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# PHYSICS LEARNING STRATEGIES ON THE TOPIC OF ARCHIMEDES PRINCIPLE IN PUBLIC HIGH SCHOOL 11 MEDAN

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**ABSTRACT**
This study aims to identify and determine strategies in physics learning on the topic of Archimedes principle that have been implemented by teachers at SMA Negeri 11 Medan. The type used in this research is qualitative research with descriptive approach. The population in this study were 2 teachers who had taught the topic of Archimedes' principle. The research sample was taken using *purposive sampling* technique as much as 1 (one) teacher as the main informant. Sampling is based on certain criteria from members of the population. The criteria are teachers who have long taught the topic of Archimedes principle and have teacher certification. Data collection techniques in the study were observation, interview, questionnaire and in-depth interview. Data analysis used is SWOT analysis with SWOT matrix approach, IFE, EFE, and IE. Based on the results of SWOT analysis, the strategies identified in learning the topic of Archimedes principle at SMA Negeri 11 Medan are 1) S-O strategy, i.e. teachers use learning demonstrations to become content creators. 2) W-O strategy, namely improving teachers' ability to use *software* and improving teachers' ability to create learning media to become content creators. 3) S-T strategies, namely teachers involve students in utilizing learning resources on the internet; teachers prepare *handouts* to facilitate learning; teachers prepare *powerpoints* as learning media. 4) W-T strategies, namely increasing teacher creativity in designing lessons to use learning time effectively and efficiently; increasing teachers' ability to use *software* to support learning; increasing teachers' ability to create learning media. Based on the results of the IFE and EFE analysis, the strategy determined is "diversification strategy". This strategy utilizes the strengths possessed in facing the challenges that exist, namely in the S-T strategy.

**Keywords:** Learning Strategy, Physics Learning, SWOT Analysis

## INTRODUCTION

Teaching and educating is not a simple task, it demands teacher professionalism. Teacher professionalism is the ability of teachers to perform their main duties as educators, including the ability to plan, implement and evaluate learning. This means that the teacher's professional ability to create learning that provides ease of learning for students. (Mas, 2008).

Learning strategy is one of the ways that teachers use in creating effective and efficient learning. Because the strategy can be interpreted as an activity plan to achieve something (Gulo, 2002). This learning strategy for teachers is used as a guide and reference for action in implementing learning. As for students, the use of

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learning strategies can facilitate the learning process and accelerate understanding of the learning content provided.

Nasution (2017) in (Kurniawan & et al, 2023) elaborating on learning strategies is a plan to achieve goals effectively and efficiently formed by a combination of the sequence of activities, methods and learning media used, as well as the time used by educators and students in learning activities. The role of teacher strategies in optimal learning activities will streamline the learning process so that the results achieved will be good. To create a good learning atmosphere a teacher must be able to use a variety of methods.

Teaching method is a knowledge of how to teach used by teachers or instructors to students in the classroom so that the lesson can be captured, understood and used by students properly. Based on observations and interviews with teachers who have taught the topic of Archimedes' principle at SMA Negeri 11 Medan, that the learning conducted by the teacher is by using the lecture method in explaining the topic of Archimedes' principle by preparing teaching materials in the form of *handouts*. The explanation given was about what Archimedes' principle is, how to determine Archimedes' force, discussing formulas and giving example problems. So that students can more easily understand the explanation of the material given by the teacher in front of the class, the teacher uses a variety of marker ink colors in writing the material. The learning media provided by the teacher is in the form of *powerpoint* which contains Archimedes principle material, example problems and practice questions. In addition to *powerpoint*, teachers can make media in the form of charta using cardboard paper, and learning videos taken from YouTube which are displayed in front of the class.

The teacher also uses the demonstration method, namely with objects placed on a spring and then dipped in water, to determine the buoyancy force. In the previous school year, the teacher conducted a practicum in learning the topic of Archimedes' principle, but in this school year the teacher did not conduct a practicum by using the demonstration method due to reduced learning time. In maximizing the learning carried out, the teacher allows students to search for learning materials on the internet, such as wanting to see real action in the learning delivered can be seen on the internet in the form of pictures or videos of events that occur in everyday life. Teachers also provide assignments in learning as an evaluation in students' understanding of the material that has been delivered.

