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ENGLISH LEARNING INTEREST IN HIGH SCHOOL STUDENTS: TPACK-BASED PROBLEM-BASED LEARNING MODEL

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ABSTRACT

The motivation for this research stems from the students' dissatisfaction with their low learning scores, which range from 66.84 to 68% for 23 students. The English learning achievement test results remain unsatisfactory, with only 65% of the 23 students completing the minimum completion criteria (70) exam. Therefore, this study aims to describe the implementation of the TPACK approach through the problem-based learning (PBL) model, with the goal of improving learning interest and English learning outcomes. This is classroom action research conducted in two cycles. The sample for this study was 23 students of public Senior High School 1 Nosu in grade X. The study collected data on students' attitudes, interests, and sincerity in following the learning process through the TPACK-integrated Problem-Based Learning (PBL) Model. Data analysis uses qualitative and quantitative analysis techniques. The study's results indicated that in the first cycle, the percentage of students who completed the learning achievement test increased to 73.9%. Likewise, learning interest also increased to the good category, namely 78.25%. Furthermore, in cycle 2, learning interest increased again, to the good category of 91.3%. Similarly, the proportion of students who successfully completed their learning achieved a significant increase to 95.64%.

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1. INTRODUCTION

Quality teachers contribute to student success. Professional teachers are needed to produce quality students (Darling-Hammond, 2021). One goal of national education is to boost national intelligence. Education can create capable and quality human beings. The implementation of the education process requires a qualified and professional teacher who is able to play a role in efforts to improve the quality of education (Tatto, 2021; Atstsaury et al., 2024). Therefore, a teacher needs to possess four key competencies: professional competence, pedagogical competence, personality competence, and social competence.

The curriculum incorporates humanistic learning, which should allow for the exploration of humanitarian issues and thereby assist students in addressing everyday life challenges (Aloni, 2013; Holbrook et al., 2022). Therefore, it is crucial to cultivate knowledge about the processes and skills necessary to navigate the future.

Based on initial observations in class X of Nosu 1 State Middle School, it was found that students' interest in learning was very low, causing learning outcomes to decline from year to year. From the identification, it was found that the background to the lack of student interest in learning was greatly influenced by the learning process with a method that was still conventional, namely the lecture model, where the learning process activities were centered on the teacher, and students looked passive and became loyal listeners from the beginning to the end of learning. There was a deficiency in the use of ICT in the learning process, particularly when it came to encouraging students to seek solutions to their problems from sources other than textbooks, such as using the internet to search for new information. Various steps have been attempted to solve this problem. The steps that have been taken by the teacher concerned include using teaching methods and techniques and providing tutoring, all of which can improve student learning outcomes.

One way to improve the quality of education is to use an effective learning model that is in accordance with the active student learning approach (Crisol-Moya et al., 2020; Hailikari et al., 2022; Børte et al., 2023). Conventional learning does not influence the attainment of maximum learning outcomes. Efforts that can produce maximum learning results are active learning activities. With active learning, students are trained to find various concepts that are learned holistically (Jesionkowska et al., 2020; Li et al., 2023).

The learning process designed by the teacher greatly influences the meaningfulness of the experience for students. The success of learning will achieve its goals if the teacher can deliver the material well using the right learning model (Bojović et al., 2020; Rapanta et al., 2020). For this reason, the teacher must actively engage students in the learning process to prevent monotony, which can be achieved by applying the appropriate learning model. This learning model is a plan or a pattern used as a guideline in planning learning in class (Zaragoza et al., 2023). With this model, teachers can help students get or obtain information, ideas, skills, and ways of thinking and expressing their own ideas. Among the models that can be applied to English learning is the Problem-Based Learning (PBL) learning model (Alias, 2023).

The problem-based learning model is an instructional method that challenges students to work collaboratively in groups to find solutions to real-world problems (Smith et al., 2022). Problems are used for students' curiosity, analytical skills, and initiative toward the subject matter. The Problem-Based Learning (PBL) learning model is an innovative approach that fosters active learning conditions for students (Rahayuningsih et al., 2021; Muzaini et al., 2022; Anggraeni et al., 2023). This learning model involves students solving problems through the stages of the scientific method so that students can learn knowledge related to the problem and, at the same time, have the skills to solve problems.

