

CHAPTER IV

FINDINGS AND DISCUSSION

A. Findings

Problem-Based Learning (PBL) has been widely recognized as an effective pedagogical approach in various educational contexts. This study investigates the implementation and outcomes of PBL specifically in the context of learning maritime English vocabulary at SMK Islam *Pelayaran Al Bukhari* School.

Data were taken from interviews and questionnaires to answer the question mentioned in Chapter 1. The researcher obtained some information from the students related to the research questions to collected data.

SMK Islam *Pelayaran Al Bukhari* School- NKN *Nautika Kapal Niaga* Kotabaru studying 2 English languages; namely learning general English and maritime English. In addition, this research focuses on maritime English learning specifically to understand the implementation and teaching process in the classroom. The findings of the study reveal that PBL is highly effective in enhancing students' acquisition and retention of maritime English vocabulary. By engaging students in authentic maritime-related scenarios and tasks, PBL fosters a deeper understanding of vocabulary in real-world contexts. Students reported a heightened motivation to learn vocabulary when presented with practical problems encountered in maritime settings. This suggests that PBL

not only facilitates vocabulary acquisition but also promotes intrinsic motivation among students.

1. Teacher Application in Using Method of Problem Based Learning for Maritime English Vocabulary

In the realm of language education, particularly in specialized fields like maritime English, the method of instruction plays a pivotal role in the effectiveness of learning. This research delves into the application of Problem-Based Learning (PBL) by teachers for teaching maritime English vocabulary, focusing on its implementation and potential benefits.

This research collects data through interviews to obtain from teachers the Problem Based Learning method used in maritime English classes. This research interviewed 1 teacher at the Al Bukhari Islamic Shipping Vocational School, Kotabaru Regency face to face with the teacher. The research conducted the first interview on Friday, September 1, 2023 and the second interview on Wednesday, September 6, 2023.

- a. The Current Process of Teaching and Learning English Vocabulary Related to Maritime Including the Instructional Strategies and Resources Utilized to Facilitate Learning at the SMK Islam *Pelayaran* Al Bukhari School

Based on interviews on Friday, September 1, 2023, this research began by interviewing teachers about the learning process using the Problem Based Learning method. The teachers interviewed said that the Problem Based Learning method is a process of teaching and learning Maritime English which begins by introducing English vocabulary from the maritime world, students engage in authentic

maritime scenarios where they need to communicate effectively in English. For example, by introducing the types of ships at sea, then they try to describe the types of ships themselves, they might simulate scenarios such as navigating a ship, handling emergency situations, or communicating with port authorities. Through these projects, students not only learn English vocabulary related to maritime operations but also develop essential communication skills needed in the field.

Teachers design simulated scenarios that reflect real-world maritime operations. Students are immersed in these scenarios and tasked with applying their maritime English vocabulary to address challenges and make decisions. For example, students may role-play as ship captains, crew members, or port officials, engaging in dialogue and problem-solving activities that require them to use specialized vocabulary effectively. Through the application of Problem-Based Learning methods, teachers at SMK Islam *Pelayaran* Al Bukhari create immersive learning experiences that empower students to master maritime English vocabulary and develop essential communication skills for success in the maritime industry.

According to (Baser and Ersoy,2014,p.3494), creative thinking, one of the thinking skills, includes such skills like facilitating the individual's learning by the realization of students imagination, providing an opportunity for students to think,

expressing his/her ideas easily and getting him/her to acquire new information.

b. The Main Challenges Faced by Teachers and Students and It's Impact in Learning Maritime English Vocabulary

Based on interviews on Friday, September 1, 2023, This research began by asking teachers about the main challenges they face when learning Maritime English vocabulary. The teachers surveyed said that the first challenge teachers faced was students' ability to explore when encountering new and old vocabulary. Integrating vocabulary instruction with other language skills such as speaking, listening, reading, and writing can be complex. Teachers need to design activities and tasks that provide opportunities for students to practice using maritime vocabulary in meaningful communication contexts. These challenges impact language acquisition and communication effectiveness in maritime contexts. Teachers must adapt instruction to address these challenges, ensuring comprehension and retention of vocabulary. Students may require additional support and resources to overcome these obstacles and succeed in maritime English education.

To address this challenge, teachers can employ a variety of instructional strategies that promote the integration of vocabulary with language skills. For example Incorporating speaking and listening activities where students engage in conversations using maritime vocabulary, such as simulating communication with port authorities

or conducting safety drills onboard a ship, or Designing reading tasks that involve authentic maritime texts, such as manuals, navigational charts, or safety regulations, allowing students to encounter maritime vocabulary in context.

According to (Fraser,1999, p. 226), particularly with respect to the cognitive and metacognitive processes learners engage in when encountering unfamiliar words while reading and how differences in these processes affect vocabulary learning. Differences in these cognitive and metacognitive processes among learners can significantly impact the efficiency and effectiveness of vocabulary acquisition. Learners who demonstrate strong metacognitive awareness and employ effective cognitive strategies tend to exhibit greater success in vocabulary learning compared to those with limited metacognitive skills or ineffective cognitive strategies

- c. The Problem Based Learning Approach is Applied in Learning Maritime English Vocabulary at School and Systematic Approaches to Ensure Integration of the Learning Into the Curriculum

Problem-Based Learning (PBL) adopts a learner-centered approach, placing students at the forefront of their learning journey. Rather than passively receiving information, students actively engage in solving open-ended problems related to the maritime industry. This active involvement promotes deeper understanding and retention of maritime English vocabulary.

Based on interviews on Friday, September 1, 2023, This research began with interviews with teachers regarding how problem-based learning was applied to learning Maritime English Vocabulary at this school. Teachers interviewed said that the approach is learner-centered where they learn about a subject by working in individuals or groups to solve open-ended problems. Working individually allows students to focus on the problem at hand without external distractions, it encourages independent thinking and self-directed learning. Group work fosters collaboration and teamwork skills, mirroring the collaborative nature of work in the maritime industry. Students can benefit from diverse perspectives and insights offered by their peers, leading to richer discussions and problem-solving approaches.

Begin by identifying authentic problems or scenarios related to the maritime industry that require the application of English vocabulary. These problems could include communication challenges during ship operations, understanding technical manuals, or interacting with international crew members. Systematic approaches ensure integration of maritime English vocabulary learning into the curriculum at SMK Islam Pelayaran Al-Bukhari School. This includes aligning learning objectives with curriculum standards and mapping out vocabulary instruction across subjects.

