

Analysis of Students' Interest and Motivation to Learn Physics at a School for Sports Excellence

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ABSTRACT

Students' interest and motivation to learn physics at the School of Sports Excellence has an important role in influencing students' academic achievement. However, in reality the interest and motivation of students at the School of Sports Excellence to learn physics found in the field is still low. This study aims to analyze the interest and motivation to learn physics of students at the School of Sports Excellence. This research uses survey method with data collection technique using questionnaire. The data analysis technique used percentage technique. This research was limited to class XI MIPA totaling 29 students as a sample. The results showed that students' interest and motivation to learn physics were low. The results of questionnaire analysis of student interest and motivation to learn physics are categorized as low, a strategy is needed to increase student interest and motivation to learn physics. The implication of this research is that educators should consider differences in students' interest and motivation to learn in designing appropriate curriculum and supportive teaching methods. With a better understanding of the factors that influence interest and motivation to learn physics, education in sport speciality schools can be more effective.



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INTRODUCTION

Every human being must undergo education. Education plays a very important role in improving, producing, and building generations of quality human resources for individual self-realization and ensuring the sustainability of quality state development (Saputri, 2020). Education also plays a role in overcoming ignorance and poverty in Indonesia. Education is a basic human right for everyone without any discrimination (Rahmiati et al., 2021).

One form of implementation of the importance of education is the establishment of the Sports Excellence School to accommodate students who are talented in sports. Although Sports Excellence students have exceptional sporting talent, academic education is still important to help them achieve better academic and non-academic achievements. This is supported by several sources, such as the Ministry of Education and Culture, which continues to expand access to Sports Excellence Schools (Ministry of Education and Culture, 2017), UNY, which facilitates Sports Excellence students from all over Indonesia to continue their

further studies within UNY (Sudaryono, 2023), and scientific journals that discuss the basic framework and curriculum structure at Sports Excellence High Schools (Huda et al., 2016). In addition, research also shows that fostering sporting achievements through activities at school can be used as a sporting achievement (Saputro et al., 2021). Therefore, quality academic education is very important for Sports Excellence students to help them achieve better academic and non-academic achievements. One of the academic achievements that can be achieved is achievement in the field of physics.

Physics and sports are closely related in the School of Sports Excellence, as students not only learn about sports, but also learn physics. Physics has an important role in sports because many physics concepts are applied in sports activities. The relationship between physics and sport has important elements that can help achieve an ideal state in sport. For one, it can help athletes understand how energy is received or transferred between athletes and objects, as well as understand how a ball works and how forces act on a ball. Physics also helps athletes in controlling their strength and endurance. Therefore, research in the relationship between physics and sports can help improve athlete performance and achieve the ideal state in sports (Daharis et al., 2022). To understand this, students' interest and motivation to learn physics is needed. Students' interest and motivation to learn physics at the School of Sports Excellence has an important role in influencing students' academic achievement. Based on research conducted by Nawahdani et al., (2022) and Sari et al., (2016) there is a positive relationship between interest and motivation to learn physics on student achievement (Nawahdani et al., 2022); (Sari et al., 2016). Therefore, it is important for teachers and schools to pay attention to students' interest and motivation to learn physics and develop physics learning models, media, strategies that are interesting and challenging for students (Sunarno & Physics, n.d.). In addition, student characteristics, curriculum, and the way physics learning is delivered must be considered (Sunarno & Physics, n.d.). In physics learning, it is important to provide students with opportunities to cooperate and interact with the learning and teaching environment so as to increase student learning motivation (Sunarno & Physics, n.d.). Thus, increasing students' interest and motivation to learn physics at the School for Sports Excellence can help to improve students' learning achievement in academic performance.

However, in reality, the interest and motivation to learn physics of students in Sports Excellence School is low. This situation is supported by preliminary research conducted at SMAN 4 Sumbar (Sports Excellence) class XI MIPA to see students' interest and motivation to learn physics conducted by direct survey and observation during the PLK period of 6 months. This study aims to analyze students' interest and motivation to learn physics in a sport-specific school.

METHODS

The research method used is the survey method with the type of research is quantitative research. Quantitative research to obtain data in the form of numbers. Quantitative surveys can assist in collecting data from a number of respondents who represent a larger population, thus providing an overview and statistics related to the phenomenon being studied.

The instrument used in this research is a non-test instrument. The type of non-test instrument used is a questionnaire or questionnaire. Questionnaires are a number of statements given and answered by respondents. Non-test instruments in research can be arranged like a checklist or check list. Respondents just need to put a cheque mark in the column that has been provided. Each statement item has a point weight according to the Likert scale. Then the questionnaire is given 3 supporting questions to help confirm the answers to the questionnaire statements answered by the respondents.