This model also causes motivation and curiosity to increase. The PBL model also serves as a platform for students to enhance their critical thinking and higher-order thinking skills (Hasbi & Fitri, 2023). Problem-Based Learning provides opportunities for students to express ideas explicitly and provide experiences related to ideas that students already have. This approach encourages students to distinguish and combine their ideas about challenging phenomena. This PBL learning model encourages students to think creatively, imaginatively, and reflectively about models and theories, introduce ideas at the right time, try new ideas, and encourage students to gain self-confidence (Barak, 2010; Satriani et al., 2021; Ardiansya et al., 2024).

The integration of technology to support learning strategies in English is needed to improve students' interests and learning outcomes (An et al., 2021; Lee et al., 2022). Technological Pedagogical Content Knowledge (TPACK) competency can help teachers in the learning process. TPACK is important knowledge for developing teachers' professional skills (Tseng et al., 2022). Therefore, the TPACK competency development pattern is a thought that is needed to improve the quality of learning in accordance with the demands and changes that occur. Technological Pedagogical and Content Knowledge (TPACK) refers to the knowledge teachers possess about facilitating student learning from specific content using pedagogical and technological approaches (Santos & Castro, 2021). TPACK is known in the field of educational research as a framework for designing learning models by integrating three main aspects, namely technology, pedagogy, and content. Quality learning requires a complex understanding of the interconnectedness of the three main sources of knowledge—technology, pedagogy, and content—and how the third source is applied. There are seven domains of knowledge in TPACK (Tseng et al., 2022; Ning et al., 2024), namely: 1) Content Knowledge, which is teacher knowledge about the subject matter to be studied or taught; 2) Technological Knowledge (TK), which is teacher knowledge about technology that can support learning; 3) Pedagogical Knowledge (PK), which is in-depth knowledge of the process and practice in delivering the material to be learned. 4) Pedagogical Content Knowledge (PCK), or effective teaching, necessitates a deeper understanding of both content and pedagogy. 5) Technological Content Knowledge (TCK) is knowledge of how technology can create a new picture in a particular material. 6) Technological Pedagogical Knowledge (TPK) is an understanding of how learning can change when certain technologies are used in certain ways.

Based on the conception and description and previous research, research on TPACK-integrated PBL has not been carried out. Based on earlier research, the goal of this study is to explain how the TPACK approach can be used with the problem-based learning (PBL) model in order to get more people interested in learning English and improve learning outcomes.

2. METHOD

This research is classroom action research (CAR), which includes planning, action, observation, and reflection. The subjects of this study were students at grade X Public

Senior High School 1 Nosu, with a total of 23 students. The work steps in this study are per cycle, namely Cycle I and Cycle II. The subject matter discussed in Cycle I consists of study materials for standard competencies and basic competencies. Data on students' attitudes, interests, and sincerity in following the learning process through the TPACK-integrated Problem-Based Learning (PBL) Learning Model is collected using this technique. The author used the observation technique, which involves direct observation of the students who are the subjects of the study. This observation was carried out during the teaching and learning process. The data collected was analyzed using qualitative and quantitative analysis techniques. For quantitative data, descriptive statistics were used, while for qualitative data types, categorization was used. The score category was determined using a scale of 5. According to Nurkancana (Amiruddin, 1998:20). Scale 5 divides levels into five categories: a mastery level of 85% to 100% is classified as "very high," according to Pinisi: Journal of Teacher Professional 9. 65% to 84% is categorized as "high," 55% to 64% is categorized as "moderate," 35% to 54% is categorized as "low," and 0% to 34% is categorized as "very low.".