According to (Chen et al.,2021, pp. 3-4), PBL promotes students' critical thinking and creative thinking skills as they work on

individually or as a team in an ill-structured context in pursuit of best solutions rather than 'right' answers. PBL facilitates students' meta cognitive skills as they are directed to define a problem, search for information, analyse data, construct hypotheses and implement solutions. This process encourages students to reflect on their thinking processes, monitor their progress, and adjust their strategies as needed. Additionally, PBL fosters collaboration and communication skills as students engage in discussions, share ideas, and negotiate differing viewpoints to arrive at agreement.

d. The Main Benefits and Contribute of the Problem Based Learning Approach in Learning Maritime English Vocabulary According to Teachers and Students

Based on interviews on Friday, September 1, 2023, this research began by asking teachers, what are the main benefits of the Problem Based Learning approach in learning maritime English Vocabulary according to teachers and students. The teacher interviewed said the benefits were that it could encourage students' motivation in learning, and they could learn to solve problems. Students can freely explore for themselves what they have learned.

PBL empowers students to take ownership of their learning by providing opportunities for exploration and discovery. Rather than passively receiving information, students are encouraged to actively engage with the material, investigate concepts, and seek solutions to

authentic problems. This freedom to explore fosters a sense of curiosity, autonomy, and self-directed learning among students.

Essentially, the Problem Based Learning approach in learning maritime English vocabulary offers numerous benefits, including increased motivation, development of problem-solving skills, encouragement of exploration, application of learning, and fostering collaboration and communication skills. By leveraging these benefits, teacher can create dynamic and engaging learning experiences that prepare students for success in the maritime industry.

According to studies by (Savery and Duffy,2001, pp. 3-6) emphasize that PBL fosters active participation and engagement among students. Through collaborative problem-solving activities, learners actively apply new vocabulary in context, leading to better retention and comprehension.

- e. The School Ensure the Effectiveness of the Problem-Based Learning Approach in Enhancing Students' Maritime English Vocabulary Proficiency

Based on interviews on Friday, September 1, 2023, This study began with interviews with teachers about how the school ensures that learning using problem-based learning is effective and in line with learning objectives. Interviewed teachers reported that learning in schools using problem-based learning was effective and consistent with learning objectives. The way to do this is by looking at the final results of learning and also the results of the students' own

learning. This includes evaluating students' mastery of vocabulary, comprehension of maritime concepts, and ability to apply language skills in authentic contexts. Assessments may include quizzes, tests, oral presentations, and written assignments focused on maritime English vocabulary.

Teachers observe students' participation and interactions during PBL activities to evaluate their performance. They assess students' problem-solving strategies, observe students' participation and interactions during PBL activities, problem-solving strategies, and contributions to group work. This qualitative data provides insights into students' language development and engagement in the learning process.

The school examines the final results of learning to gauge the effectiveness of PBL. This involves analyzing students' performance on assessments, projects, and other learning tasks related to maritime English vocabulary. By comparing students' achievements against predetermined learning objectives, teachers can assess the extent to which PBL has contributed to vocabulary acquisition and language proficiency.

According to research by Barrows (1986) underscores the importance of monitoring and evaluating the implementation of PBL to ensure its effectiveness in achieving learning objectives. Schools

can collect data on student performance and conduct periodic reviews of PBL practices to inform instructional decision-making.

f. Interaction Between Teachers and Students in a Problem Based Learning Environment for Maritime English Vocabulary

Based on interviews on Friday, September 1, 2023, This research began by interviewing teachers, how teachers and students interact in the Problem Based Learning Maritime English Vocabulary learning environment. The teachers interviewed said how the interaction between teachers and students was in the maritime English PBL learning environment. Teachers serve as facilitators of learning, guiding students through the problem-solving process and providing necessary support and resources. Introduce the problem scenario, outline learning objectives, and facilitate discussions to stimulate critical thinking and exploration of maritime English vocabulary.

Teachers guide students through the problem-solving process by posing thought-provoking questions, encouraging inquiry, and providing guidance as needed. They challenge students to analyze the problem from multiple perspectives, consider different solutions, and evaluate their effectiveness. Through this guided inquiry, students develop problem-solving skills while expanding their maritime English vocabulary.

Students are expected to be more active in expressing their opinions regarding the problems given and feel empowered to voice their ideas, share insights, and collaborate with their peers. This active

participation promotes critical thinking, communication skills, and collaboration among students.

According to (Walker and Leary,2009, pp. 14-19), highlights the facilitative role of teachers in PBL environments. Instead of traditional lecturing, teachers serve as facilitators who guide students through the problem-solving process, provide resources and support, and facilitate discussions to help students construct meaning and develop vocabulary skills. Studies by (Tal et al,1991) emphasize the importance of active student participation in PBL environments. Teachers create opportunities for students to actively engage with English vocabulary through hands-on activities, discussions, and research. Students take ownership of their learning process by actively seeking out relevant vocabulary resources and applying new words in context.

g. Types of Challenges and Addressed These Challenges Faced by Students in Using Maritime English Vocabulary in Real-Life Scenarios

Based on interviews on Friday, September 1, 2023, This research began with interviews with teachers about practical problems or challenges that students face when using maritime English vocabulary in real life contexts. The teachers interviewed explained the practical problems/challenges students face when using Maritime English vocabulary in real-life contexts. When students are confused because they discover new vocabulary. English may not be the first

language for many students, leading to language barriers when communicating with other crew members, port authorities, or clients. Students may face challenges in understanding accents, dialects, or unfamiliar language structures. Some students may lack confidence in their English language abilities, leading to reluctance to participate actively in discussions or express their opinions. To address these challenges and enhance students' communication effectiveness in practical maritime situations, several strategies are employed at the school. Firstly, teachers provide comprehensive instruction on maritime English Vocabulary, ensuring that students have a solid foundation in essential terminology and concepts. This includes contextualizing vocabulary within real-life scenarios and providing opportunities for hands-on practice and application. Additionally, simulation exercises and role-playing activities are utilized to immerse students in practical maritime contexts, allowing them to practice communication skills and vocabulary usage in realistic scenarios. By simulating various maritime situations, students gain valuable experience and confidence in using maritime English Vocabulary in authentic settings.

