

Application of the 5E Learning Cycle Learning Model to Increase Student Learning Motivation in Sound Wave Material

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Abstract: This learning model consists of five stages, namely: (1) Engagement (generating interest), (2) Exploration, (3) Explanation, (4) Extend (expansion), and (5) Evaluation. In fact, from the results of observations made at the SMA Negeri Unggul Subulussalam school, it was found that the motivation of students still low. The purpose of this study was to increase students' learning motivation by applying the 5E Learning Cycle model to sound wave material. This research is a quantitative research type of non-equivalent control group design experiment. The population used in this study was students of class XI IPA with a sample of 60 people taken by purposive sampling. This study uses two classes, namely the experimental class and the control class. The results showed that the average value of the control class was 55.61 in the low category and the average value of the experimental class was 82.26 in the very high category.

Keywords: Application; 5E learning cycle model; Learning motivation

Introduction

Education is one of the most important things in life and is a capital for the development of human resources in a country. Education is like a light that guides people to live their lives well (Jayanti et al., 2021). One of the main focuses of the 2013 curriculum education is related to student learning outcomes, where the 2013 curriculum learning process encourages students to be able to solve problems, find something for themselves and work hard to realize their ideas (Permendikbud, 2013), this is also in line with the demands of today's teachers to be able to develop skills in students so that they can respond to various challenges of the times (Sa' pang et al., 2020).

Learning activities that take place in formal schools are both intentional and planned through the guidance of teachers and other educators. Learners learn (teaching materials) by using certain methods to achieve predetermined learning objectives. Achievement of learning objectives is known after educators carry out evaluations. This is a cycle that continues to repeat itself in the learning process. The learning process carried out in schools is currently a benchmark for students to assess

the abilities of each individual. Most of the learning time that students have is carried out at school so that there are many interactions while at school. The learning success of a learner can be measured through his learning outcomes. Learning outcomes are defined as how much ability students have acquired in mastering assignments or subject matter received in a certain time.

One of the important factors in the learning process is motivation (Mohammad-Davoudi et al., 2016). Students who are motivated in the learning process will affect their learning outcomes, because their understanding of the concept will be better (Khaerunnisak, 2018), this is also in accordance with Sihombing et al. (2021) stated that the better a person's learning motivation, the better his understanding of concepts, where motivation and understanding of concepts are things that can influence learning outcomes obtained from the results of students' problem solving. According to Agsya et al. (2019) says that if a person's learning motivation is high, then his problem solving abilities will also be high, if learning motivation is medium then his problem solving abilities are also moderate, whereas if learning motivation is low, then problem solving abilities are also low, this is also

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supported by Harefa (2018) which says that if students have high learning motivation, then their problem solving skills will be better.

Based on the results of observations at SMA Negeri Unggul Subulussalam, that the learning process at the school still uses conventional learning models, which causes a lack of motivation to learn. When learning takes place, students look passive and lack motivation to learn and are boring. Discussing material outside the lesson and paying little attention to the material presented by the teacher, students' mastery of the material is still low, the process of teaching and learning activities is still simple with activities such as taking notes on the blackboard, dictating, and lecturing dominated. There are many things that cause students' learning motivation to be lacking, which can come from the students themselves or from outside the students themselves, and also the application of teaching and learning methods that are not appropriate. This is a problem in the teaching and learning process that I encountered at SMAN Unggul Subulussalam.

One possible effort to increase motivation is to apply an innovative learning model. An innovative learning model is a learning strategy that can increase activity, conceptual understanding, motivation and creativity of students, and learning outcomes and is able to involve students during the learning process. The model used in this research is (Learning Cycle) 5E. The 5E Learning Cycle model is a learning model with a cognitive approach, where students are given the opportunity to build their own knowledge and experience processes. This learning model consists of five stages, namely (1) Engagement (arouse interest), (2) Exploration, (3) Explanation, (4) Extend (expansion), and (5) Evaluation (Taufiq, 2012).

Based on research that has been done (Safitri et al., 2019) to get an increase in motivation after using the 5E Learning Cycle model where students in class XI MIPA 1 total 31 people from all aspects of the student response questionnaire obtained an average value of 4.2% with the category strongly agrees so that it can be concluded that students gave a good response to learning with the 5E Learning Cycle model. Research conducted Nurwahyu et al. (2018) by applying the 5E Learning Cycle model increased students' learning motivation by 62% and continued to increase to 73%. Then research conducted by Febrianto et al. (2018) stated that students' learning motivation increased both in cycle 1 by 62% and in cycle 2 it rose to 82%.