In this first stage, the researcher makes plans and prepares activity designs related to learning. Planning activities involve identifying problems, analyzing their causes, and developing forms of action to address them. After identifying the problem, the next step involves analyzing its causes. This analysis serves as a basis for developing alternative actions, which can be developed as a form of solution or problem-solving. These actions are then realized in the form of activities. The following preparation stages are included in these activities: a) Preparing a learning plan. b) Preparing observation guidelines and interview guidelines.

The second stage of action research involves implementing the design's contents, specifically focusing on actions in the classroom. The 3rd stage, namely observation activities in classroom action research, is carried out to find out and obtain a complete objective picture of the development of the learning process and the influence of the actions (actions) chosen on class conditions in the form of data.

Stage 4, This stage is an activity to restate what has been done. After completing the action, the implementer should reflect and then discuss the action plan with the teacher. After the implementation of the action, the results of the observations are analyzed; the data obtained during the activity will be analyzed and reviewed to temporarily conclude what, why, how, and to what extent the actions taken are able to improve the problem meaningfully and make it a reference in planning action activity plans in the next cycle.

The success of this classroom action research is determined by the achievement of student interest and learning outcomes, both in terms of test results at the end of each cycle and in terms of student activity in participating in learning.

3. RESULTS AND DISCUSSION

The success of classroom action research serves as a comparison. This data was gathered by observing the students' learning outcomes and interests at public senior high school 1 Nosu. Table 1 below displays the initial data or pre-action, indicating the starting conditions of grade X students.

Table 1. Initial Data/Pre-Action

No	Assessment Aspects	Description
1	Interest in Learning	68% of 23 Students
2	Learning outcomes	65 of KKM (70)

The results of cycle 1's implementation of the TPACK approach through the Problem-Based Learning Model indicate an increase in student interest and learning outcomes. The implementation of the learning process in cycle I has resulted in an increase in student interest in learning, with approximately 78% of the total student population, or 23 people, expressing happiness and motivation to learn. This activity, which incorporates ICT into the learning process, encourages students to utilize the Problem-Based Learning Model. This model is particularly appropriate as it guides students to independently solve and find solutions to given problems, conduct problem investigations both individually and in groups, and then convey or communicate the results of their work, thereby increasing their engagement in the learning process (Amerstorfer et al., 2021; Ghani et al., 2021). The active participation of students during the learning process is indicative of a shift in their interest in learning, as evidenced by the observations. Approximately 78.25% of students expressed satisfaction with the use of ICT in the Problem-Based Learning Model, which involves accessing the internet to find new reference sources, maintaining online attendance, and completing assignments. The results of cycle I observations are presented in Table 2.

Table 2. Results of Observations of Students' Learning Interests

No	Category	Score Range	Frequency	Score	Percentage (%)	Average Score
1	Very Good	41 –50	3	123	13.04	X=765/23
2	Good	31–40	15	510	65,21	
3	Enough	26–30	3	82	13.04	= 33,26
4	Poor	0 –25	2	50	8,69	(Good category)
	Total		23	765	100	

Through learning activities that utilize the TPACK approach, students independently search for and solve problems by browsing the internet, which has a positive impact. The impact is reflected in the progress of changes in students' English learning outcomes. Previously, only around 65% of students were above the average KKM (70). However, after completing actions in cycle I, students' thematic learning outcomes increased by approximately 73.9% of the total number of students, as shown in Table 3 below.

Table 3. Students' Thematic Learning Outcomes

No	Category	Score Range	Frequency	Score	Percentage (%)	Average Score
1	Very Good	41 –50	1	45	4,34	X=792/23 = 34,43 (Good category)
2	Good	31–40	16	584	69,56	
3	Enough	26–30	3	88	13.04	
4	Poor	0 –25	3	75	8,69	
	Total		23	792	100	

Table 3 shows that 26.1% of students still experience problems and obstacles; namely, some students cannot attend for several reasons, and some students also do not have personal cellphones that can be used in Cycle I learning activities. Based on the results of the learning reflection, the obstacles identified serve as a basis for improvement and solutions in the Cycle II learning phase.