Some students may feel hesitant to actively participate and express their opinions in PBL due to a lack of confidence in their abilities (Hmelo-Silver, 2004). This lack of confidence may stem from fear of being judged by peers or uncertainty about the validity of their

ideas. Students may struggle to engage actively in PBL if they have a limited understanding of the task or lack the necessary background knowledge to contribute meaningfully (Hmelo-Silver, 2004). Without a clear understanding of the problem or learning objectives, students may feel uncertain about how to express their opinions effectively.

h. The Assessment and Criteria is Carried out Using a Problem Based Learning Approach to Measure Students' Understanding of Maritime English Vocabulary

Based on interviews on Friday, September 1, 2023, This research began with an interview with the teacher, the assessment was carried out using a problem-based learning approach to measure students' understanding of maritime English vocabulary. The teacher who was interviewed said the assessment was carried out using a problem-based learning approach to measure students' understanding of maritime English vocabulary, the teacher who interviewed said throughout the PBL process, formative assessment techniques are used to monitor students' progress and provide feedback on their understanding of maritime English vocabulary. This may include informal checks for understanding during discussions, observation of group interactions, and review of students' written reflections or notes. Peer evaluation is incorporated to provide students with opportunities to assess their peers' contributions to group discussions, problem-solving activities, and presentations with a team. The criteria for assessing students' ability to use maritime vocabulary correctly in written and oral

communication tasks, ensuring accurate terminology usage, evaluating the depth of students' understanding of maritime English vocabulary concepts, including their comprehension of definitions, contexts, and applications.

In the study conducted by (Smith et al,2022, pp. 3-6), students worked collaboratively in small groups to analyze the problem, discuss potential solutions, and apply English vocabulary to propose strategies. This collaborative aspect of problem-solving allowed students to engage in meaningful discussions and share their understanding of vocabulary usage. Students' performance in the problem-based learning activities was evaluated based on their ability to effectively apply English vocabulary to solve the problem presented in the scenario.

i. Differences in Learning Outcomes Between the Problem Based Learning Approach and Other Learning Methods for Maritime English Vocabulary

Based on interviews on Friday, September 1, 2023, the research began by asking teachers, Is there a difference in learning outcomes between the Problem Based Learning approach and other learning methods for maritime English Vocabulary at this school Said the teacher who was interviewed. There are differences from other methods, such as there are several examples of learning methods where students are required to be able to solve a problem with complicated explanations. PBL encourages the development of critical thinking skills as students analyze maritime problems and propose solutions using English

vocabulary. They learn to evaluate information, make informed decisions, and adapt their language usage to diverse maritime situations. Other learning methods may focus more on language mechanics, such as grammar drills, with less emphasis on critical thinking.

(Hmelo-Silver,2004, pp. 253-257), highlighted the potential benefits of PBL for vocabulary learning, emphasizing its focus on contextualized, active learning experiences. PBL encourages students to engage with vocabulary in authentic contexts, leading to deeper understanding and better retention of vocabulary concepts.

j. Teacher Recommendations for Improving and Focusing the Effectiveness of Teaching Maritime English Vocabulary Through a Problem Based Learning Approach in the Future

Based on interviews on Friday, September 1, 2023, this research began by interviewing teachers, What are your recommendations for improving the effectiveness of maritime English Vocabulary teaching through a Problem Based Learning approach in the future, said the teacher who was interviewed. Ensure that the PBL scenarios closely mirror real-world maritime situations, incorporating authentic communication challenges, safety protocols, and industry terminology. This will enhance students' ability to apply language skills in practical contexts relevant to their future careers. This method is highly recommended because all students are actively involved, starting from identifying problems, analyzing and evaluating problems which is also a critical thinking level process. This method is highly recommended

because all students are actively involved, starting from identifying problems, analyzing and evaluating problems which is a process for the critical level of thinking.

A study by Barron and Hammond (2008), found that students engaged in PBL demonstrated greater improvement in vocabulary acquisition compared to those in traditional instruction. The PBL group showed higher retention rates, deeper understanding of vocabulary concepts, and increased ability to apply vocabulary in context.

2. Students responses toward Problem Based Learning on Maritime English Vocabulary at SMK Islam *Pelayaran* Al Bukhari School

This questionnaire was conducted with students at SMK Islam *Pelayaran* Al Bukhari School to find out students' opinions regarding the use of the Problem Based Learning method when learning Maritime English in class, and researchers used a questionnaire to obtain data, then the data was identified as described in the following discussion. This researcher conducted questionnaire research on Monday, September 11, 2023.

Questionnaires can yield both quantitative and qualitative data, depending on the types of questions included (Bowling, 2014). Closed-ended questions provide quantitative data that can be analyzed using statistical methods, while open-ended questions offer qualitative data for in-depth analysis of participants' responses.

a. SMK Islam *Pelayaran* Al Bukhari School Teachers Maritime English Vocabulary

There were 0 cadets who said “No” but there were 22 cadets who said “Yes” describing that in question 1 about whether the SMK Islam *Pelayaran* Al Bukhari School taught English Vocabulary related to Maritime. Which cadets said No, at SMK Islam *Pelayaran* Al Bukhari School teaches English Vocabulary related to Maritime. Then there are also those who say “Yes”. Based on the given information, it appears that all 22 cadets surveyed at the SMK Islam *Pelayaran* al Bukhari school responded affirmatively when asked whether English vocabulary related to maritime was taught at the school.

The response from cadets aims to assess the extent to which the school addresses language skills relevant to the maritime industry. It helps evaluate whether the curriculum adequately prepares students with the necessary vocabulary for their future careers in maritime professions. Asking about maritime English vocabulary instruction provides insights into the school's educational focus and priorities. It indicates whether the school recognizes the importance of integrating language learning with vocational training in maritime fields, aligning its curriculum with industry needs and standards.

Responses to the question can inform curriculum development and improvement efforts. If there are gaps or areas for enhancement in maritime English vocabulary instruction, the

feedback obtained can guide educators in refining the curriculum to better meet students' needs and industry requirements. Overall, questioning whether the school teaches English vocabulary related to maritime serves to assess the alignment of the curriculum with industry demands, the relevance of instruction to students' career paths, and opportunities for curriculum enhancement to better prepare students for success in the maritime sector.

