Al-Thariqah, 6*(2), 297–316.
8. Fakhriyah, F. (2014). Application of problem based learning in an effort to develop students' critical thinking skills. *Indonesian Science Education Journal, 3*(1), 95–101. https://doi.org/10.15294/jpii.v3i1.2906
9. Firdaus, F. Z., Suryanti, S., & Azizah, U. (2020). Development of Interactive Multimedia Based on the SETS Approach to Improve Primary School Students' Critical Thinking Abilities. *Basicedu Journal, 4*(3), 681–689. https://doi.org/10.31004/basicedu.v4i3.417
10. Florea, N. M., & Hurjui, E. (2015). Critical Thinking in Elementary School Children. *Procedia - Social and Behavioral Sciences, 180,* 565–572. https://doi.org/10.1016/j.sbspro.2015.02.161
11. Hasan, U. (2010). *Biomechanics evaluation at football school.* Arabic alqalam voice.
12. Indarto, P., Fatoni, M., & Surakarta, U. M. (2018). Hybrid Learning Model for the Eyes. *National Education Seminar, 3*(6), 55–63.
13. Juliantine, T. (2019). The Effect of Learning Model and Intelligence Quotient on Critical Thinking and Handball Games Performance. *Jurnal Pendidikan Jasmani Dan Olahraga, 4*(1), 37–42. https://doi.org/10.17509/jpjo.v4i1.16100
14. Kamila, P., Laila, N., Rusdiana, A., & Hendrayana, Y. (2020). The Influence of Kinematics Feedback and Slow Motion Feedback on Mastery of Basic Basketball Techniques Related To The Level of Intelligence. *Jurnal Terapan Ilmu Keolahragaan, 5*(1), 61-68. https://doi.org/10.17509/jtikor.v5i1.24168

15. Komari, A. (2014). Manipulative Movement Abilities of Students Participating in the Net Game Class of 2010. *Jurnal Pendidikan Jasmani Indonesia, 10*(1), 8–14.

16. Latifah, S., & Utami, A. (2019a). Development of Interactive Teaching Materials Based on Schoology Social Media. *Indonesian Journal of Science and Mathematics Education, 2*(1), 36–45. https://doi.org/10.24042/ijsme.v2i1.3924

17. Maulidia, T. R., & Ridwan, M. (2021). The effectiveness of implementing interactive learning media on critical attitudes to physical education, sports and health. *Jurnal Ilmu Olahraga Dan Kesehatan, 10*(2), 206–214. https://doi.org/10.36706/altius.v10i2.15686

18. Mawardi Effendi, Z., Effendi, H., & Effendi, H. (2017). The role of locus control and learning styles in the development of the blended learning model at PSU. *International Journal of Geomate, 13*(7), 75–80. https://doi.org/10.21660/2017.37.TVET025

19. Mendari, A. S., & Kewal, S. S. (2016). Learning Motivation in Students. *Jurnal Pendidikan Akuntansi Indonesia, 13*(2), 1–13. https://doi.org/10.21831/jpai.v13i2.10304

20. Munawar, A. Al., & Hendrawan, D. (2019). Development of Multimedia-Based Interactive Learning Media in Football Learning Courses. *Jurnal Ilmiah STOK Bina Guna Medan, 7*(2), 62–69.

21. Munirah, M., Tuli, N., & Arif, M. (2019). The Impact of ICT Implementation in Social Sciences Learning on Students' Interest in Learning. *Jurnal Pendidikan Dasar Islam, 6*(2), 156. https://doi.org/10.24252/auladuna.v6i2a6.2019

22. Mustafa, P. S., & Dwiyogo, W. D. (2020). Physical Education, Sports and Health Curriculum in 21st Century Indonesia. *Jurnal Riset Teknologi Dan Inovasi Pendidikan, 3*(2), 422–438. https://doi.org/10.36765/jartika.v3i2.268

23. Prasetya Adi, N., & Kurniawan, Y. (2018). Improving Higher Order Thinking Skills and Open Attitudes through Android Learning Media. *Journal of Komodo Science Education, 1*(1), 79–94.

