WEIT (What Element Is That?): A Learning Media on Periodic Table Based on Index Card Match (ICM) to Improve Senior High School Students' Learning Outcomes

WEIT (What Element Is That?): Media Pembelajaran SPU Berbasis *Indeks Card Match* (ICM) guna Meningkatkan Hasil Belajar Peserta Didik SMA/MA

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Abstract

Chemistry is a natural science discipline focusing on properties, structure, composition, chemical reactions. One of the studies on chemistry learning showed that more than 15.2% of students had difficulty memorising the elements in the periodic table. This is due to the many elements and ineffective learning methods. So, an interactive and fun learning method is needed. One of them is the WEIT (What Element Is That?) educational game, which is an innovation of the current game, Guess Who?. This research applies the R&D approach to the 4D development model and uses a quasi-experimental design. This research was conducted at SMAN 7 Padang, MAN 3 Padang City, & SMA Pembangunan Laboratorium Padang State University. The validity test obtained a validity value of 0.936 (valid category), with the results of the practicality test. The average value in the three schools is 0.955 (Very practical), 0.934 (Very practical), and 0.855 (Practical). In terms of effectiveness, the normality test was carried out with a p-value on the pretest of the experimental and control classes of 0.143 and 0.150, while on the post-test of the experimental and control classes were 0.149 and 0.168, indicating normally distributed data; t-test with a correlation value in the control class of 0.4221 (sufficient) and a very high value of 0.935 in the experimental class; finally the N-Gain test of the control and experimental classes was 50.07% (less effective) and 74.35% (effective), respectively. This indicates that WEIT games significantly improve students' learning outcomes on Periodic Table of Elements material. In addition, learner responses in the three schools showed a percentage of satisfaction, confirming that the WEIT game received a positive response from learners.

Keywords: Index card match, learning media, educational game, Periodic Table of elements, WEIT.

Abstrak

Kimia adalah disiplin ilmu yang berfokus pada sifat, struktur, komposisi, dan reaksi kimia. Penelitian terdahulu menunjukkan bahwa dalam pembelajaran kimia, lebih dari 15,2% peserta didik mengalami kesulitan menghafal unsur-unsur dalam tabel periodik beserta sifat unsur. Hal ini disebabkan oleh jumlah unsur yang banyak dan kurangnya metode pembelajaran yang efektif. Maka diperlukan sebuah metode pembelajaran yang interaktif dan menyenangkan, salah satunya dengan permainan edukatif WEIT (*What Element Is That*?) yang merupakan inovasi dari *game* Guess Who?. Penelitian ini menerapkan pendekatan R&D dengan model pengembangan 4D, serta menggunakan desain *quasi experimental*. Penelitian ini dilakukan di SMAN 7 Padang, MAN 3 Kota Padang Plus Keterampilan & SMA Pembangunan Laboratorium Universitas Negeri Padang. Pada uji validitas didapatkan nilai validitas sebesar 0,936 (kategori valid), dengan hasil uji praktikalitas nilai rata-rata pada tiga sekolah yaitu 0,955 (Sangat praktis); 0,934 (Sangat praktis); dan 0,855 (Praktis). Dari segi efektivitas dilakukan uji normalitas dengan nilai p-value pada *pre-test* kelas eksperimen dan kontrol adalah 0,143 dan 0,150, sedangkan pada *post-test* kelas eksperimen dan kontrol adalah 0,149 dan 0,168 yang menunjukkan data terdistribusi normal; uji-t dengan nilai pada kelas kontrol 0,4221 (cukup) dan sangat tinggi 0,935 pada kelas eksperimen; terakhir uji N-Gain kelas kontrol dan eksperimen secara berturut-turut 50,07% (kurang efektif) dan 74,35% (efektif). Hal ini mengindikasikan bahwa permainan WEIT secara signifikan efektif untuk meningkatkan hasil belajar peserta didik pada materi SPU. Selain itu, data dari respons peserta didik di tiga sekolah menunjukkan persentase kepuasan yang mengonfirmasi bahwa permainan WEIT mendapat respon positif dari peserta didik.