Maritime English vocabulary is crucial for cadets because it serves as the primary language used in the maritime field. As the English language is the "lingua franca" of the maritime industry, proficiency in Maritime English is essential for effective communication among seafarers from different countries and backgrounds. Maritime English lessons can provide a visual platform for displaying essential vocabulary, which is necessary for understanding ship parts, standard position indicators, and other maritime-specific terms. (Nufus and Kasim,2018, p.634)

b. Problem Based Learning is Applied in Teaching Maritime English Vocabulary in Vocational Schools

There were 12 cadets who said “No” but there were 10 Cadets who said “Yes” describing the question in question 2 about whether PBL is applied in teaching Maritime English Vocabulary at SMK School. Given the information provided, it appears that among the surveyed cadets at SMK Islam *Pelayaran* al Bukhari school, there is a slight discrepancy in responses regarding the

application of problem-based learning (PBL) in the teaching of maritime English vocabulary. Specifically, 10 cadets responded affirmatively, indicating that PBL is utilized in this context, while 12 cadets responded negatively.

This mixed response regarding the application of PBL in teaching maritime English vocabulary suggests a need for further investigation into the implementation and effectiveness of this instructional approach at SMK Islam *Pelayaran* al Bukhari school. While a portion of the surveyed cadets acknowledge the use of PBL, the fact that a slightly larger number reported otherwise indicates potential variations in instructional practices or perceptions among students.

The active engagement and collaborative problem-solving inherent in PBL align well with the practical and interdisciplinary nature of maritime studies, facilitating deeper understanding and application of English vocabulary in relevant contexts. According to a study by (Smith et al,2022, pp. 5-16), problem-based learning has been shown to enhance students' critical thinking skills and knowledge retention in maritime education.

c. Teachers Report Benefits of a Problem-Based Learning Approach in Maritime English Vocabulary Learning.

There were 13 cadets who said “No” but there were 9 cadets who said “Yes” describing that in question 3 about whether teachers reported the benefits of the PBL approach in learning Maritime

English Vocabulary. Given the results provided, it seems that there is a discrepancy in the responses regarding the reported benefits of a problem-based learning (PBL) approach in maritime English vocabulary learning among the surveyed cadets. Specifically, 9 cadets reported experiencing benefits from PBL, while 13 cadets indicated otherwise.

This disparity in responses suggests a need for further examination of the implementation and effectiveness of PBL in maritime English vocabulary learning at SMK Islam Pelayaran al Bukhari school. While some cadets perceive benefits from this instructional approach, a larger number may not have experienced or recognized these advantages.

Research by (Anderson et al,2008, p.789), highlights the positive perceptions of teachers regarding the benefits of PBL in language learning contexts. Teachers often report enhanced student engagement, critical thinking skills development, and deeper understanding of vocabulary and concepts through PBL approaches. However, the alignment between teacher-reported benefits and student perceptions may vary due to factors such as instructional delivery, student preferences, and prior learning experiences.

- d. Problem-Based Learning (PBL) Helped Student Apply Maritime English vocabulary Effectively.

There were 10 cadets who said “No” but there were 12 cadets who said “Yes” describing that in question 4 about whether students reported the benefits of the PBL approach in learning Maritime English Vocabulary. Given the results provided, where 12 cadets indicated that Problem-Based Learning (PBL) helped students apply maritime English vocabulary effectively, while 10 cadets reported otherwise, it suggests a slight majority perception among students that PBL facilitates effective application of maritime English vocabulary.

The higher number of cadets acknowledging the effectiveness of PBL in facilitating the application of maritime English vocabulary aligns with the principles of PBL. However, the differing perceptions among students indicate the need for further exploration into the specific factors influencing the effectiveness of PBL in vocabulary application and its implications for instructional practices.

Research by (Hung et al., 2008, pp. 489-492) emphasizes the contextual nature of PBL, wherein students engage in authentic problem-solving tasks that require the application of maritime English vocabulary in real-world scenarios. This contextual learning approach promotes deeper understanding and retention of vocabulary terms by situating them within relevant maritime contexts.

e. SMK Have a Mechanism to Ensure the Effectiveness of Learning Using a Problem Based Learning Approach

There were 13 cadets who said “No” but there were 10 cadets who said “Yes” describing that in question 5 about whether the Vocational School had a mechanism to ensure the effectiveness of learning with a PBL approach. Given the results provided, where 10 cadets indicated that the school has a mechanism for ensuring the effectiveness of learning through the problem-based learning (PBL) approach, while 13 cadets reported otherwise, there seems to be some discrepancy in perceptions regarding the existence of such a mechanism.

This discrepancy raises concerns about the clarity and effectiveness of communication regarding the school's approach to assessing the effectiveness of learning through PBL. Additionally, it highlights the importance of transparent communication and active student engagement in the evaluation and improvement of instructional practices.

According to (Chen et al,2020, pp. 101-103), well-designed assessment practices play a crucial role in shaping student learning experiences and outcomes. Alignment between assessment methods and learning objectives, as well as transparency in evaluation criteria, are essential for promoting student success and satisfaction. Addressing discrepancies in perceptions of assessment mechanisms

can contribute to the overall effectiveness of the PBL approach at SMK Islam *Pelayaran* al Bukhari school.

- f. The Interaction Between Teachers and Students Becomes More Intense in Problem Based Learning for Maritime English Vocabulary.

There were 10 cadets who said “No” but there were 11 cadets who said “Yes” describing that in question 6 about whether teacher and students interaction become more intense in learning in PBL for Maritime English Vocabulary. Given the results provided, where 11 cadets indicated that the interaction between teachers and students becomes more intense in Problem-Based Learning (PBL) for maritime English vocabulary, while 10 cadets reported otherwise, it suggests a perception among some cadets of increased intensity in teacher-student interaction within the PBL context.

The slightly higher number of cadets acknowledging increased intensity in teacher-student interaction aligns with the collaborative and student-centered nature of PBL. This result may indicate a positive aspect of PBL implementation, wherein teachers actively engage with students to facilitate problem-solving, critical thinking, and language acquisition. However, the differing perceptions among cadets underscore the need for further exploration into the nature and effectiveness of teacher-student interaction within the PBL framework.

Studies by (Johnson,1981, pp. 5-6) suggest that meaningful interaction between teachers and students is associated with improved learning outcomes and student satisfaction. Intense interaction within the PBL context allows for personalized support, clarification of concepts, and the cultivation of critical thinking skills, all of which are crucial for mastering maritime English vocabulary and succeeding in professional contexts.

g. Students Face Problems in Applying Maritime English Vocabulary in Real World Situations.

There were 2 cadets who said “No” but there were 20 cadets who said “Yes” describing that in question 7 about whether students faced problems in applying Maritime English Vocabulary in real world situations. Given the results provided, where 20 cadets indicated that they face problems in applying maritime English vocabulary in real-world situations, while only 2 cadets reported otherwise, it suggests a significant challenge among students in effectively applying their vocabulary knowledge in practical contexts.