The results of the Cycle I observation stated that the implementation of Cycle I actions was not in accordance with the results expected by the researcher, so it needs to be followed up with the Cycle II design. Through the TPACK approach with the PBL learning model, the teacher starts learning by previously inviting students to fill in the Online Attendance list (Google form) to get used to and not be hesitant to use technology, providing problems that will be solved by students related to learning materials presented through Powerpoint slide shows and learning videos, organizing students by dividing them into groups, then in groups students investigate problems by collecting various reference sources both from textbooks or browsing the internet, in this problem investigation activity students were seen to be very active in showing changes in the progress of increasing student interest in learning. Students in each group conducted Q&A related to the problems and solutions found in the results of the reference search; even some students who previously (cycle I) had been passive began to dare to ask and answer questions. Based on the results of the group discussions, each group presented their work in front of the class.

The results of the Cycle II learning activities demonstrated a significant increase in students' interest in learning compared to the previous Cycle I, with an increase from 78.25% of 23 students to 91.3% of the total student population. The results are presented in Table 4 below.

Table 4. Students' learning interests in Cycle II

No	Category	Score Range	Frequency	Score	Percentage (%)	Average Score
1	Very Good	41 –50	3	123	13.04	X=766/23 = 33,30 (Good Category)
2	Good	31–40	18	590	78,26	
3	Enough	26–30	2	53	8.69	
4	Poor	0 –25	-	-	-	

No	Category	Score Range	Frequency	Score	Percentage (%)	Average Score
	Total		23	766	100	

At the end of Cycle II learning, the results of the online evaluation using Google Form showed an increase in students' thematic learning outcomes, which were also satisfactory. The progress of the increase from Cycle I was seen, namely 78% of students achieved KKM (70), while in Cycle II it increased to 95.64% of students achieving the minimum completion criteria (70). In terms of the use of ICT in learning activities from the beginning to the end, it has a significant impact on student activity, interest, and learning outcomes. The learning outcomes of students in cycle II are presented in Table 5 below.

Table 5. Student Learning Outcomes in Cycle II

No	Category	Score Range	Frequency	Score	Percentage (%)	Average Score
1	Very Good	41 –50	2	89	8,69	X=801/23 = 34,82 (Good Category)
2	Good	31–40	20	684	86.95	
3	Enough	26–30	1	28	4,34	
4	Poor	0 –25	-	-	-	
	Total		23	801	100	

Table 6. Recapitulation Results of Increasing Students' Interest and English Learning Outcomes in Cycle I and Cycle II.

No	Assessment Aspect	Average value				
		Initial Data	Circle I		Circle II	
			Meeting I	Meeting II	Meeting I	Meeting II
1	Learning Interest	68%	78.25%			91,3 %
2	Thematic Learning Outcomes	65	73,9 %			95,64 %

Based on the results of reviewing students' interests and learning outcomes in cycles I and II, we can say that the average score for each cycle has gone up from the previous meeting. For example, the average score for students' interests before actions was 68% of 23 students in the "good" category. After actions in cycle I, it went up to 78.25%, and after actions in cycle II, it went up to 91.3% of 23 students in the "good" category.

Regarding the learning outcomes, the average score of students' achievements is 65% of those who achieve minimum completion criteria. However, the implementation of the Problem-Based Learning (PBL) method with the TPACK approach significantly impacts student learning outcomes in each cycle. Specifically, in cycle I, 73% of 23

students achieved minimum completion criteria (70), and in cycle II, the average score of students increased to 95.64% of 23 students who achieved minimum completion criteria 70, a good category. The description above suggests that using the Problem Based Learning Method and the TPACK Approach to teach English to grade X students is highly suitable, as it can enhance their interest and improve their learning outcomes in the subject. The results of this study align with previous studies (LaForce et al., 2017; Tseng et al., 2019; Adipat, 2021; Aulia et al., 2023) that have shown that problem-based learning and TPACK models can enhance students' interest and learning outcomes.