Method

This research was conducted using a quantitative approach to the type of quasy experiment research (Quasy Experimental) with Non-Equivalent Control Group Design. This study uses two classes, namely the

experimental class and the control class. The experimental class is the class that gets treatment by applying the 5E Learning Cycle model with the 5E Learning Cycle steps, while the control class, namely the comparison class, will only use conventional learning models such as lectures and also delivery explained on the blackboard. The experimental class and the control class in this study were given a pretest and also a posttest to be able to see differences in the increase in students' learning motivation from the two classes.

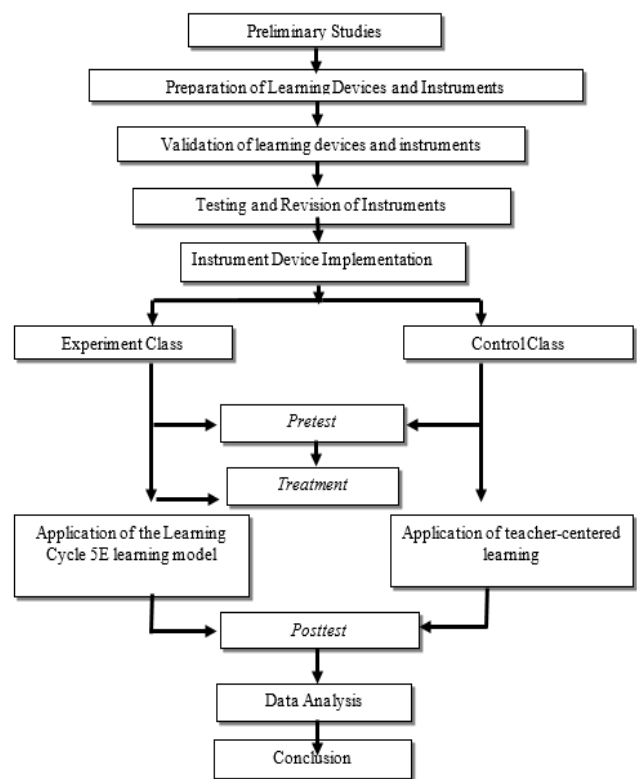


Figure 1. Chart of research stages

Table 1. Research Design Non-Equivalent Control Group Design

Experimental class	O ₁	X	O ₂
Control class	O ₁	-	O ₂

Result and Discussion

Before conducting the research, the student learning motivation questionnaire in this study, the entire data obtained was measured using a questionnaire that had passed the due diligence test as many as 25 pieces, where the student learning motivation questionnaire was analyzed using a respondent's questionnaire to determine the frequency value of each statement item, in order to be able to determine the percentage index value and the mean value required as research data related to the analysis of increasing student learning motivation. The statements in the questionnaire were given to students twice,

namely the first at the pretest and the second at the posttest for the control class and the experimental class.

Based on the results obtained, it was found that the learning motivation of students in the control class did not increase from the low category, only the value

changed, while in the experimental class the learning motivation of students also increased from the low category to very high. The value of the results of the research analysis obtained related to increasing student learning motivation can be seen briefly in Table 2.

Table 2. Analysis of the Mean Score of the Pretest-Posttest of Students' Learning Motivation

Class	The Average Value of Learning Motivation Pretest	Category	The Average Value of Learning Motivation Posttest	Category
Experiment	51.31	Low	82.26	Very High
Control	47.95	Low	55.61	Low

The results of the student learning motivation questionnaire as seen from the pretest and posttest values in table 5 above show that the pretest scores of the two classes are different but still relatively low, this shows that the motivation of students related to sound wave material is still low, where for the experimental class the pretest value obtained was 51.31 and for the control class was 47.95, while for the posttest mean value obtained in the experimental class was 82.26 higher than the control class which was only 55.61. This shows an increase in students' learning motivation towards sound wave material. For more detail can be seen in Figure 2.

and using the 5E learning cycle steps in the learning process, while in the control class only using the conventional model learning process according to with learning that is indeed used by Physics subject teachers at Unggul Subulussalam State High School, in the learning process the two classes both carry out practicums with different treatments in order to strengthen students' understanding related to the concept of sound waves, so that it will affect their learning motivation.