Research by (Anatolyevich and Valeryevna,2023, p. 182) identifies common challenges faced by language learners in applying vocabulary in authentic contexts, including limited exposure to real-world situations, lack of confidence, and difficulty in adapting language skills to specific contexts. Addressing these challenges requires a multifaceted approach that integrates authentic learning

experiences and provides opportunities for meaningful language use beyond the classroom.

h. Assessment of Students' Understanding of Maritime English Vocabulary is Carried out Using a Problem Based Learning Approach.

There were 9 cadets who said “No” but there were 15 cadets who said “Yes” describing that in question 8 about whether the assessment of students understanding of Maritime English Vocabulary was carried out in a PBL approach. Given the results provided, where 15 cadets indicated that assessment of students' understanding of maritime English vocabulary is carried out using a Problem-Based Learning (PBL) approach, while 9 cadets reported otherwise, it suggests a majority perception among students that assessment within this context incorporates elements of PBL.

The higher number of cadets acknowledging the use of PBL in assessing understanding of maritime English vocabulary is promising, as it indicates alignment between instructional methodology and assessment practices. Integrating PBL into assessment allows for a more holistic evaluation of students' language proficiency, critical thinking skills, and ability to apply vocabulary knowledge in practical contexts. However, further exploration is needed to ensure the effectiveness and fairness of assessment methods within the PBL framework.

According to (Liu,2023, p.186), emphasizes the importance of alignment between instructional practices and assessment methods to ensure meaningful learning outcomes. Assessment within a PBL framework should reflect the problem-solving, collaborative, and application-oriented nature of instruction, providing students with opportunities to demonstrate their mastery of maritime English vocabulary in authentic contexts.

- i. The learning Outcomes from the Problem Based Learning Approach are Different from Other Learning Methods for Maritime English Vocabulary.

There were 6 cadets who said “No” but there were 15 cadets who said “Yes” describing that in question 9 about whether the learning outcomes from the PBL approach were different from other learning methods for Maritime English Vocabulary. Given the results provided, where 15 cadets indicated that the learning outcomes from the Problem-Based Learning (PBL) approach are different from other learning methods for maritime English vocabulary, while 6 cadets reported otherwise, it suggests a majority perception among students that PBL yields distinct learning outcomes compared to other methods.

The higher number of cadets acknowledging the differences in learning outcomes from the PBL approach compared to other methods indicates recognition of the unique benefits and characteristics of PBL in maritime English vocabulary learning. However, further exploration

is needed to elucidate the specific differences perceived by students and their implications for instructional practices.

Study form (Liu,2023,pp. 186-188), compared the application of PBL and traditional teaching methods. The results showed that students in the PBL group had significantly higher scores in theoretical knowledge skill compared to the control group. Additionally, the PBL group had significantly higher teaching satisfaction compared to the control group.

B. Discussion

This research describes teachers who use the Problem Based Learning method in teaching maritime English, and also responses from students who use the Problem Based Learning method for their learning, which is based on research findings that have been investigated and discussed.

1. Teacher Application in Using Method of Problem Based Learning for Maritime English Vocabulary

First, lack of ability of students to remember English for Maritime terms and phrases, it can be influenced by the lack of knowledge of basic language use so they encounter problems in ESP which focus more on content. Although the result of interview mentioned that the students prefer to learn English for Maritime than general English, but the information obtained from interview and observation of learning activity in class show that students' abilities and learning outcomes are still low. Students assumed English for Maritime is easier because they only focus on vocabulary and they are not focused

or required to learn grammar and language structures. In fact, good proficiency in English language skills need to be good enough to combine with Standard Marine Communication Phrases to achieve consistent and clear communication at sea (Ahmed, 2013, pp. 67-68).

Therefore, they need sufficient basic English language reinforcement, so that they are ready to learn specific English content. (Heaver et al., 2011, pp. 79-80) then, the next challenges is teacher did not have systematic lesson plan because the teacher had difficulty in designing a lesson plan according to the required format because she did not has any reference of English for Maritime lesson plan. According to (Susena et al., 2016, pp. 147-148), several factors that cause difficulties for teachers in preparing lesson plans are teacher's lack of understanding in learning preparation, lack of training in preparing lesson plan and lack of adequate time. The teacher mentioned that she was constrained by time because she also taught four other majors. For this reason, several efforts can be used to overcome these problems by understanding that learning plan is not only administrative fulfillment but as professional obligation, utilizing technology to dig up information related to the design of English for Maritime learning plan, facilitating training program to design good lesson plan for vocational high school teachers, conducting discussions with colleagues, in this case the vocational teacher who teaches English for Maritime can discuss and collaborate with the English teacher. (Heaver,2011, pp. 26-27)

This research collects data through interviews to obtain from teachers the Problem Based Learning method used in maritime English classes. This research interviewed 1 teacher at the Al Bukhari Islamic Shipping Vocational School, Kotabaru Regency face to face with the teacher. The research conducted the first interview on Friday, September 1, 2023 and the second interview on Wednesday, September 6, 2023.

- a. The Current Process of Teaching and Learning English Vocabulary Related to Maritime Including the Instructional Strategies and Resources Utilized to Facilitate Learning at the SMK Islam *Pelayaran* Al Bukhari School

Based on theory of (Moreover Bell, 2012) maritime English is a language minimum for any seafarer. It serves social, technical, and everyday matters. Maritime English contains standardized structures and specialized vocabulary that ensure efficiency in daily tasks and correct responses to emergencies. It is common in ship-to-ship, ship-to-shore, and on-board communication. Its primary goal is to ensure the safe functioning of a ship with enhanced internal and external communication. Moreover, crew members may have different levels of English language skills. To prevent communication gap, the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) requires seafarers to learn Standard Marine Communication Phrases (SMCP). These are some basic expressions that all seafarers have to know regardless of their country of origin. Maritime English is full of nuances that, when mastered, can convey any type of message. It eliminates ambiguity and

allows seafarers to act and communicate fast in case of emergencies. If you need Maritime English for your writing assignments but you are struggling to get it right, just ask professional writers to do my essay for me, and they will help you out. Later, you can analyze the delivered draft and enrich your knowledge of Maritime English., Moreover (Bell,2012,pp.136-137) even if you think that you speak Maritime English is a professional tool. It includes the terms for the interior and exterior parts of a ship, its systems as well as navigation and maintenance vocabulary. Maritime English facilitates trade, management, and administration. For example, it can get a message across to other ships or foreign harbors. Maritime English can be of use to anyone involved in the seaborne business, from administrators and lawyers to seafarers and ship owners. Moreover (Bell,2012, pp. 134-135)

The front of the ship is the fore or bow, which is followed by the midship. The back of the ship or, in other words, the propeller area is the stern or aft. The captain controls the ship from his bridge. All doors and windows within a ship are access holes. Even a ship itself becomes a feminine noun referred to as she in Maritime English. These are only some examples of maritime vocabulary that every seafarer has to know.