Based on observations that have been made, the teacher is too fast in delivering learning material and does not reprimand students who do not follow the learning properly. The majority of learning is done using the lecture method so that students feel bored and lack of active students in learning. This makes learning centered on the teacher and not the students. In accordance with research (Suhendri & Mardalena, 2015) the background that physics learning activities carried out by several teachers in the classroom, generally make the teacher the center of learning and not students who are used as the center of learning. This resulted in a lack of student activeness in learning.

Teachers are not only enough to convey subject matter, but teachers must also be good at creating a good learning atmosphere, and also consider the use of methods in teaching that are in accordance with the subject matter and in accordance with the situation of students. Student learning activities are strongly influenced by teacher teaching activities, because in the learning process the teacher

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still has an important role in providing knowledge to students. (Syaiful, 2005). Through the use of the correct strategy, teachers must be able to know and realize their role and be aware of the learning process, teachers must be able to design active, creative and fun learning, as well as scientific approaches, teachers must be able to design learning in accordance with the curriculum and teachers must be technologically proficient in accordance with the demands of the times to support learning.

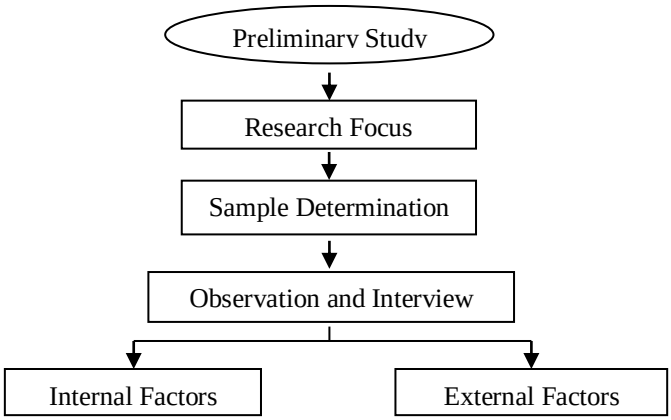
By getting a physics learning strategy on the topic of the Archimedes principle that makes students the center of learning (*student centered*) so that learning is carried out actively and the teacher will only provide direction or give a few examples which will then be developed by students. This is in accordance with the concept of the 2013 curriculum applied to class XI at SMA Negeri 11 Medan. Curriculum 2013 is a curriculum that prioritizes understanding, *skills*, and character education. Curriculum 2013 can be used as a guideline that requires students to be active in learning activities and not only centered on the teacher, but the teacher is only a guide or facilitator of students in the process of learning activities. (Triyono & Wiyani, 2022)..

This research is important to identify and determine physics learning strategies from factors that influence the learning process on the topic of Archimedes' principle at SMA Negeri 11 Medan which results in more meaningful student learning outcomes. What will happen if this research is not conducted is that learning is monotonous and there is no knowledge of the right strategy in learning on the topic of Archimedes' principle.

## RESEARCH METHODS

The type used in this research is qualitative research with a descriptive approach. This research was conducted at SMA Negeri 11 Medan which is located at Jalan Pertiwi No. 93, Medan Bantan, Medan Tembung District, Medan City, North Sumatra. The population in this study were 2 teachers who had taught the topic of Archimedes' principle. The research sample was taken using *purposive sampling* technique as much as 1 (one) teacher as the main informant. Sampling is based on certain criteria from members of the population. The criteria are teachers who have long taught the topic of Archimedes principle and have teacher certification. Data collection techniques in the study were observation, interview, questionnaire and in-depth interview. The data analysis used is SWOT analysis with SWOT, IFE, EFE, and IE matrix approaches.

The following research flow chart is presented in Figure 1.