The research instrument to measure student interest was taken from the development of research by Apriyani & Sirait (2021) entitled the development of student learning interest

instruments in mathematics lessons. Then modifications were made for physics lessons. The interest indicator consists of 10 indicators, namely in Table 1.

Table 1. Indicators of Student Learning Interest

Interest Indicator	
1.	Have the initiative to learn physics
2.	Study earnestly
3.	Have physics tools and textbooks
4.	Doing assignments on time
5.	Actively ask questions if the lesson is not understood
6.	Train yourself to answer physics questions
7.	Curiosity
8.	Have a study schedule
9.	Has benefits in everyday life
10.	Have a target value

Source: (Apriyani & Sirait, 2021)

To measure student motivation, it was taken from Ami Natun's research (2019) entitled the effect of learning motivation and self-regulation on physics learning achievement of class XI IPA students at SMA Negeri 2 Singaraja. The motivation indicator consists of 11 indicators in Table 2.

Table 2. Indicators of Student Learning Motivation

Student Learning Motivation Questionnaire Indicators	
1.	School attendance
2.	Joining PBM in class
3.	Study outside school hours
4.	Attitude towards adversity
5.	Efforts to overcome difficulties
6.	Habits in attending lessons
7.	Enthusiasm in following PBM
8.	Desire for achievement
9.	Quality of results
10.	Completion of assignments or homework
11.	Using opportunities outside of class time while at school

Source: (Aminatun, 2019)

The interview guideline was designed according to the needs of the research, and was used for one subject teacher, one principal, one vice principal, one head of TU, and one public relations coordinator to obtain data about the School for Sports Excellence in the preliminary research.

The data analysis technique for the questionnaire of students' interest and motivation used a percentage technique. The scoring method for the interest and motivation questionnaire is based on a Likert scale with 5 answer options. The answer options provided for the interest and motivation questionnaire for positive statement items are 5-1 and for negative statement items are 1-5 with answer options always, often, sometimes, rare, and never (Apriyani & Sirait, 2021).

Student interest and motivation are grouped into five categories adapted from (Riskawati et al., 2022), namely as follows: very high with score 80-100 (%), high with score 60-79 (%), medium with score 40-59 (%), low with score 20-39 (%), and very low with score 0-19 (%). Data analysis techniques to determine the categories of student interest and motivation

through questionnaires were carried out by accumulating the scores of all questionnaire items from all research samples. The scores were then processed to determine the average score of students' interest and motivation in the form of a percentage. The average was used as a benchmark to categorise the level of student interest and motivation towards learning physics.

The results of the questionnaire analysis were used to determine the level of student interest and motivation to learn physics during physics learning expressed in percentages of each category of interest and motivation very high, high, medium, low, and very low. Then the data obtained qualitatively obtained from 3 supporting questions filled in by respondents in writing. The questions consist of 1) are you interested in physics? 2) how do you think physics is? 3) try to tell me your plans for the future!.

RESULTS AND DISCUSSION

Results

The learning interest measured in this study consists of 10 indicators which were developed into 27 statement items. The results of the plot of the average value of 27 items of student learning interest statements filled in by 29 respondents are presented in Table 3 and Table 4.

Table 3. Results of Interest Questionnaire Analysis Positive Statement Items

Item Number	Description	Score (%)	Category
1	I study without being told to by my parents or other people	72.41	High
2	I do the physics assignments given by the teacher earnestly	73.10	High
3	I am interested in buying physics textbooks over novels or comics	26.90	Low
4	I have a physics-specific notebook and exercise book	68.28	High
5	I usually do my homework on time	71.03	High
6	I will ask questions if the lesson is not understood	58.62	Medium
7	If I find a problem that is difficult to understand, I will ask the teacher	75.86	High
8	I look for physics lesson practice questions in many books	38.62	Low
9	I do my own physics exercise questions	64.83	High
10	Physics subjects are very interesting to me	30.34	Low
11	I read the physics lesson material that will be learnt tomorrow morning, the night before	35.17	Low
12	I enjoy learning new physics formulae that I know	38.62	Low
13	I have and adhere to a study schedule that I have made	67.59	High
14	If there are friends who have difficulty understanding physics lessons, then I will help understand physics lessons	68.28	High
15	I apply physics in my daily life	37.93	Low