Kata Kunci: *Indeks card match*, media pembelajaran, permainan edukasi, sistem periodik unsur, WEIT.

1. Introduction

Chemistry is a branch of natural science that studies substances' properties, structure, composition, and reactions. It plays an important role in everyday life, such as manufacturing medicines, food, fuel, and cosmetics. However, most students have difficulty learning chemistry because chemical material is abstract, related to complex concepts, calculations, formulas, and scientific language (Hidayah et al., 2017).

One of the chemistry materials studied is the Periodic Table of Elements (SPU). This material focuses on the memory ability of students to remember the various elements in Periodic Table of Elements. Many students find remembering difficult because of the many elements and ineffective learning methods. In addition, students also have difficulty memorizing the elements in the periodic table, along with the properties of elements per class and period, with a percentage of 15.2% (Sari et al., 2018). A practical and fun learning method is needed to help make it easier for learners and students to remember chemistry and Periodic Table of Elements concepts (Suryana et al., 2018). One of the learning methods that can be used is through educational games. Educational games can provide an interactive, engaging, motivating learning experience for players, and create an atmosphere of "playing while learning". As for some educational games that have been proven to improve student learning outcomes, namely chemical playing card games using the TGT (Teams Games Tournament) learning model with a percentage of 57.01% (Sukarsih et al., 2018). In addition, UNO Card media is also proven to improve student learning outcomes with 79.31% completeness (Y. Sari et al., 2018).

One of the most popular games right now is Guess Who? This game is a board game played by two people. The goal is to guess the character chosen by the opponent by asking questions to the opponent, and the question can only be answered with "yes" or "no" (Plentifun, 2015). Each player has the same set of character images, and each character image has specific traits such as gender, hair colour, eye colour, or accessories used. The author's creative idea is to develop the game and name it "WEIT" (What Element is That?).

In the WEIT game, students can learn to recognize elements in the Periodic Table of Elements in a similar way as in the "Guess Who?" game. The difference is that the WEIT game uses the periodic table of elements as the basis of the game. The set of characters in this game includes the names of elements in the Periodic Table of Elements. Various physical or chemical properties of each element, such as group, period, atomic number, valence electrons, flame colour, and others, are used as criteria during the question-and-answer process and guess the opponent's element. In its implementation, this educational game will be integrated with the Index Card Match (ICM) type. Index Card Match (ICM) is a method used to encourage learners to find answers that match the question cards that have been prepared (Mulyawati, 2019). In other words, learners will take one of the big cards and have to guess the opponent's big card and strategize a suitable question to guess the opponent's big card. Before playing using the WEIT game, students first get initial learning about Periodic Table of Elements material and the properties of its elements.

This approach is expected to be a fun and practical way to help students understand the Periodic Table of Elements. This research aims to develop the Guess Who game into the WEIT (What Element is That?) game as a chemistry learning media to make it easier for students, especially at the high school level, to remember elements and their properties in the Periodic Table of Elements; and to find out the practicality of the WEIT game as a chemistry learning media.

2. Literature Review

2.1. Periodic Table of Elements

The Periodic Table of Elements is a list of elements arranged according to certain rules. Elements are grouped based on the similarity of elemental properties such as atomic radius, electronegativity, affinity, ionization energy, and so on (Sari et al., 2018). Understanding the Periodic Table also requires important concepts including: (a) atomic notation, (b) the number of particles (protons, electrons, neutrons) of an atom and ion, (c) elements that are isotopes, isobars, and isotones, (d) relative atomic masses of isotopes, (e) electron configurations in atomic shells, (g) electron configurations in atomic sub-shells, (h) valence electrons and so on (Haris et al., 2019).