4. CONCLUSION

Based on the results of the research and discussion after the learning process in several cycles through the implementation of TPACK-based Problem-Based Learning, it can be concluded that students' interest and learning outcomes have increased. The TPACK-based Problem-Based Learning (PBL) method, used in English learning for grade X at public Senior High School 1 Nosu, yields very satisfying results, both in terms of fostering enthusiasm for active participation in learning and improving students' English learning outcomes. This is based on the results of the first cycle, showing that the percentage of students who completed the learning achievement test increased to 73.9%. Likewise, learning interest also increased to a good category, namely 78.25%. Furthermore, in cycle 2, learning interest increased again, to the good category of 91.3%. Similarly, the proportion of students who successfully completed their learning achieved a significant increase to 95.64%.

As a suggestion, education implementers should no longer be authoritarian in class. Instead, they should provide more freedom and opportunities for students to be creative. Teachers should always strive to create a more harmonious and livelier classroom atmosphere. One effective approach is to implement the Problem-Based Learning (PBL) method, which is based on TPACK. This method not only enhances the teaching and learning process but also fosters student enthusiasm and prevents boredom by allowing each student to independently search for and find solutions to their problems.

REFERENCES

Adipat, S. (2021). Developing technological pedagogical content knowledge (TPACK) through technology-enhanced content and language-integrated learning (T-CLIL) instruction. *Education and Information Technologies*, *26*(5), 6461-6477.

Alias, H. (2023). Problem-Based Learning Model to Improve English Learning Achievement. *ETDC: Indonesian Journal of Research and Educational Review*, *2*(4), 102-110.

Aloni, N. (2013). Empowering dialogues in humanistic education. *Educational Philosophy and Theory*, *45*(10), 1067-1081.

Amerstorfer, C. M., & Freiin von Münster-Kistner, C. (2021). Student perceptions of academic engagement and student-teacher relationships in problem-based learning. *Frontiers in psychology*, *12*, 713057.

An, Z., Wang, C., Li, S., Gan, Z., & Li, H. (2021). Technology-assisted self-regulated English language learning: Associations with English language self-efficacy, English

enjoyment, and learning outcomes. *Frontiers in psychology*, *11*, 558466.

Anggraeni, D. M., Prahani, B. K., Suprapto, N., Shofiyah, N., & Jatmiko, B. (2023). Systematic review of problem based learning research in fostering critical thinking skills. *Thinking Skills and Creativity*, *49*, 101334.

Ardiansya, V. O., Minsih, M., Negara, S. P. P. S., & Mujiono, N. S. (2024). Increasing Critical Thinking Abilities and Skills through Problem Based Learning for Elementary School Students. *Buletin KKN Pendidikan*, *6*(1), 33-46.

Atstsaury, S., Hadiyanto, H., & Supian, S. (2024). Principal's strategy to improve teachers professional competence. *Munaddhomah: Jurnal Manajemen Pendidikan Islam*, *5*(1), 1-10.

Aulia, H. R., Laeli, A. F., & Ulwiyah, S. (2023). Problem-Based Learning As A Method To Improve Senior High School Student's Reading Comprehension In English. *ELTR Journal*, *7*(2), 77-85.

Barak, M. (2010). Motivating self-regulated learning in technology education. *International Journal of Technology and Design Education*, *20*, 381-401.

Bojović, Ž., Bojović, P. D., Vujošević, D., & Šuh, J. (2020). Education in times of crisis: Rapid transition to distance learning. *Computer Applications in Engineering Education*, *28*(6), 1467-1489.

Børte, K., Nesje, K., & Lillejord, S. (2023). Barriers to student active learning in higher education. *Teaching in Higher Education*, *28*(3), 597-615.

Crisol-Moya, E., Romero-López, M. A., & Caurcel-Cara, M. J. (2020). Active methodologies in higher education: perception and opinion as evaluated by professors and their students in the teaching-learning process. *Frontiers in Psychology*, *11*, 1703.

Darling-Hammond, L. (2021). Defining teaching quality around the world. *European Journal of Teacher Education*, *44*(3), 295-308.