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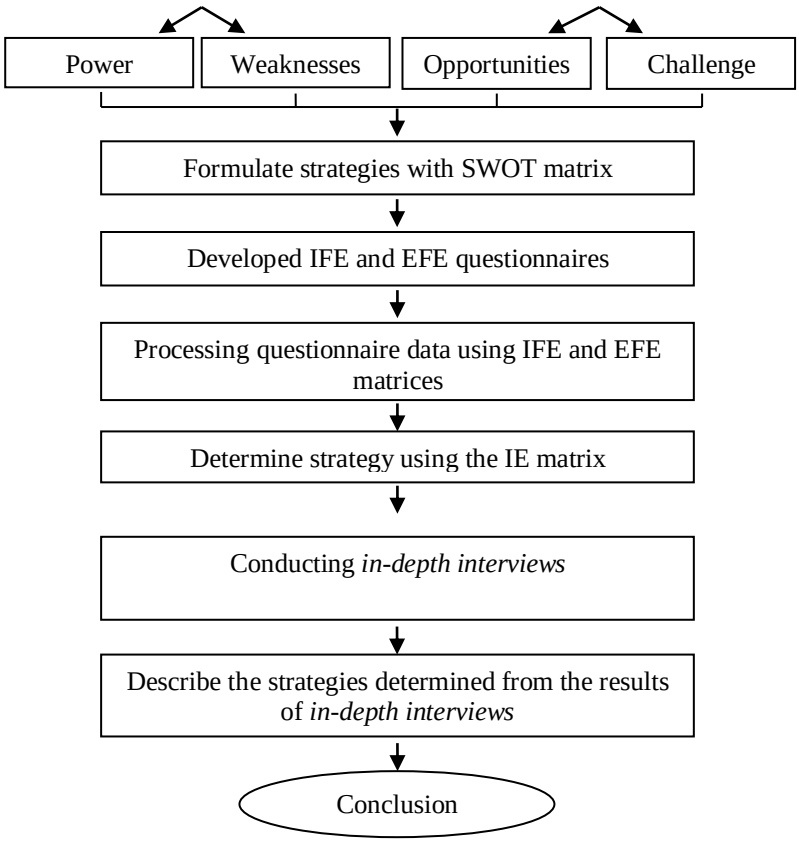


**Image 1** Research Flowchart

## RESULTS AND DISCUSSION

- **Research Results**

**1. Observation and Interview Results**

Based on observations and interviews conducted with teachers who have taught the topic of Archimedes' principle, internal and external factors were obtained. Internal factors are factors that come from within the individual and can affect the learning process. While external factors are factors from outside the individual that affect the learning process. (Dimyati & Mudjiono, 2015). Internal factors in this study are the strengths and weaknesses of teachers in teaching the topic of Archimedes' principle. External factors in this study are opportunities and challenges for teachers in teaching the topic of Archimedes' principle, both from policies, school facilities, technology and students. The following is a list of strengths, weaknesses, opportunities, and challenges that teachers have, including:

**A.** ***Strength***

1) Teachers use the lecture method in learning
2) Teachers use demonstration method in learning
3) Teachers allow students to get learning materials on the internet
4) The teacher asks students to present the results of the assignment discussion
5) Teachers prepare teaching materials in the form of *handouts*
6) Teachers prepare learning media in the form of *powerpoint*

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7) Teachers are able to prepare learner worksheets
8) The teacher uses a variety of ink colors in explaining the material on the blackboard

**B. *Weakness***

1) Learning is still teacher-centered
2) The teacher does not reprimand students who do not follow the learning well
3) Lack of teacher creativity in designing learning
4) Teachers are unable to utilize *software* to support learning
5) Teachers cannot create learning presentation media other than *powerpoint.*
6) Too fast to deliver the material

**C. *Opportunity***

1) Teacher as content creator in physics learning

**D. Challenge (*Threat*)**

1) Government demands to use IT in learning.

The following is the SWOT matrix in the formulation of learning strategies carried out by teachers on the topic of Archimedes' principle, as follows.

**Table 1** SWOT Matrix in Formulating Teacher's Learning Strategy on the Topic of Archimedes Principle

| IFE / EFE | ***Strengths (S)*** | ***Weaknesses (W)*** |
|---|---|---|
| | 1. Teachers use the lecture method in learning **(S )$_1$**<br>2. Teachers use demonstration method in learning **(S )$_2$**<br>3. Teachers allow students to obtain learning materials on the internet **(S )$_3$**<br>4. The teacher asks the students to present the results of the assignment discussion **(S )$_4$**<br>5. The teacher prepares teaching materials in the form of *handouts* **(S )$_5$**<br>6. The teacher prepares learning media in the form of *powerpoint* **(S )$_6$**<br>7. Teachers are able to develop learner worksheets **(S )$_7$**<br>8. The teacher uses a variety of ink colors in explaining the material on the board **(S )$_8$** | 1. Learning is still teacher-centered **(W )$_1$**<br>2. The teacher does not reprimand students who do not follow the lesson well **(W )$_2$**<br>3. Lack of teacher creativity in designing learning **(W )$_3$**<br>4. Teachers are unable to utilize *software* to support learning **(W )$_4$**<br>5. Teachers cannot create learning presentation media other than *powerpoint* **(W )$_5$**<br>6. Delivering material too quickly **(W )$_6$** |
| ***Opportunities (O)*** | **S-O Strategy** | **W-O Strategy** |