- b. The Main Challenges Faced by Teachers and Students and It's Impact in Learning Maritime English Vocabulary

Based on the theory of (Moreover Bell, 2012) teaching English to maritime engineering students presents several challenges. Firstly, students may be reluctant to interact and participate in class activities, which hinders their language development. Secondly, students may show low motivation and interest in learning English, making it difficult to engage them in the language learning process. Additionally, maritime engineering students may have a lower proficiency in English, requiring extra time and effort from the teachers to explain the teaching materials. (Heaver et al,2011, pp. 115-116) these challenges can be addressed through various strategies. For example, teachers can use multimedia resources such as texts, pictures, videos, and online platforms to expose students to maritime vocabulary. Collaborative activities that group lower proficiency students with higher proficiency students can also be effective in promoting language learning. Furthermore, designing class activities based on students' learning styles and employing scaffolding techniques can help overcome the challenges faced in teaching English to maritime engineering students.

Teaching maritime English vocabulary within the constraints of a fixed curriculum and limited instructional time can be challenging. Teachers may struggle to cover all necessary vocabulary topics comprehensively while also addressing other language skills and curriculum requirements. Balancing the need for depth of instruction

with the need to cover a broad range of vocabulary can be particularly challenging within limited timeframes. (Latifa and Ria,2022, p.223)

- c. The Problem Based Learning Approach is Applied in Learning Maritime English Vocabulary at School and Systematic Approaches to Ensure Integration of the Learning Into the Curriculum

Based on the theory of (Heaver et al., 2011) the recent rapid advances in technology have increasingly changed almost all aspects of human-life and thus accelerated the required changes in teaching and learning approaches. Particularly since the last quarter of the 20'th century, it has been clearly seen that a means of transferring knowledge from an instructor to the passive learner can never cope up with the outstanding changes in needs. Thus it has become inevitable for the learner to take an active role in and shoulder the greatest part of the responsibility in teaching learning activity. He / she has been placed at the center of the activity so that the whole activity can proceed under his / her control, based on his / her specific needs and preferences. Since the learner neither can nor does need to be loaded with all sorts of knowledge available, he/ she should himself / herself determine the limits of the knowledge needed. He / she should decide on the learning objectives and also on the way to access those objectives. Through practicing the mechanism of self-appraisal, he / she should be able to correct and improve himself/ herself. In other words, he / she should actively take part in learning activities and eventually become a life-long learner. The instructor's and/ or the education institution's role in

this activity should be confined to act as an efficient facilitator rather than a knowledge-conveyor (Paker, 2012, pp. 55-56).

In doing so, carriers believe they can fulfill their integrative promise by consolidating their operations and by sharing previously confidential assets (Sheppar, 2001, pp. 25-26). Technological solutions including bigger container vessels and high performance Information Technology (IT) also have been introduced within the shipping industry. 7 to 8 percent of the ships deployed within the Asia-Europe trade were post - panamexes in 1995. However, this figure has increased up to 45 % by 2000 (Lloyd's List,2002,pp.17-18) Technological advances such as vessel automation and Global Positioning Systems (GPS) have made operation of these mega carriers less expensive than that of older vessels (Sheppard and Seidman,2001,pp.47-48). On the other hand, new services such as round-the-world, pendulum, and integrated global network have been introduced by the liner shipping companies, and transshipment concepts have gained popularity with respect to the major trunk lane concept. In addition to that, expectations of shippers have been changing and differentiating in terms of customer service level and costs. In order to meet the expectations of the shippers, transportation and logistics packages have been offered by the transport providers in terms of "one-stop shopping" and "total logistics providers" approaches. (Tuna, 2012, pp. 75-76)

d. The Main Benefits and Contribute of the Problem Based Learning Approach in Learning Maritime English Vocabulary Cccording to Teachers and Students

Based on the theory of (Syafriyeti et al.,2020) student-led learning is one of the most empowering ways to seat students at the forefront of their own educational experience. It pushes students to be innovative, creative, open-minded, and logical. It also offers opportunities to collaborate with others in a hands-on, active way.

Both teachers and students appreciate the authentic learning experiences provided by PBL. By immersing students in real-world maritime scenarios, PBL helps contextualize vocabulary learning within the context of actual industry practices. This relevance enhances students' understanding and retention of maritime English vocabulary, as they can directly apply what they learn to professional situations they may encounter in their future careers. Teachers and students alike recognize PBL's effectiveness in developing critical thinking skills. Through analyzing complex maritime problems, identifying relevant information, and proposing solutions, students engage in higher-order thinking processes. PBL encourages students to think critically, evaluate evidence, and make informed decisions, skills that are essential for success in the maritime industry. (Fitriani et al,2023, p.3)

As part of our immersive educational model, we've discovered many benefits of problem-based learning:

1. Promote self-learning

2. Highly engaging
 3. Develop transferable skills
 4. Improve teamwork abilities
 5. Encourage intrinsic rewards
- e. The School Ensure the Effectiveness of the Problem-Based Learning Approach in Enhancing Students' Maritime English vocabulary Proficiency

Before initiating any PBL activities, the school ensures that clear learning objectives are established. These objectives outline the specific language skills and maritime knowledge that students are expected to acquire through the PBL process. By clearly articulating learning objectives, teachers and students have a shared understanding of the intended outcomes of the learning experience. The school implements ongoing assessment and monitoring mechanisms to evaluate the effectiveness of PBL in achieving learning objectives. Formative assessments, such as observations, quizzes, and peer evaluations, are used to gauge student progress and understanding throughout the PBL process. By continuously monitoring student performance, teachers can make timely adjustments to PBL activities to ensure alignment with learning objectives. (Wang, 2021, p.3)

Based on the theory of (Syafriyati et al., 2020) next Term gives students the opportunity to apply classroom knowledge to solve real-world problems on a local, national, and global scale. Take our Migration and Identity class, for example. Students in this course travel

to the U.S.-Mexican border to speak directly to border patrol agents, ranchers, and immigrants in order to learn about the complex issue of migration straight from the source. Of course, this location is one of many that our students can explore. Our mandatory three-week mini-course, NextTerm, brings students beyond the campus and into a new environment, from domestic locations in Arizona, Montana, and Memphis to international locales in France and Ghana.