Ghani, A. S. A., Rahim, A. F. A., Yusoff, M. S. B., & Hadie, S. N. H. (2021). Effective learning behavior in problem-based learning: a scoping review. *Medical science educator*, *31*(3), 1199-1211.

Hasbi, M., & Fitri. (2023). Pre-Service Teachers with Courses in Problem-Based Learning in Mathematics. *ETDC: Indonesian Journal of Research and Educational Review*, *2*(2), 51-60.

Hailikari, T., Virtanen, V., Vesalainen, M., & Postareff, L. (2022). Student perspectives on how different elements of constructive alignment support active learning. *Active Learning in Higher Education*, *23*(3), 217-231.

Holbrook, J., Chowdhury, T. B. M., & Rannikmäe, M. (2022). A future trend for science education: A constructivism-humanism approach to trans-contextualisation. *Education Sciences*, *12*(6), 413.

Jesionkowska, J., Wild, F., & Deval, Y. (2020). Active learning augmented reality for STEAM education—A case study. *Education Sciences*, *10*(8), 198.

LaForce, M., Noble, E., & Blackwell, C. (2017). Problem-based learning (PBL) and student interest in STEM careers: The roles of motivation and ability beliefs. *Education Sciences*, *7*(4), 92.

Lee, S., Kuo, L. J., Xu, Z., & Hu, X. (2022). The effects of technology-integrated classroom instruction on K-12 English language learners' literacy development: A meta-analysis. *Computer Assisted Language Learning*, *35*(5-6), 1106-1137.

Li, R., Lund, A., & Nordsteien, A. (2023). The link between flipped and active learning: a scoping review. *Teaching in Higher Education*, *28*(8), 1993-2027.

Muzaini, M., Hasbi, M., Ernawati, E., & Kristiawati, K. (2022). The Empowerment of Problem-Based Learning Models to Improve Students' Quantitative Reasoning. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, *12*(1).

Ning, Y., Zhang, C., Xu, B., Zhou, Y., & Wijaya, T. T. (2024). Teachers' AI-TPACK: Exploring the relationship between knowledge elements. *Sustainability*, *16*(3), 978.

Rahayuningsih, S., Hasbi, M., Mulyati, M., & Nurhusain, M. (2021). The Effect Of Self-Regulated Learning On Students'problem-Solving Abilities. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *10*(2), 927-939.

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. *Postdigital science and education*, *2*, 923-945.

Santos, J. M., & Castro, R. D. (2021). Technological Pedagogical content knowledge (TPACK) in action: Application of learning in the classroom by pre-service teachers (PST). *Social Sciences & Humanities Open*, *3*(1), 100110.

Satriani, S., Hasbi, M., & Fahirah, A. (2021). Problem-Based Learning As A Facilitator Of Students'reading Comprehension. *SOKO GURU: Jurnal Ilmu Pendidikan*, *1*(3), 27-34.

Smith, K., Maynard, N., Berry, A., Stephenson, T., Spiteri, T., Corrigan, D., ... & Smith, T. (2022). Principles of problem-based learning (PBL) in STEM education: Using expert wisdom and research to frame educational practice. *Education Sciences*, *12*(10), 728.

Tatto, M. T. (2021). Professionalism in teaching and the role of teacher education. *European Journal of Teacher Education*, *44*(1), 20-44.

Tseng, J. J., Cheng, Y. S., & Yeh, H. N. (2019). How pre-service English teachers enact TPACK in the context of web-conferencing teaching: A design thinking approach. *Computers & Education*, *128*, 171-182.

Tseng, J. J., Chai, C. S., Tan, L., & Park, M. (2022). A critical review of research on technological pedagogical and content knowledge (TPACK) in language teaching. *Computer Assisted Language Learning*, *35*(4), 948-971.

Zaragoza, A., Seidel, T., & Santagata, R. (2023). Lesson analysis and plan template: scaffolding preservice teachers' application of professional knowledge to lesson planning. *Journal of Curriculum Studies*, *55*(2), 138-152.