2.2. Education Game-Based Learning Media

Media refers to any tool used to convey messages from the sender to the receiver in order to stimulate students' thoughts, feelings, attention, and interest, thereby supporting the learning process. One type of media that is favored by students is games (Bintiningtiyas et al., 2016). Educational games are games designed for learning purposes, combining educational content, learning principles, and gameplay. These games possess several key characteristics: (1) interactivity, (2) attractiveness and enjoyment, (3) applicability as both general and independent learning media, and (4) usability and compatibility (Suryana et al., 2018). The Periodic Table of Elements (PTE) presented through this game increases students' interest and facilitates their ability to recall the elements within the PTE. In addition, the game provides enjoyment and promotes interaction among students (Cahyana et al., 2017).

2.3. Game Guess Who?

In the game "Guess Who?" Theo Coster and Ora Coster design a game. The game was first published in 1979. many versions of the game "Guess Who?" have been published, including the deluxe, traveller, and online game versions. However, the way to play or the game's rules are almost identical. The essence of this game is that we must be able to guess the cards owned by the opponent by asking questions. Guess Who can be played by two people. The game components consist of 2 game boards, 24 mystery cards, 48 face cards and frames on the game board and two score counters (Plentifun, 2015).

This game has also been used for productive skills training for SMAN 2 Mengwi, Badung Regency students. They apply the rules here: Students are divided into several groups, and each group is allowed to play games. Each group had 1 minute to play. In this game, one student must take a paper that lists the names of his group members. After choosing one paper, the student must describe the student whose name is on the paper. Meanwhile, other students in the group try to guess who is described with a time limit of one minute (Utami et al., 2021).

2.4. WEIT (What Element is That?)

Like the "Guess Who?" game, the "What Element is That" game aims to guess the opponent's cards by asking limited questions. But the difference lies in what we will guess. If in the "Guess Who?" game we guess people, then here we will guess the elements in chemistry, whether they are the leading group or the transition group. Previous studies have proven that games are an effective method of increasing motivation, reducing anxiety, and reducing negative feelings felt by students during the learning process (Damayanti et al., 2020). Therefore, we try to modify this game in the hope that the learning process at school becomes interactive and fun.

2.5. Index Card Match (ICM)

The Index Card Match (ICM) learning model is an active and fun method for reviewing or revisiting learning material. This approach allows learners to work cooperatively in groups, pair up, and play quizzes with classmates. This activity not only encourages collaboration, but also reinforces understanding of previously learned material. Although generally used to repeat material, this model can also be applied to new material as long as learners are given an initial task to study the topic before the learning process takes place in class (Hamruni, 2012). In essence, Index Card Match is very suitable for teachers to use in creating learning that encourages student activeness. The activity of finding pairs between question and answer cards motivates students to be directly involved in the learning process. This model demands students' active involvement, focus, and critical thinking skills to effectively improve their understanding and memory of the subject (Istarani, 2014).

3. Research Methods

The type of research used is education design research with the R&D (Research and Development) model developed by Borg and Gall (Borg & M.D., 1989). This development model consists of four stages: define, design, develop, and disseminate (Khoiri, 2015). In the define stage, the process of formulating students' problems is carried out, which leads to difficulties in remembering elements and their properties in the Periodic Table of Elements. At the design stage, WEIT game mechanism design consists of determining the scope of Periodic Table of Elements material, game concepts and how to play the WEIT game. Then, at the development stage, continued the game card design stage of the front card and back card design), game packaging design, card printing and packaging, board game ordering and WEIT game assembly. At this stage, it is also done to perfect the learning media by incorporating revisions and suggestions. Moreover, the final stage is disseminate, where valid and practical media are obtained, and media dissemination is carried out.