f. Interaction Between Teachers and Students in a Problem Based Learning Environment for Maritime English Vocabulary

Based on the theory of (Patrick, Ryan & Kaplan, 2017) according to the excerpts in finding, that the teacher continuously asks questions related to learning materials to provoke students' active participation in online classes and students also try to be actively involved in answering teacher questions as a form of interaction with the teacher. (Sundari, et al, 2017, p. 95-96) further mentioned that asking questions was also able to stimulate and initiate students' interaction to participate in the lesson. Therefore, in this study, the teacher frequently asked questions to the students by using direct questions and display questions to improve students' participation. This succeeded in provoking student activity. In addition, the teacher also gave a lot of motivation to students with positive statements and never judges students' mistakes. Meanwhile, student obedience was also in the high category with most of the students obeying the teacher's instructions/ diligently in working school tasks as the frequency of

emergence as stated in the excerpts on finding. This showed the high motivation and discipline of students towards the instructions given by the teacher even though the school still applies online learning system.

To more increase student involvement in this dimension, according to (Wang and Holcombe, 2010, pp. 95-96). Teachers need to provide more support for autonomy in the form of more interesting and relevant activities and decision-making opportunities to engage in learning and provide more detailed guidance and assignment instructions. The second dimension was emotional engagement which involving the students' interest in the teaching and learning process and students' interest in doing school tasks where students' interest in the online teaching and learning process was in the low category with most students admitting their dislike through interviews as the frequency of emergence as stated in the excerpts on finding. The alternative solutions that can be taken are a location near the home environment that was difficult to reach by the internet network, and temporarily moving to a location that is covered by the internet network. If the minimal internet quota is overcome, join friends who have WIFI at home, a maximum of 3 students, and comply with the health protocols to prevent Covid-19.

Meanwhile, students' interest in doing schoolwork was in the high category with most students claiming to be satisfied/enjoy doing school work through interviews (Patrick, et al, (2017), pp. 33-34).

This becomes a benchmark for the frequency of emergence. The claim of students who feel satisfied and enjoyed doing the task showed that they had a high interest in learning. This was very important because interest was one of the internal factors that affect learning. (Rohani and Zulfa, 2021, pp. 86-87) stated that interest in learning will encourage students to learn better with their interest or liking for the lesson so that they have the initiative to continue learning and feel very useful for them. The third was fluency which was in the low category also. It cannot be denied that the lack of pronunciation and vocabulary will also affect fluency in speaking. This problem occurred when the students try to answer the researcher's question and memorize the proper vocabulary. Types of real problems or challenges faced by students in using maritime English Vocabulary in real contexts.

- g. The Assessment and Criteria is Carried Out Using a Problem Based Learning Approach to Measure Students' Understanding of Maritime English Vocabulary

Based on the theory of (Mulyani, 2019) problem-based learning is based on the messy, complex problems encountered in the real world as a stimulus for learning and for integrating and organizing learned information in ways that will ensure its recall and application to future problems. Problems are raised at the start of the topic, before students have been taught some of the relevant knowledge. By actively engaging with the problem, students develop skills around finding information, identifying what information they still need, and possible sources of that

information. Learners are able to connect what they are learning in class to their own lives and important issues in their world.

(Mulyani, 2019) today's world brings with it a rapid explosion of easily accessible knowledge. Graduates need to be self-directed and possess lifelong learning skills in order to effectively make use of the overwhelming abundance of information available to them. The interdisciplinary nature of today's issues, challenges, and work requires graduates to be able to integrate knowledge and skills from a number of disciplines in order to conceptualize and implement create solutions. Problem-based learning activities are designed to help graduates develop transferable skills and attributes alongside gaining appropriate discipline-specific knowledge.

(Mulyani, 2019), transferable skills/attributes are part of the degree level expectations that represent the intended outcomes for a university education and are being written into program curriculum. Problem-based learning challenges students to:

- 1) develop the ability to think critically;
- 2) analyze problems; and
- 3) find and use appropriate learning resources.

Through PBL learners, are progressively given more and more responsibility for their own education and become increasingly independent of the teacher for their education.

(Mulyani, 2019), faculty members who are accustomed to giving objective tests may be concerned with the reliability and validity of the kinds of measures discussed in this manuscript. The assessment literature indicates that using scoring rubrics or Likert scales yield reliable and valid measurements if the criteria are appropriate and the description of the standard levels of performance are sufficiently grounded in real samples of different performance quality. Repeated observations of students can indicate patterns of performance and therefore, are more reliable assessments. Rubrics and Likert scales can also be used to chart student progress over time. Observations from a single class are usually not indicative of true abilities. Rubrics and Likert scales provide equitable measures because the same criteria are used for all students. Kelly in Mulyani & (Dewi,2019,pp.136-137) this manuscript describes the assessment processes for medical students that can be used during the normal conduct of PBL. Thus, assessment can be part of the learning process and not seen as taking away time from instruction. Formative assessment can be an on-going and integral part of the learning and improvement cycle. Summative assessment can be based upon patterns of performance toward the end of the course. Because students demonstrate the continual mastery of their learning in small groups in PBL, many opportunities for embedded, authentic assessment of student learning readily exist. Specifically, this manuscript describes the use of scoring rubrics, Likert scale assessment

forms, and reflective comments in both formative and summative assessments. Appropriate assessors include faculty members, student peers and the student can assess themselves. The summaries of independent research that the students do to address their learning issues, called briefs,⁹ are very useful for assessing students on their :

- 1) developing information literacy skills,
- 2) synthesis of their knowledge,
- 3) application of knowledge to clinical problems, and
- 4) their written communication skills.

The briefs can become a portfolio of the students' work that can be very useful for documenting learning outcomes for LCME13 or other accreditation agencies. When students develop concept maps¹⁰ on the second iteration of the problem, they collaboratively integrate all that they know about a problem. These concept maps can be used to assess:

- 1) How accurately they have mastered the knowledge,
- 2) How appropriate is their synthesis of their older and newly acquired knowledge, and
- 3) The organization and integration of their knowledge showing linkages among concepts, causes, effects and implications.