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| | | |
|---|---|---|
| Teachers as content creators of physics learning **(O )$_1$** | 1. Teachers use learning demonstrations to become content creators **(S -O )$_{21}$** | 1. Improve teachers' ability to use *software* to become content creators **(W -O )$_{41}$**<br>2. Improve teachers' ability to create learning media to become content creators **(W -O )$_{51}$** |
| ***Threats (T)***<br>1. Government demands to use IT in learning **(T )$_1$**<br>2. Teachers use time effectively and efficiently **(T )$_2$** | **S-T Strategy**<br>1. Teachers involve students in utilizing learning resources on the internet **(S -T )$_{31}$**<br>2. Teachers prepare *handouts* to facilitate learning **(S -T )$_{52}$**<br>3. Teacher prepares *powerpoint* as learning media **(S -T )$_{61}$** | **W-T Strategy**<br>1. Increase teacher creativity in designing lessons to use time effectively and efficiently **(W -T )$_{32}$**<br>2. Improve teachers' ability to use *software* to support learning **(W -T )$_{41}$**<br>3. Improve teachers' ability to make learning media **(W -T )$_{51}$** |

Based on table 1 of the SWOT matrix, four alternative strategies are obtained. The strategy formulation is as follows. First, the S-O strategy (strength-opportunity). In the formulation of this strategy, teachers utilize all the strengths they have and take advantage of the various opportunities that exist. Second, the W-O (weakness-opportunity) strategy. The formulation of this strategy is based on the utilization of existing opportunities by reducing teacher weaknesses. Third, the S-T strategy (strength-challenge). The formulation of this strategy uses strengths to face existing challenges. Fourth, the W-T strategy (weakness-challenge). This strategy is formulated to reduce weaknesses and face existing challenges.

**2. IFE and EFE Questionnaire Results**

In determining the strategy, it is necessary to analyze internal factors consisting of strengths and weaknesses and external factors consisting of opportunities and challenges. By using the IFE and EFE questionnaires given to the two teachers who have taught the topic of Archimedes' principle, the following data were obtained.

**Table 2** IFE (*Internal Factor Evaluation)* Matrix

| Internal Factors | $I_1$ | $I_2$ | Total | Weight | Rating | Weight × Rating |
|---|---|---|---|---|---|---|
| ***Strengths*** | | | | | | |
| The teacher uses the lecture method | 4 | 4 | 8 | 0.1111 | 4 | 0.4444 |
| The teacher uses the demonstration method | 4 | 3 | 7 | 0.0972 | 3.5 | 0.3402 |
| Teachers allow students to get learning materials on the internet | 4 | 3 | 7 | 0.0972 | 3.5 | 0.3402 |
| The teacher asks students to present the results of the assignment discussion | 3 | 3 | 7 | 0.0972 | 3.5 | 0.3402 |
| Teachers prepare teaching materials in the form of *handouts* | 4 | 2 | 6 | 0.0833 | 3 | 0.2499 |
| Teachers prepare learning media in the form of *powerpoint* | 3 | 3 | 6 | 0.0833 | 3 | 0.2499 |
| Teachers are able to compile LKPD | 3 | 3 | 6 | 0.0833 | 3 | 0.2499 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| The teacher uses a variety of ink colors in explaining the material on the blackboard | 3 | 3 | 6 | 0.0833 | 3 | 0.2499 |
| | **Total** | | **53** | **0.6165** | **18.5** | **2.4646** |
| ***Weaknesses*** | | | | | | |
| Learning is still teacher-centered | 1 | 2 | 3 | 0.0417 | 1.5 | 0.06255 |
| The teacher does not reprimand students who do not follow the learning well | 1 | 2 | 3 | 0.0417 | 1.5 | 0.06255 |
| Lack of teacher creativity in designing learning | 2 | 1 | 3 | 0.0417 | 1.5 | 0.06255 |
| Teachers are unable to utilize *software* to support learning | 1 | 2 | 3 | 0.0417 | 1.5 | 0.06255 |
| Teachers cannot create learning presentation media other than *powerpoint* | 2 | 2 | 4 | 0.0556 | 2 | 0.11120 |
| The teacher conveys the material too quickly | 2 | 1 | 3 | 0.0417 | 1.5 | 0.06255 |
| | **Total** | | **19** | **0.3835** | **9.5** | **0.42395** |
| | **Total** | | **72** | **1.00** | **28** | **2.88855** |