The subjects in this study were three lecturers of the chemistry department of FMIPA UNP as validators, six chemistry teachers from SMA Pembangunan Laboratorium UNP, SMAN 7 Padang, and MAN 3 Padang Plus Skills as validators and practicality subjects, and also 45 phase E students (who took chemistry subjects) from different schools as practicality subjects. The instruments used in this study were validity sheets, practicality sheets, and pretest and post-test sheets. The validity sheet was used to test the validity of content, construct, and technical quality, with 23 questions. Then, the practicality sheet was used to evaluate the game based on the quality of content, appearance, language, and benefits, with nine questions. The pretest and post-test sheets were used to measure the effectiveness and improvement of student learning outcomes in small group trials during the learning process using the WEIT game. The validity test data was processed using Aiken's V formula as follows:

$$V = \frac{\sum S}{n(c-1)} \qquad s = r - I_0$$

Description:

s : $r - I_0$
I_0 : the lowest validity score (in this case 1)
c : the highest validity rating number (in this case 5)
r : the number given by the validator
n : number of validators

The validity category can be seen in Table 1 based on Aiken's V formula.

Table.1. Criteria for Validity Aiken's V

Aiken's V scale	Validity
V ≥ 0,80	Valid
V < 0,80	Invalid

(Aiken, 1985) .

The interpretation of data from the WEIT game's practicality test results was carried out by utilizing the following formula:

$$NP = \frac{R}{SM} \times 100$$

Description:

NP : Percent Value
R : Score obtained
SM : Maximum score
Source : Sari (2019).

Table.2. Criteria for Determining the Level of Practicality

No.	Value	Category
1	86% < x ≤ 100%	Very Practical
2	76% < x ≤ 85%	Practical
3	60% < x ≤ 75%	Practical enough
4	55% < x ≤ 59%	Less Practical
5	0% < x ≤ 54%	Not Practical

(Purwanto, 2020).

Information about students' learning outcomes was obtained by asking students questions before and after utilizing the WEIT game. Data from the pretest and post-test results are used to see whether there is an increase or decrease in students' knowledge after using the media. The data collected from the pretest and post-test sheets will be processed statistically using SPSS, with paired t-test and N-Gain test, to identify the effectiveness of the WEIT game on students' learning outcomes.

After collecting students' pretest and posttest scores, a Normalized Gain (N-Gain) analysis was conducted to evaluate the effectiveness of the WEIT educational game in improving students' learning outcomes. The interpretation of the N-Gain scores was based on Hake's (2007) modified categories:

Table.3. N-Gain Categories

N-Gain score (g)	Criteria
(<g>) ≥ 0,7	High
0,7 > (<g>) ≥ 0,3	Medium
(<g>) < 0,3	Low

(Hake, 2007).

To ensure the data met the assumptions for parametric testing, a normality test was performed to determine whether the data were normally distributed, followed by a homogeneity test to assess whether the variances between groups were equivalent (Sugiyono, 2019). Once the data met these assumptions, a paired t-test was conducted using SPSS software to analyze whether there were statistically significant differences between the pretest and posttest scores (Goss-

Sampson, 2019). This analysis aimed to determine the impact of the WEIT game on enhancing students' academic performance.

This study tested the null hypothesis (H_0), which indicates that using WEIT games does not impact learners' learning achievement $t_{calculated}$ and t_{table} values were compared to test this significance (Sudirman et al., 2023). Analysing the data using SPSS, if the $t_{calculated}$ value is smaller than the t_{table} value at the specified significance level, the null hypothesis (H_0) will be rejected, indicating that the independent variable (WEIT game) affects the dependent variable (learners' learning outcomes). The mean value of the N-Gain test was analyzed to evaluate the effectiveness of the WEIT game on learners' learning outcomes. Furthermore, the interpretation uses the N-Gain classification index and its categories. These results can then be related to the hypothesis set in this study.

4. Results and Discussion

4.1. Research Results

4.1.1. Validity Test Results

The validity test in this study will be analyzed through Aiken's V validity index, which has three categories: Content, Construct, and Technical Quality validation. The results of the validity test of nine validators, consisting of 6 chemistry teachers and 3 chemistry lecturers who are experts in their fields, can be seen in the following table..

