

Development of Uno Stacko Biology (Usb) Learning Media on Reproductive System Material Class Xi Sma Negeri 1 Palu

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ABSTRACT

We can now address the issue of students not actively learning about the reproductive system in the classroom. We can attribute this phenomenon to the belief that the reproductive system's material is excessively complex and primarily relies on rote memorization. The current issue is receiving significant attention and requires a thorough investigation from multiple stakeholders. The objective of this project is to create instructional media named Uno Stacko Biology (USB) that combines educational games to facilitate students' understanding of the reproductive system. The study utilized a 4D development paradigm, which encompasses the phases of defining, designing, developing, and disseminating, to conduct research and achieve progress. The study comprised a sample of 20 students enrolled in the eleventh-grade science class at SMA Negeri 1 Palu. The data collection procedure involved the use of instrument validation sheets from media expert lecturers 1 and 2, as well as response sheets from both students and teachers. The data analysis employed encompasses both qualitative and quantitative descriptive analysis methodologies. Media Expert 1 validated the Uno Stacko Biology (USB) learning medium on the reproductive system module, achieving a score of 90%. Media Expert 2 achieved a precision score of 83.3%. The feasibility component, together with the evaluations from media experts 1 and 2, yielded an average score of 86.5%, signifying a satisfactory degree of feasibility. Moreover, the statistics on student responses indicated a percentage value of 94.8%, while the teacher's response obtained a score of 96%. Therefore, we computed a mean score of 95.4%, which we categorized as "highly enjoyable." Consequently, the educational curriculum may effectively integrate the Uno Stacko Biology (USB) learning technology, which specifically emphasizes the reproductive system as a valuable learning tool.

Keywords: Uno Stacko Biology, Biology, Learning Medium, Reproductive System

INTRODUCTION

Biology classes, particularly those focusing on the reproductive system, have a reputation for being especially difficult for students. It will be more difficult for students to get optimal learning outcomes in the reproductive system if these learning challenges have a negative influence on students' academic performance and motivation. Sani et al. (2019) attribute pupils' ongoing struggles in biology to the inadequacy of the eleventh grade material.

In order to improve students' learning results, Latif et al. (2021) propose that teachers should participate in creative classroom activities while students study. Yulianti and Ekohariadi's 2020 study focuses on the cutting-edge development of game-based learning media, which combine learning with play to engage students as they learn. Educational games, according to Puspita and Putri (2023), can improve students'

capacity to concentrate on difficult course topics by stimulating cognitive processes. According to the writers, this is the case.

Researchers saw a need in the market for a biology-focused learning tool and created Uno Stacko in response. Playing Uno Stacko, an educational game shaped like a creative arrangement of colorful blocks, gives players the chance to learn new topics. Each of the following blocks includes a topic or issue pertaining to the reproductive system. Each student takes turns taking one block. We hope that by incorporating the educational game Uno Stacko into the classroom, we can inspire kids to have a strong desire to learn biology and remove the impression that it is a difficult topic. According to Ariski (2018), students from elementary school to college love playing Uno Stacko. Sinta and Prihatnani state in their 2018 article that the many benefits of the unostacko game include its portability, ease of play, and enormous popularity. As a result, they created a unified platform for instruction on the reproductive system for eleventh grade biology students.

MATERIALS AND METHODS

Researchers developed the teaching tool known as Uno Stacko to address the challenge of learning about the reproductive system. Researchers have modified Uno Stacko as demonstrated by Ariski (2018). She applied the modification to students of all ages, from elementary school children to college students. This suggests that the game is popular among education students. Sinta and Prihatnani (2018) say the unostacko game is appropriate for all ages, easy to play, and portable. These are all advantages that the game possesses. We utilized an integrated learning medium we developed to instruct the eleventh grade biology course's subjects. Players play the game of Uno Stacko by taking the blocks according to the rules, placing them back on top, and then maintaining them to prevent them from falling off.

$$\bar{x} = \frac{\sum Xi}{n} \times 100 \dots\dots\dots(1)$$

Note:

\bar{x} : Average Rating Score

$\sum Xi$: the sum of the scores from the assessors

n : number of appraisers

Table 1: Validity Level Criteria

Value	Category
81-100	Excellent
61-80	Good
41-60	Enough
21-40	Less
0-20	Very Less

The practicality test is known from the assessment of the questionnaire responses of educators and students with data analysis techniques seen in Table 2 (Akbar et al., 2021).