Based on the results of the IFE matrix, it can be seen that there are 8 strength factors and 6 weakness factors owned by teachers who have taught the topic of Archimedes' principle. From the internal factors, the total number is **2.88855,** where the number of strengths is **2.4646** and the number of weaknesses is **0.42395**.

The data obtained from the EFE matrix is as follows.

**Table 3** EFE (*External Factors Evaluation)* Matrix

| **External Factors** | **$I_1$** | **$I_2$** | **Total** | **Weight** | **Rating** | **Weight × Rating** |
|---|---|---|---|---|---|---|
| ***Opportunities*** | | | | | | |
| Teacher as content creator in physics learning | 1 | 2 | 3 | 0.25 | 1.5 | 0.375 |
| | **Total** | | **3** | **0.25** | **1.5** | **0.375** |
| **Challenges (*Threats*)** | | | | | | |
| Government demands to use IT in learning | 1 | 2 | 3 | 0.25 | 1.5 | 0.375 |
| The teacher uses time effectively and efficiently | 3 | 3 | 6 | 0.50 | 3 | 1.5 |
| | **Total** | | **9** | **0.75** | **4.5** | **1.875** |
| | **Total** | | **12** | **1.00** | **6** | **2.25** |

Based on the results of the EFE matrix, it can be seen that there are 1 opportunity factor and 2 challenge factors owned by teachers. From external factors, the total score is **2.25**, where the total opportunity score is **0.375** and the total challenge score is **1.875**.

### 3. *In-depth Interview* Results

In-depth interviews were conducted in this study to obtain more complete data from teachers who have long taught in class XI regarding the learning carried out on Archimedes' principle, challenges, and opportunities. The following are the results of in-depth interviews that have been conducted, namely In teaching the topic of Archimedes' principle, the teacher uses the lecture method. The lecture method is done by explaining what Archimedes' principle is and how to determine Archimedes' force, and discussing the formula obtained and giving example

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problems. The teacher also uses demonstrations, namely with objects placed on a spring and then dipped in water, to determine the buoyancy force.

In the previous year, teachers implemented practicum in learning. However, in this academic year, teachers did not carry out practicum by using the demonstration method due to reduced learning time.

In conducting learning on the topic of Archimedes' principle, the teacher prepares a summary of the material and sample problems in the form of *handouts* written on a notebook which will then be presented in front of the class. The learning media provided by the teacher is in the form of *powerpoint* which contains Archimedes' principle material, example problems and practice problems. In addition to *powerpoints*, learning media that teachers can display in front of the class are learning videos taken from YouTube channels.

The teacher said that the opportunity in learning Archimedes' principle is as a content creator, namely by making interesting learning videos and then uploading them to YouTube. However, teachers have not been able to make it, because they have not mastered making learning videos and using *software* such as making animations so that they are interesting to see and editing in making videos. Teachers have made learning videos, namely on the material of the equilibrium of rigid objects because it is material that is difficult for students to understand, but the video is monotonous, because the video is made like teaching in front of the class and the response of students who see it is normal, so the teacher feels less confident so he doesn't upload it to the YouTube channel.

In maximizing learning, teachers allow students to search for learning materials on the internet, such as wanting to see real action in the learning delivered can be seen on the internet in the form of pictures or videos of events that occur in everyday life.