Table.4. Validity Data Analysis

No.	Component	Value V	Category of Validity
1	Content	0,925	Valid
2	Construct	0,952	Valid
3	Technical Quality	0,932	Valid
	Average	0.936	**Valid**

Based on the results of validity data analysis, the resulting development stage has a valid category with an average Aiken's V index of 0.936. Although the results of validation data analysis have a valid category, there are suggestions, input, and improvements from validators to change certain parts of the WEIT game. Through this stage, revisions were made to the WEIT game based on suggestions and input from each validator to obtain valid results.

Figure.1. WEIT (What Element is That?) Game.

4.1.2. Practicality Test Results

Practicality data was obtained through a questionnaire filled out by 45 learners after the game was used in class learning. The students came from three different school backgrounds: 15

students from UNP Laboratory Development High School, 15 from MAN 3 Padang Plus Skills, and 15 from SMAN 7 Padang. The results of the data analysis are presented in the following table.

Table.5. Practicality Data Analysis

No.	Aspects	SMA Pembangunan		SMAN 7 Padang		MAN 3 Padang	
		Yield (%)	Criteria	Yield (%)	Criteria	Yield (%)	Criteria
1.	Content Quality	0,867	Very Practical	0,93	Very Practical	0,953	Very Practical
2.	View	0,91	Very Practical	0,99	Very Practical	0,973	Very Practical
3.	Language	0,8267	Practical	0,97	Very Practical	0,85	Practical
4.	Benefits	0,82	Practical	0,963	Very Practical	0,96	Very Practical

In addition to statistical testing, researchers collected data from students' responses to the WEIT game, as seen in Figures 2, 3, and 4.

4.1.3. Small Group Trial Results

1. Normality Test

The normality test, carried out using the Kolmogorov-Smirnov test, aims to determine whether the data obtained follows a normal distribution. According to the hypothesis, if the p-value is less than 0.05, the data is considered not normally distributed, while a p-value greater than 0.05 indicates a normal distribution. The results of the normality test are presented in Table 6.

Table.6. Validity Data Analysis

Class		Kolmogorov-Smirnov[a]			
		Statistic	Mean	df	Sig.
Control	*Pretest*	0,150	41,7143	14	0,200*
	Posttest	0,168	71,428	14	0,200*
Experiment	*Pretest*	0,143	40	14	0,200*
	Posttest	0,149	86,857	14	0,200*

The calculation results show that the p-values of the pretest of the control and experimental groups are 0.150 and 0.143, while in the post-test of the control and experimental groups, they are 0.168 and 0.149. All data show that the p-value $> \alpha = 0.05$ from these values indicates that H_0 is accepted. Thus, the data from both classes are normally distributed data.

2. Homogeneity Test

The homogeneity test assesses whether the variances in the two sample groups are equal. The null hypothesis (H_0) states that there is no disparity in variance between the control group and the experimental group. Conversely, the alternative hypothesis (H_1) states that there is indeed a difference in variance between the control group and the experimental group.

Table.7. Data Variance Homogeneity Test

Learner learning outcomes	Levene Statistic	df1	df2	Sig.
Based on Mean	9,764	1	54	0,003
Based on Median	8,644	1	54	0,005
Based on Median and with adjusted df	8,644	1	53.926	0,005

Based on trimmed mean	9,749	1	54	0,003

The data above shows that the post-test significance value of both groups is <0.05, which indicates that the data comes from heterogeneous sample groups. So that the variance of the two sample groups is taken from a population with different variations

3. **T-test**

Calculations were carried out to obtain the correlation between the *pretest* and *post-test* values for the control and experimental groups, as seen in Table 8.

Table.8. Data Variance Homogeneity Test

	N	*Correlation*	Description
Control group	14	0,4221	Simply
Experimental group	14	0,935	Very High

Based on the calculation results, the correlation value in the control group, given both treatments, is sufficient at 0.4221. In contrast, the treatment has a high correlation value of 0.935 in the experimental group. This illustrates that the control group has a low relationship between *pretest* and *posttest* scores. However, the experimental group has a high relationship between *pretest* and *posttest* values.