Value = (Total score obtained)/(Number of assessment items) X 100

Table 2: Criteria for Practicality Level

Value	Category
81-100	Very Fun
61-80	Fun
41-60	Quite Fun
21-40	Less Fun
0-20	Very Unpleasant

RESULTS AND DISCUSSION

The result of this research and development effort is an educational game called Uno Stacko Biologi (USB), which serves as an integrated learning medium. The development process followed a 4D model, involving many testing phases and subsequent revisions depending on received criticism and input recommendations. The development method for Uno Stacko Biology (USB) learning media products adheres to a 4D paradigm, consisting of four stages: define, design, create, and disseminate.

Define

Researchers must begin by delineating the learning circumstances through a thorough investigation of the students. The pupils that were selected. The class consisted of eleventh-grade students from SMA Negeri 1 Palu. The students in this class prefer an easygoing learning style and consider biology to be a challenging topic. In addition, we conduct an examination of learning objectives, formulating learning outcomes derived from the Common Core Principles (CP) outlined in the teaching module on reproductive system content. We conducted a thorough investigation of the media idea by creating a game called Uno Stacko for the purpose of examining the media concept. We will design the game with a focus on meeting specific learning requirements. We will define the key ideas to teach, organize them logically, and establish connections between each concept and the teaching process.

Design

The design stage involves creating a learning device suitable for using the Uno Stacko Biologi (USB) game as a learning medium. Preparing the following learning tools is necessary:

1. Teaching module
2. Reproductive system learning materials
3. The assessment instruments consist of media validation sheets and student and teacher response questionnaire materials.
4. The learning requirements guide the play strategy design.
5. Preparing the unostacko block
6. We are preparing prizes as a form of appreciation for the winning group.

Development

The development stage includes both the manufacturing and validation processes. Before students test the

finished product, a learning medium that showcases the educational game Uno Stacko Biology (USB), media and material experts conduct validation.

We create this medium by modifying the uno blocks, including a numerical value for each individual block. Each number within the range of 1 to 22 represents a distinct difficulty. In this game, each student must choose a block and provide a response to the problem that corresponds to the number on the block. This USB game adheres to a particular sequence: 1. The teacher divides the students into groups. The teacher provides instructions on how to play the game and outlines its regulations. 3. The game starts with either two or one delegate from each faction. 4. The first player cannot participate in the top three blocks. Students are required to respond to the questions within a time limit of two minutes, based on the numerical order of the blocks. Following the directions will result in a reward of 10 points, but completing the task in 2 minutes will only yield 5 points. 6. The next player chooses a block with the same number and color. 7. The game concludes when the block falls. The group with the highest number of points determines the winner upon completion of the activity.

Table 3: Validity Test Results

It	Assessment Aspects	Percentage (%)	Category
1	Media Member 1	90	Very Worthy
2	Media Member 2	83	Highly Worthy
	Average	86.65	Very Worthy

Disseminate

Both media specialists and material experts have endorsed the Uno Stacko Biology (USB) media as an educational tool for teaching the human reproductive system to grade XI students at SMA Negeri 1 Palu. Throughout the learning process, the researcher will carefully monitor student activities and administer questionnaires to get feedback from both students and teachers.

The course lecturer and class teacher have authorized the utilization of USB learning material in the classroom, enabling students and instructors to give feedback. This guarantees that both students and teachers offer input on the outcomes of the data analysis. We also use the media's feasibility analysis results as a guide to assess its appropriateness for use. We performed a comprehensive investigation of Uno Stacko Biology (USB), which is a modified version of the Uno Stacko block game. Media experts 1 and 2 evaluated the practicality of showcasing media and materials and assigned a percentage rating of 90% and 80.3% to the USB games developed by the researchers, respectively. Subsequently, we calculate the mean of the outcomes, resulting in an average score of 86.65%. This number corresponds to the "Very Feasible" standards for the biology learning process.

DISCUSSION

The evaluation of student and teacher input on the application of Uno Stacko Biology (USB) instructional media resulted in a student response rate of 94.8% and a teacher response rate of 96%. This resulted in an average score of 95.4%. The rating of "very fun" for this score indicates a positive response from both students and teachers towards the use of USB learning tools. Because they are able to study while having fun, students are enthusiastic, willing, and content to acquire knowledge through this medium. This is because it allows them to learn while having fun. Yulianti and Ekohariadi's (2020) research demonstrated that educational game-based learning media can effectively engage students throughout the learning process, despite the game's dull and unpleasant content.