**4. Documentation Results**

**Image 2** Observing the teacher's lesson

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Key Informant: Enti Siahaan, S.Pd
**Image 3** Initial Research Interview

Second Informant: Rosita, S.Pd

**Image 4** Administering the IFE and EFE Questionnaires with teachers who teach the topic of Archimedes' principle

**Image 5** *In-depth Interview* with teacher about learning on the topic of Archimedes' principle

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- **Discussion**

Based on the strengths, weaknesses, challenges and opportunities of teachers in learning the topic of Archimedes' principle, four strategies are obtained from the formulation of the SWOT matrix, as follows.

**A. S-O Strategy (*Strengths-Opportunities)***

Teachers use learning demonstrations to become content creators. Based on the results of in-depth interviews with teachers, teachers want to become content creators on YouTube channels. In the field of education, YouTube can be utilized as a learning medium. Especially in learning physics whose material really needs visualization media. The YouTube *platform* can be a place for a teacher to explore knowledge and practice to students by creating educational content. Educational content in physics learning is video content that contains information and knowledge that discusses phenomena in everyday life. Educational content on the YouTube channel can be in the form of animated videos, presentation videos and various other types of videos. (A'yuni & et al, 2022). Based on in-depth interviews with teachers that the learning videos made by the teacher are like learning done in class, the video becomes monotonous like the videos the teacher has made in other materials, namely the equilibrium of rigid objects. Therefore, the learning video made by the teacher was not uploaded to the Youtube channel.

**B. S-T Strategy (*Strengths-Threats)***

1. Teachers involve students in utilizing learning resources on the internet.
2. Teachers prepare teaching materials in the form of *handouts* to facilitate learning
3. Teacher prepares *powerpoint* as learning media

Of the several indicators of strength that teachers have, there are two indicators of strength in facing challenges regarding government demands to use IT in learning, namely teachers allow students to search for learning materials on the internet and teachers prepare learning media in the form of *powerpoints*. Arif Sudirman (1989) says that everything outside students that allows the learning process to occur is called a learning resource, namely internet technology which functions to provide convenience and flexibility in exploring knowledge. By using the internet, students get more information and gain knowledge. The internet can also be used as an alternative source besides books to make it easier to find information quickly and as much as possible, the internet is a learning resource that is utilized by teachers in developing their profession, because with the internet teachers can increase knowledge, share information among colleagues, collaborate with teachers abroad, opportunities to publish information directly, and organize communication regularly. Utilization of the internet as a learning resource conditions students to learn independently. Students can access online learning resources such as searching for learning information through *Google* and *Yahoo*, searching for data related to lessons and online libraries. (Martin & et al, 2022).

The utilization of information and communication technology (ICT) in the learning process according to the 2013 curriculum, encourages educators to develop creativity in preparing interesting and up-to-date teaching materials or materials so that students can understand the concepts taught. Based on the results of in-depth interviews, the learning media provided by the teacher is in the form of *powerpoint*. *Powerpoint* includes digital-based learning media that can be displayed with an *LCD Projector.* This presentation *software* is able to combine all media elements such as

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text, audio, images, graphics, video, and animation into a single presentation. (Rachman, 2022). *Powerpoint* prepared by the teacher contains Archimedes principle material, sample problems and practice questions.

As for the strengths that teachers have in learning Archimedes' principle by preparing *handouts*, it can facilitate teachers in learning so that the challenges of teachers using time effectively and efficiently can be met. *Handouts* are very concise teaching materials sourced from several literatures that are relevant to the subject matter and basic competencies taught to students. (Nasruddin & et al, 2022).

**C. W-O Strategy (*Weaknesses-Opportunities)***

1. Improve teachers' ability to use *software* to become content creators.
2. Improve teachers' ability to create learning media to become content creators

From several indicators of teacher weaknesses in teaching the topic of Archimedes' principle, there are two weaknesses that can be minimized by teachers in achieving opportunities as content creators, namely improving teachers' ability to use *software* and improving teachers' ability to create learning media. Based on in-depth interviews with teachers that if teachers get guidance in using *software* to create learning videos, such as in making animations or in video editing, then the video becomes interesting so that teachers upload it to YouTube which has the opportunity to become a content creator.