Table.9. T-Test Results of *Post-test* of Control and Experiment Groups

Class	Paired Differences			t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean			
Control	71,428	8,9932	2,40	-5,089	13	0,000
Experiment	86,857	6,9155	1,84			

Based on the data presented in Table 9, the $t_{calculated}$ value for the experimental group was -5.089, while the t_{table} value at *df* = 13 was 1.77093 at a significance level of *p* = 0.05 (5%). Therefore, the null hypothesis (H_0), which states that "there is no effect of the WEIT game on students' learning outcomes," is rejected. Conversely, the alternative hypothesis (H_1), which states that "there is an effect of the WEIT game on students' learning outcomes," is accepted.

4. **N-Gain Test**

The N-Gain Test aims to determine the increase in students' understanding as measured by learning outcomes before and after learning. Table 10 presents the average results of the N-Gain test in the two sample classes.

Table.10. N-Gain Score Calculation Results

Class	N	Post-test		N-Gain (%)
		Min	Max	
Control	14	25	80	50,07
Experiment	14	68,42	100	79,411

Table 10 shows that the increase in the N-Gain score in the experimental group is higher than in the control group based on the test results. The mean N-gain score for the control group was 0.5007, or 50.07%, which indicates a less effective category. Then, the mean N-Gain score for the experimental group was 0.7435, or 74.35%, which indicates the effective category.

4.2. Discussion

The WEIT (What Element is That?) game developed in this study has characteristics aligned with the Index Card Match (ICM) learning approach principles. ICM is one of the active learning strategies that emphasizes the direct involvement of learners through card-matching activities that contain questions and answers or interrelated concepts. This strategy has proven effective in increasing learners' engagement, cooperation, and understanding of the subject matter.

Based on the practicality test results, researchers also conducted statistical testing and collected data in the form of students' responses to the WEIT game, which can be seen in Figures 2, 3, and 4.
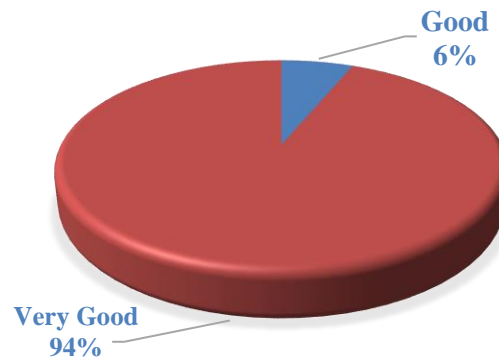

Figure.2. Response of students of SMAN 7 Padang to the usefulness of WEIT Game.

Based on Figure 2, the results of research conducted at SMAN 7 Padang, as many as 94% of students who were used as subjects stated that using WEIT game*s* was very effective in helping them remember and understand the Periodic Table of Elements material. This shows that most students benefit significantly from WEIT game*s* in the learning process. Meanwhile, another 6% of learners assessed that the WEIT game is quite good in helping learners remember and understand the Periodic Table of Elements material.
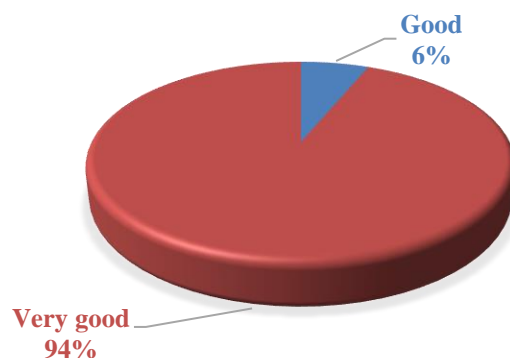

Figure.3. Response of MAN 3 Padang City Plus Skills Learners
to the usefulness of the WEIT Game.