A significant number of students at SMA Negeri 1 Palu are very enthusiastic about the use of USB game-integrated learning media in class XI. There is a clear correlation between USB and an increase in student learning interest, as well as an improvement in student learning results, particularly in the seventh-grade biology lesson on the reproduction system. We anticipate a significant benefit from USB. This finding is consistent with the research conducted by Dwi et al. (2022), which revealed that there is a direct correlation between the degree of interest that students have in studying and the academic successes that they achieve. This means that students who are not enthusiastic about learning may see a decline in their academic performance throughout their academic careers. According to Putri et al. (2023), students' early curiosity at SMA Negeri 1 Beringjin in 2022 had a significant and positive influence on their learning outcomes throughout the school year.

Despite its many advantages, the USB learning medium does have a few disadvantages. While the implementation process may be time-consuming, one of the most significant disadvantages is that children have a propensity to make an excessive amount of noise when playing. Without a doubt, enhancing this component is crucial to maintain a learning-friendly classroom climate and ensure sufficient time for the implementation of USB learning resources, specifically two hours and forty-five minutes (45 minutes times two). This finding is consistent with Fadlan's (2015) research, which examined the benefits and drawbacks of using Uno Stacko language media to enhance Japanese vocabulary. He observed that the students' intense interest in playing Uno Stacko could potentially destabilize the beneficial atmosphere in a classroom with more than twenty students. We recommend using educational resources for a maximum of twenty students in the classroom to establish a conducive learning atmosphere. When there are more than twenty students enrolled in a class, we divide them into bigger and smaller groups in order to keep a positive environment while making use of this instructional medium. Angelina (2019) successfully implemented this method by using Uno Stacko learning material in a classroom environment divided into two groups. While one group is actively participating in the game, the other group is only observing without providing any hints or signals about what they are doing.

CONCLUSION

The Uno Stacko Biology (USB) learning medium is an outstanding option for educational applications in the analysis of the human reproductive system. Both students and teachers have embraced it with tremendous enthusiasm, leading to the development of a captivating educational tool. Media experts 1 and 2 have confirmed the excellent input offered by both groups. We advise educators to utilize USB learning resources as an extremely effective offline learning tool. Therefore, we recommend that additional researchers focus their trials on the students, the classroom, and the overall state of the school. This is because adverse circumstances may significantly influence test results, potentially leading to the most favorable outcomes.

REFERENCES

1. Akbar. A., Ali. A., & Salahuddin., (2021). Development of powtoon-based biology learning media on cell material. *Journal of Islamic Education*. 3(2), 205-305.
2. Angelina, Mutiara. (2019). Development of Ta'Bīr Learning Media Based on Uno Stacko Game in MA Ibnul Qoyyim Putra Yogyakarta Students. *Al Mahāra Journal of Arabic Language Education*, 5(2), December 2019.
3. Ariski. D., (2018). Development of uni stacko geography (USG) game as a geography learning medium in natural disaster material class XI IPS SMA Negeri 16 Surabaya. *Swara Bhumi Journal*. 5(8).
4. Dwi. M. W. E., Sudarmin., Asrial., Haryanto Sanova. S., Agus. D. K., & Zannah. M. A., (2022). The influence of student interest on student learning outcomes in science subjects. *Indonesian Journal of Science Education*. 10(4) 849-861.
5. Fadlan, Shopia Wardah. 2015. The Effectiveness of Uno Stacko Mission Game Technique to Improve Japan Speaking Skills, (Online), Repository: Indonesia University of Education.
6. Latif. A., Rohmiyanti. W., Syafira. I., Wahidatul. S., & Dwi. A. H., (2021). The use of educational game-based learning media as an effort to increase the interest in learning of elementary school

students. Prosding SEMAI PGMI National Seminar.

7. Puspita. I. S., & Putri. B., (2023). Puzzle-based learning media improves reading and writing skills at the age of 4-6 years. *Journal of Technology and Information Systems, Univrab.* 8(2), 213-220.
8. Putri. A., Wahyuda. A., Humayroh. S., Rahayu. R., & Putri. A. R., (2023). The effect of student interest in learning biology on the learning outcomes of SMA N 1 Beringin students. *Scientific Journal of Biology Education.* 9(1), 123-127.
9. Sani. Y., Fitriandika. N. S., & Pomegranate. R. H., (2019). Analysis of student learning difficulties in biology material in grade XI of SMA Muhamadiyah-10 Rantauprapat. *Jomas Journal.* 1(3), 13-20.
10. Sinta. M. L., & Prihatnani. E., (2018). Development of USH learning media (Uno Stacko Hitung). *Journal of Mathematics Education.* 6(2), 150-161.
11. Yulianti. A., & Ekohariadi., (2020). The use of educational game-based learning media uses construct applications in basic computer and network subjects. *Journal of IT EDU.* 5(1), 527-533.