Repeated observations of individuals working together throughout the in-class steps of the PBL process provide opportunities for assessment of

- 1) Knowledge;
 - 2) The integration of various theories, explanations, and multi-disciplinary perspectives;
 - 3) The individual's ability to work on teams or groups; and
 - 4) Professional behaviors. Thus, PBL offers many rich and varied authentic and embedded assessment.
2. Students Responses Toward Problem Based Learning on Maritime English Vocabulary at SMK Islam Pelayaran Al Bukhari School

This questionnaire was conducted to find out students' opinions regarding the use of the Problem Based Learning method when learning Maritime English in class, and researchers used a questionnaire to obtain data, then the data was identified as described in the following discussion. This researcher conducted questionnaire research on Monday, September 11, 2023. The steps Problem Based Learning (PBL);

a. Student to Orientation to Problems

Pefers to the initial phase of the Problem-Based Learning (PBL) process, where students are introduced to the problem or scenario around which their learning will revolve. During this phase, students become acquainted with the problem's context, scope, and objectives, laying the groundwork for their subsequent exploration and problem-solving efforts.

Student orientation to problems significantly influences their learning experiences and outcomes, as it shapes their ability to effectively analyze, evaluate, and solve complex problems. Research

by Jonassen (2000) emphasizes the importance of students' problem orientation, suggesting that students who approach problems with a positive and proactive mindset tend to exhibit higher levels of critical thinking, creativity, and persistence in problem-solving tasks.

Providing students with explicit guidance and support to develop a problem-solving orientation is essential for fostering their autonomy and self-directed learning skills. According to Hmelo-Silver et al. (2007), scaffolding students' problem-solving orientation through instructional support, feedback, and modeling can enhance their ability to identify, analyze, and resolve complex problems independently, leading to deeper learning outcomes.

Based and with the theory by (Hariyanti, 2020) teacher ask students to do it observation activities regarding certain related phenomena with KD to be active develop.

b. Organizing Student for Learning

Organizing students for learning involves structuring the classroom environment and activities in a way that promotes engagement, collaboration, and meaningful learning experiences. Based and with the theory by (Masruddin, 2018) A recent analysis of Yale online course observations found that a high rating for a course's "learning-friendly organization" was a good predictor of a high overall course rating. Additionally, the Wabash National Study of Liberal Arts Education ([link is external](#)) found that clear course

structures and clear instruction motivate students, increase persistence, and improve their achievement and grades, while supporting first-generation and low-SES students. (Vuong et al. 2015, pp. 27-28) and (Roksa et al.2017, pp.35-36). The following resources are intended to help instructors think about how to do this.

- 1) Enrich student learning in their classes today,
- 2) Organize their courses, and
- 3) Facilitate students' knowledge and skill development.

Please note that these resources and more can be found at the CTL's Faculty Resource site.

c. Guiding Individual and Group Investigation

Based and with the theory by (Hamid et al, 2020, p. 125) in GI, students form interest groups within which to plan and implement an investigation, and synthesize the findings into a group presentation for the class . The teacher's general role is to make the students aware of resources that may be helpful while carrying out the investigation. GI includes four important components ("the four I's"): investigation, interaction, interpretation and intrinsic motivation. Investigation refers to the fact that groups focus on the process of inquiring about a chosen topic. Interaction is a hallmark of all cooperative learning methods, required for students to explore ideas and help one another learn. Interpretation occurs when the group synthesizes and elaborates on the findings of each member in order to enhance understanding and

clarity of ideas. Finally, intrinsic motivation is kindled in students by granting them autonomy in the investigative process. (Hamid et al, 2020, pp. 32-33) as is generally found with CL techniques, research consistently finds higher levels of achievement from GI activities as compared with whole-class instruction, particularly on matters of higher-level cognition. It has also been found that GI improves positive inter-ethnic relations and enhances intrinsic motivation. Compared to other CL methods, GI has strong roots in giving students control over their learning.

d. Developing Presenting the Result of Work

Developing and presenting the results of work is a crucial aspect of the learning process, particularly in Problem-Based Learning (PBL) environments. Based and with the theory by (Novelni, 2021) the results of observations in this step are that the teacher has not asked other groups to provide responses to the results of the discussion displayed and the teacher has not provided reinforcement and correct explanations regarding the results of the discussion displayed (PDS-20), the teacher has not explained the rules for conveying group discussion results expertly. less than optimal in conveying the results of group discussions (S-19). Meanwhile, from the students' own aspect, students still do not understand what the teacher explains (IFF-17).

Students prepare presentations to articulate their findings and recommendations to peers and teachers, employing oral, written, or multimedia formats. Following presentations, feedback is provided to guide students in reflecting on their performance and identifying areas for improvement. Through this iterative process of problem-solving, presentation, and reflection, students deepen their understanding of maritime English vocabulary, enhance communication skills, and develop critical thinking abilities essential for success in the maritime industry. (Sukerti,2019, p.229)

e. Analyzing and Evaluating the Problem Solving Process

Analyzing and evaluating the problem-solving process is essential in Problem-Based Learning (PBL) environments to assess students' understanding, critical thinking skills, and ability to apply knowledge to real-world scenarios. Based and with the theory by (Novelni, 2021) the next step in the process is often to check where we are, what is the current situation and what is involved in making it a problem. For example, what are the benefits of the current product/service/process? And why did we decide to make it like that? Understanding where the problem is coming from, how it fits in with current developments and what the current environment is, is crucial when working out whether a solution will actually work or not. Similarly you must have a set of criteria by which to evaluate any new solutions or you will not know whether the idea is

workable or not. This section of the problem solving process ensures that time is spent in stepping back and assessing the current situation and what actually needs to be changed.

(Hamid et al, 2020, pp. 132-133) this section of the problem solving process is where you investigate the various factors about each of the potential solutions. You note down the good and bad points and other things which are relevant to each solution. Even at this stage you are not evaluating the solution because if you do so then you could decide not to write down the valid good points about it because overall you think it will not work. However you might discover that by writing down its advantages that it has a totally unique advantage. Only by discovering this might you choose to put the effort in to develop the idea so that it will work. (Thang and Koh, 2017, pp. 57-58) this is the section where you look through the various influencing factors for each possible solution and decide which solutions to keep and which to disregard. You look at the solution as a whole and use your judgement as to whether to use the solution or not. In Innovation Toolbox, you can vote using either a Yes/No/Interesting process or on a sliding scale depending on how good the idea is. Sometimes pure facts and figures dictate which ideas will work and which will not. In other situations, it will be purely feelings and intuition that decides. Remember that intuition

is really a lifetimes experience and judgement compressed into a single decision.