Based on the results of the research above, the increase in learning motivation of students who were taught by applying the 5E learning cycle model in the experimental class was seen in the scores obtained by students, where the pretest score obtained an average of 51.31 and the posttest obtained an average of 82.26. This is in accordance with Rina et al. (2017) stating that the learning process using the 5E learning cycle has a major influence on increasing student learning motivation where the 5E phases given to students generate stimulation in the learning process to become more active and increase student learning motivation. This shows that learning using conventional models obtains lower learning motivation. This is in accordance with Nurwahyu et al. (2018) which states that using the 5E learning cycle model provides a significant increase in which students' learning motivation increases in the high category. This shows that the learning process using the 5E learning cycle model obtained high learning motivation. This is in accordance with Faishal et al. (2021) which states that using the 5E learning cycle model gives students an active role in the learning process with 80% learning motivation compared to without using the 5E learning cycle model.

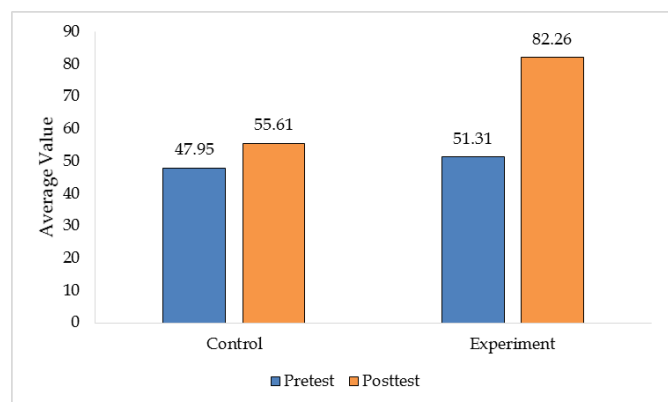


Figure 2. Graph of the average value of students' learning motivation

Figure 2 showed that even though the pretest scores of students in the control class and the experimental class were initially different, namely 47.95 for the control class and 51.31 for the experimental class, the scores of the two classes were in the low category, but when the posttest was carried out both experienced an increase in the value of their learning motivation, but the increase in posttest scores in the experimental class was 82.26 higher than the control class which was only 55.61, this was because the experimental class experienced learning using the LC 5E learning model, while the control class used the conventional model.

The magnitude of the average value obtained in the experimental class is due to the fact that in that class the learning process is carried out by applying the 5E learning cycle learning model as an alternative learning

The 5E learning cycle learning model that is applied in the learning process in the classroom is a learning strategy that has a logical and interesting sequence in presenting learning material (from easy to difficult and from simple to complex) with variations in continuous evaluation methods, fast feedback to encourage students to continue to acquire and study scientific concepts. The interaction between the 5E learning cycle strategies can reduce boredom and help students continue studying for a longer period and thus learn more scientific concepts. Constructive learning and the 5E learning

cycle strategy which has two active processes, in which scientific knowledge is included in student knowledge and regarding the need to arrange the sequential presentation of acid-base material so that students will play an active role in obtaining and entering data into their knowledge. Providing a safe, comfortable, efficient and effective classroom environment in the learning process that allows children to gain scientific concepts, conduct research, solve problems and make decisions (Qawasmeh et al., 2017).

The existence of interesting activities in learning is a situation where students feel interested in participating in learning. One thing that can be done to generate interest in learning for students is to use simulations and games in the learning process which can be obtained from learning media, where the use of learning media can overcome the passive nature of students, so that it will generate passion in learning (Kurniawati et al., 2017).

Conclusion

Based on the objectives and results of research related to the use of the 5E learning cycle learning model to increase students' learning motivation in learning Physics, it was found that there was an increase in students' learning motivation in learning Physics. This shows that the use of the 5E learning cycle learning model is successful in increasing students' learning motivation.