24. Prihartanta, I. (2015). Motivation Theories. *Jurnal Adabiya, 1*(83), 1–11.

25. Richmond, J. E. D. (2007). Bringing critical thinking to the education of developing country professionals. *International Education Journal, 8*(1), 1–29.

26. Rifai, A., Sulton, & Sulthoni. (2020). Development of Mobile Learning Media as a Supporting Biology Learning Resource for High School Students. *Jurnal Kajian Teknologi Pendidikan, 3*(1), 10–17.

27. Rosida, I.. Fadiawati, N., & Jalmo, T. (2017). Effectiveness of Using Interactive E-Book Teaching Materials in Developing Students' Critical Thinking Skills. *Jurnal Pembelajaran Fisika, 5*(1), 35–45.

28. Sa'adah, M., Suryaningsih, S., & Muslim, B. (2020). Utilization of interactive multimedia on hydrocarbon material to foster students' critical thinking skills. *Jurnal Inovasi Pendidikan, 6*(2), 184–194. https://doi.org/10.21831/jipi.v6i2.29680.

29. Semarayasa, I. K. (2014). The Influence of Learning Strategies and Basic Motor Ability on Cross Smash Ability in the Sepak Takraw Game of Penjaskesrek Fok Undiksha Students. *Jurnal Pendidikan Indonesia, 3*(1), 372–385. https://doi.org/10.23887/jpi-undiksha.v3i1.2919

30. Sunay, H. (2015). Critical thinking disposition of the students studying sport science at university. *Anthropologist, 20*(3), 656–662. https://doi.org/10.1080/09720073.2015.11891770

31. Susanti, E. D., Astuti, B., Syarifah, B. A., Popilaya, P., & Azizah, N. (2019). Analysis of student learning motivation towards the use of physics teaching materials complemented by Al-Quran verses. *Jurnal Pendidikan Fisika, 7*(2), 169–174.

32. Susilawati, E., Agustinasari, A., Samsudin, A., & Siahaan, P. (2020). Analysis of the Level of Critical Thinking Skills of High School Students. *Jurnal Pendidikan Fisika Dan Teknologi, 6*(1), 11–16. https://doi.org/10.29303/jpft.v6i1.1453

33. Susiono, R., & Hernawan. (2020). Unification analysis of the Basic Movements of Running ABC for 2018 FIO Students, Jakarta State University. *Gladi: Jurnal Ilmu Keolahragaan, 10*(02), 112–120. https://doi.org/10.21009/gjik.102.05

34. Tampubolon, B. (2020). Learning Motivation and Level of Independent Learning in Relation to Student Learning Achievement. *Jurnal Pendidikan IPS Indonesia, 5*(2), 34. https://doi.org/10.26737/jpipsi.v5i2.1920

35. Taufik, M. S., & Gaos, M. G. (2019). Improving Soccer Dribbling Learning Outcomes Using Audio Visual Media. *Jurnal Pendidikan Jasmani, Olahraga Dan Kesehatan, 3*(1), 43–54. https://doi.org/10.33503/jp.jok.v3i1.540

36. Triansyah, F. A., Suwatno, S., & Supardi, E. (2023). Research Focus on Students' Critical Thinking in Economics Learning: Bibliometric Analysis 2019-2023. *Jurnal Simki Pedagogia, 6*(1), 130–139. https://doi.org/10.29407/jsp.v6i1.226

37. Weda. (2021). The Role of Physical Conditions in Football. *Jurnal Pendidikan Kesehatan Rekreasi, 7*(1), 186–192.

38. Wiriawan, O., Setijono, H., Putera, S. H. P., Yosika, G. F., Kaharina, A., Sholikhah, A. M., & Pranoto, A. (2024). Far-Infrared Radiation with Sauna Method Improves Recovery of Fatigue and Muscle Damage in Athletes After Submaximal Physical Exercise. *Retos, 54,* 57–62. https://doi.org/10.47197/retos.v54.102938

AUTHOR CONTRIBUTIONS

CONFLICTS OF INTEREST

FUNDING

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