**D. W-T Strategy (*Weaknesses-Threats*)**

1. Increase teacher creativity in designing lessons to use time effectively and efficiently.
2. Improve teachers' ability to use *software* to support learning
3. Improve teachers' ability to create learning media

From several indicators of teacher weaknesses in teaching the topic of Archimedes' principle, there are two weaknesses that can be minimized by teachers in facing challenges regarding the government's demands to use IT in learning by increasing teachers' ability to use *software* to support learning and increasing teachers' ability to create learning media. In an effort to improve the quality of teaching and the quality of learning in accordance with the times, teachers should master computer programs, information and communication technology in order to utilize technology in teaching and learning activities. (Ceha & et al, 2016).

If teachers are creative in designing lessons, then the challenges of time used in learning can be effectively and efficiently. Because a teacher must be required to be creative, professional and fun. Creativity in learning is very important because it affects the quality of learning. Creativity is not something that is easy to do. However, creativity must be cultivated and created. Experts state that no matter how good a curriculum is (*official*), the results depend on what the teacher does inside or outside the classroom (*actual*). The quality of learning is also influenced by the attitude of creative teachers to choose and implement learning methods according to the time and needs of students. (Ramadhan, 2020).

To determine the alternative strategies used by teachers in learning the topic of Archimedes' principle, the IE (*Internal-External*) matrix is used from the results of the IFE and EFE analysis. The position of the strategy can be determined by the total score of the two matrices. Then the coordinate points obtained are as follows.

X-axis : strength score - weakness score (describes internal position)
X-axis : 2.4646 - 0.42395 = 2.04065

Y-axis: opportunity value - challenge value (describes external position)

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Y-axis 0.375 - 1.875 = -1.5

The coordinate points obtained are in **Quadrant II**, namely positive internal factors and positive external factors at the point **(2.04065; -1.5). The** strategy recommendation given is **diversification**. This position indicates that teachers have strengths in facing the challenges they have. The following is a picture of the strategy position in the IE matrix.

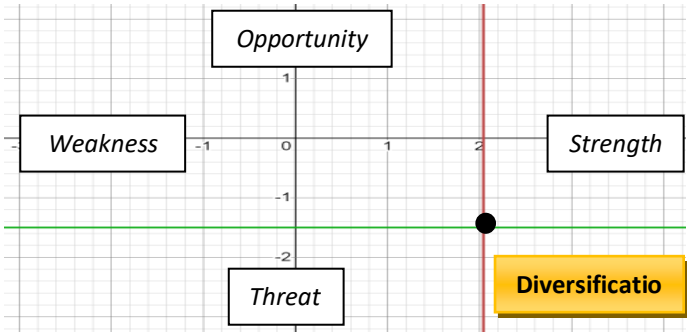


**Image 6** Strategy position in the IE matrix for learning the topic of Archimedes' principle

From Figure 6, the alternative strategy determined in learning Archimedes' principle at SMA Negeri 11 Medan is the **S-T (*Strength-Threat*) Strategy**. From several indicators of strengths owned by teachers, there are two indicators that are relevant in facing challenges regarding government demands to use IT in learning, namely teachers allow students to search for learning materials on the internet and teachers prepare learning media in the form of *powerpoints*. And from the strengths that teachers have in learning Archimedes' principle by preparing *handouts*, it can facilitate teachers in learning so that the challenges of teachers using time effectively and efficiently can be met.

## CONCLUSIONS

Based on the results of SWOT analysis, the strategies identified in learning the topic of Archimedes principle at SMA Negeri 11 Medan are 1) S-O strategy, i.e. teachers use learning demonstrations to become content creators. 2) W-O strategy, namely improving teachers' ability to use *software* and improving teachers' ability to create learning media to become content creators. 3) S-T strategies, namely teachers involve students in utilizing learning resources on the internet; teachers prepare *handouts* to facilitate learning; teachers prepare *powerpoints* as learning media. 4) W-T strategies, namely increasing teacher creativity in designing lessons to use learning time effectively and efficiently; increasing teachers' ability to use *software* to support learning; increasing teachers' ability to create learning media.

Based on the results of the IFE and EFE analysis, the strategy determined is "diversification strategy". This strategy utilizes the strengths possessed in facing existing challenges, namely in the S-T strategy, teachers involve students in utilizing learning resources on the internet; teachers prepare *handouts* to facilitate learning; teachers prepare *powerpoints* as learning media.

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