References

- Agsya, F. M., Maimunah., & Roza, Y. (2019). Analisis Kemampuan Pemecahan Masalah Ditinjau dari Motivasi Belajar Siswa MTS. *Jurnal Penelitian Pasundan Dalam Pembelajaran Dan Pendidikan Matematika*, 4(2), 31-44. <https://doi.org/10.33487/edumaspul.v4i2.836>
- Faishal, M., & Budiyo, S. (2021). Implementation of The Learning Cycle 5E Learning Model During the Covid-19 Pandemic (Multicase Study Of Motivation and Learning Participation. *MIYAH: Jurnal Studi Islam*, 17(2), 179-192. <https://doi.org/10.33754/miyah.v17i02.380>
- Febrianto. (2018). 5E-Learning Cycle Strategy: Increasing Conceptual Understanding and Learning Motivation. *Jurnal Ilmiah Pendidikan Fisika Al-Biruni*, 7(2), 171-181. <https://doi.org/10.24042/jipfalbiruni.v7i2.2898>
- Harefa, N. (2018). Hubungan Motivasi Belajar Terhadap Keterampilan Pemecahan Masalah Siswa pada Metode Praktikum. *Jurnal Selaras : Kajian Bimbingan Dan Konseling Serta Psikologi Pendidikan*, 1(1), 28-38. <https://doi.org/10.33541/sel.v1i1.768>
- Jayanti, G. D., Setiawan, F., Azhari, R., & Putri Siregar, N. (2021). Analisis Kebijakan Peta Jalan Pendidikan Nasional 2020-2035. *Jurnal Pendidikan Dasar Dan Keguruan*, 6(1), 40-48. <https://doi.org/10.47435/jpdk.v6i1.618>
- Khaerunnisak, K. (2018). Peningkatan Pemahaman Konsep dan Motivasi Belajar Siswa Melalui Simulasi Physic Education Technology (PhET). *Jurnal Penelitian Pendidikan IPA*, 4(2). <https://doi.org/10.29303/jppipa.v4i2.109>
- Kurniawati, S., & Mediatati, N. (2017). Peningkatan hasil Belajar Dengan Model Picture and Picture Pada Mata Pelajaran IPA Kelas V SD. *Jurnal Mitra Pendidikan*, 1(5), 496-507. <http://www.e-jurnalmitrapendidikan.com/index.php/e-jmp/article/view/109>
- Mohammad-Davoudi, A. H., & Parpouchi, A. (2016). Relation between Team Motivation, Enjoyment, and Cooperation and Learning Results in Learning Area Based on Team-based Learning among Students of Tehran University of Medical Science. *Procedia - Social and Behavioral Sciences*, 230, 184-189. <https://doi.org/10.1016/j.sbspro.2016.09.023>
- Nurwahyu, N., Parham, S., & Yudha, I. (2018). Penerapan Model Learning Cycle 5E Dalam Meningkatkan Motivasi Dan Hasil Belajar Siswa Pada Mata Pelajaran Koloid Di Kelas XI MIA-3 MAN 1 Banjarmasin. *Journal of Chemistry and Education*, 1(3), 209-217. <http://jtam.ulm.ac.id/index.php/jcae/article/view/102>
- Permendikbud. (2013). *Permendikbud Nomor 81A Tahun 2013 tentang Implementasi Kurikulum*. Kementerian Pendidikan dan Kebudayaan.
- Qawasmeh, M. R., Ahmad, A., & Al-Syouf. (2017). The Effect of Using Computerized 5E's Learning Cycle Model on Acquiring Scientific Concepts among Fourth Graders. *American Journal of Educational Research*, 5(5), 579-587. <https://doi.org/10.12691/education-5-5-17>
- Rina, P. S., Hafnati, R., & Mudatsir. (2017). Penerapan Model Pembelajaran Learning Cycle 7E Untuk Meningkatkan Motivasi Dan Hasil Belajar Peserta Didik Di SMP. *Jurnal Pendidikan Sains Indonesia*, 5(2), 66-72. <https://doi.org/10.24815/jpsi.v5i2.9819>
- Sa' pang, A. W., & Purbojo, R. (2020). Efikasi diri guru, pemahaman tentang karakter siswa, dan pemahaman tentang keterampilan Abad ke-21 sebagai prediktor gaya mengajar tipe fasilitator. *Jurnal Psikologi Ulayat*, 7(2), 192-211. <https://doi.org/10.24854/jpu108>
- Safitri, I., Dewi, H., & Salastri, R. (2019). Implementasi Model Pembelajaran Learning Cycle 5E Pada Materi Hidrolisis Garam Di Kelas XI MIPA SMAN 1 Bengkulu Tengah Tahun Ajaran 2018/2019. *Jurnal Pendidikan Dan Ilmu Kimia*, 3(2), 206-212.

<https://doi.org/10.33369/atp.v3i2.10507>

Sihombing, S., Silalahi, H. R., Sitinjak, J. R., & Tambunan, H. (2021). Analisis Minat dan Motivasi Belajar, Pemahaman Konsep dan Kreativitas Siswa terhadap Hasil Belajar Selama Pembelajaran dalam Jaringan. *Jurnal Pendidikan Matematika (JUDIKA EDUCATION)*, 4(1), 41-55.

<https://doi.org/10.31539/judika.v4i1.2061>

Taufiq, M. (2012). Remediasi Miskonsepsi Mahasiswa Calon Guru Fisika Pada Konsep Gaya Melalui Penerapan Model Siklus Belajar (Learning Cycle) 5E. *Jurnal Pendidikan IPA Indonesia*, 1(2), 198-203.
<https://doi.org/10.15294/jpii.v1i2.2139>