Based on Figure 3, data obtained from students of MAN 3 Padang City, where students' responses to the use of the WEIT game as a learning media for Periodic Table of Elements material show results that are in line with the findings at SMAN 7 Padang. 94% of MAN 3 Padang City Plus Skills learners felt that the WEIT game helped them remember and understand Periodic Table of Elements material. Meanwhile, another 6% of learners rated the WEIT game as good in helping learners remember and understand the Periodic Table of Elements material.
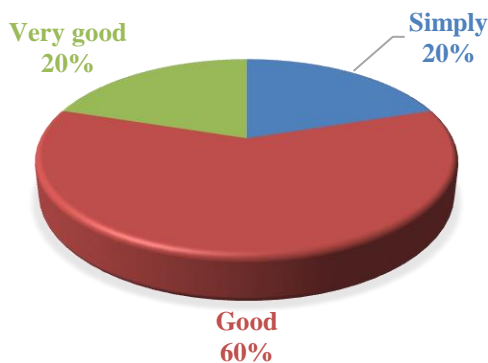
Figure.4. Response of students of SMA Pembangunan Laboratorium Padang State University to the usefulness of the WEIT Game.

Based on Figure 4, in addition to conducting trials in public schools (SMAN 7 Padang) and religious-based schools (MAN 3 Padang City), researchers also tested the use of WEIT game*s* in private schools, namely UNP Laboratory Development High School. The results showed variations in students' responses to the WEIT game as a learning medium. A total of 20% of learners rated the WEIT game as very effective in helping them remember and understand the Periodic Table of Elements material. In contrast, the majority, namely 60% of learners, assessed that the WEIT game was good in helping learners to remember and understand the Periodic Table of Elements material. The other 20% of learners rated the WEIT game as quite good in helping learners remember and understand the Periodic Table of Elements material.

In the small group trial, this research was conducted at SMA Pembangunan Laboratorium because the results of the practicality test at this school showed the lowest score compared to the other two schools, namely SMAN 7 Padang and MAN 3 Kota Padang Plus Skills. Thus, a small group trial was conducted at a private high school to identify the factors that might affect the low level of practicality and improve and optimize the learning media used. The selection of this school is expected to provide a more comprehensive understanding of the effectiveness of learning media in various educational contexts. The small group trial was conducted at one of the schools where researchers conducted the practicality test. Researchers chose SMA Pembangunan in two stages, namely pretest and post-test.

Furthermore, the data obtained from the pretest and post-test questions were analyzed and processed to conclude. Concluding this study using t-test and N-Gain test. Before conducting the t-test, data analysis first uses normality and homogeneity tests.

Based on Table 10 shows that the increase in N-Gain scores in the experimental group is proven to be higher than the control group based on the test results. The mean N-gain score for the control group is 0.5007 or 50.07%, which indicates a less effective category. Then, the mean N-gain score for the experimental group was 0.7435 or 74.35%, which indicates an **effective** category. The similarity of this approach with the ICM model strengthens the validity of the finding that interactive concept-matching-based learning positively impacts learner recall and engagement.

Not only in terms of learning outcomes, but findings from students' responses in the three schools also showed that the WEIT game was well received, especially in SMAN 7 Padang and MAN 3 Padang City, where 94% of students stated that this game helped them understand the Periodic Table of Elements material. This aligns with ICM principles prioritizing active participation, collaboration, and emotional engagement in learning.

5. Conclusion

Based on the results of the validity, practicality, and effectiveness tests that have been carried out, it can be concluded that WEIT (What Element is That?) learning media are proven to be valid, practical, and effective in improving student learning outcomes on Periodic Table of Elements material. The learning approach applied in the WEIT game has similar principles to the Index Card Match (ICM) method, which prioritizes interactive and participatory concept-matching activities. The similarity of these characteristics is proven to positively contribute to students' involvement in learning and a deeper understanding of concepts. Therefore, applying ICM-based strategies through interactive game media such as WEIT can increase the effectiveness of chemistry learning, especially in abstract materials that require memory reinforcement, such as the Periodic Table of Elements. Implementing WEIT learning media can be recommended as a recommended option for improving students' learning achievement.

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