Table 4. Results of Interest Questionnaire Analysis Negative Statement Items

Item Number	Description	Score (%)	Category
16	I don't take notes on the material that the teacher teaches on the blackboard	86.20	High
17	I learnt physics while watching television	83.45	High
18	I never bring my physics textbooks to school	84.83	High
19	I do my physics homework at school	65.52	High
20	If I encounter a problem that I can't answer, then I will give up	78.62	High
21	I get discouraged when faced with physics problems	68.97	High
22	The key to success in physics tests is to study hard and rely on friends	37.93	Low
23	It's enough for me if my score only reaches KKM	79.31	High
24	When I get a physics question wrong, I stop studying it	77.24	High
25	I learn when my condition is fine	58.62	Low
26	I am forced to follow physics lessons	73.79	High
27	Physics has no use in everyday life	74.48	High

From Table 3 and Table 4 it can be informed that the statement items are divided into 2, namely positive and negative. If the value of positive statement items is in the high category, it means that it is as expected but if the value of positive statement items is in the low category, it means that it is not as expected, and vice versa for negative statement items. If the value of

the negative statement item is in the high category, it means that it is not as expected but if the value of the statement item is in the low category, it is as expected.

The learning motivation measured in this study consists of 11 indicators which were developed into 30 statement items. The results of the plot of the average value of 30 items of student learning motivation statements are presented in Table 5 and Table 6.

Table 5. Results of Interest Questionnaire Analysis Positive Statement Items

Item Number	Description	Score (%)	Category
1	I arrive at school before the entrance bell rings	77.93	High
3	I attend physics lessons until the end of the lesson	97.24	High
4	I still follow the lesson, no matter who the teacher is	97.24	High
7	I study outside school hours regularly	37.24	Low
10	If my grades are poor, increasing my study is the best way to improve my grades	82.07	High
11	I always try repeatedly in doing difficult physics problems	70.34	High
14	If I encounter a difficult problem, I will try to work on it until I find the answer	78.62	High
16	I always listen to the teacher's explanation well	83.45	High
19	I always ask the teacher about material that I don't understand	79.31	High
22	I am always dissatisfied and want to achieve better results	84.14	High
25	High achievement in learning, I obtained with my own hard effort	79.31	High
27	I always do my own assignments given by the teacher	67.60	High
29	I prefer to read books in the library during free class time	37.93	Low

Table 6. Results of Interest Questionnaire Analysis Negative Statement Items

Item Number	Description	Score (%)	Category
2	If I'm lazy, I don't go to school	86.20	High
5	If the teacher is in class first, then I tend to choose not to come in	97.24	High
6	I do not attend lessons if they are not to my liking	99.31	High
8	I study outside school hours only when there are assignments and tests	34.48	Low
9	I like to stall my study time outside school hours	37.93	Low
12	If my grades are bad, I don't want to study	91.72	High
13	If the physics subject matter is difficult, then I will ignore the subject	77.24	High
15	I am embarrassed to ask the teacher when I have difficulty understanding the physics material taught	72.40	High
17	I prefer to talk to my friends and not listen when the teacher explains	73.10	High
18	I rarely read the material to be taught before learning takes place	64.83	High
20	I often feel sleepy when the teacher explains the material in front of the class	37.94	Low
21	I am lazy in trying to understand material that I find difficult	71.72	High
23	I excel when my friends achieve higher achievements	89.00	High

From Table 5 and 6, it can be informed that the statement items are divided into 2, namely positive and negative. If the value of positive statement items is in the high category, it means that it is as expected but if the value of positive statement items is in the low category, it means that it is not as expected, and vice versa for negative statement items. If the value of the negative statement item is in the high category, it means that it is not as expected but if the value of the statement item is in the low category, it is as expected.

Then the data on the results of students' interest and motivation to learn are supported by the results of three supporting questions to see students' interest and motivation about 94% of students are not interested in physics, 100% of students say physics is difficult, 94% of students have the motivation to want to study harder, 98% of students do not choose physics for their future and 7% of students who want to continue their career in sports.

Discussion

The results of the study found low student interest and motivation to learn physics at the School of Sports Excellence. This is because students feel physics is difficult and not fun. Students are more faced with formulas and there is no interesting learning for Sports Excellence students who apply physics to sports as a form of relevance between physics and sports according to the talents of students. The learning process is still monotonous towards the lecture method.

Physics learning emphasizes more on understanding concepts and theories than in the

memorization process, especially related to memorizing formulas (Murdani, 2020). Physics learning that only displays complicated physics formulas will make students fear and dislike physics (Studi et al., 2020). Of course, this is not in accordance with the needs of physics which can improve students' thinking skills as well as their knowledge and understanding of concepts. According to (Mufit & Fauzan, 2019) the nature of physics (science) learning is an interaction between students and their environment, not only to understand scientific concepts and their applications in society but also to develop values. Therefore, it can be concluded that the nature of physics learning is a process of integrating various components and activities used to investigate various natural phenomena using scientific method steps, which will help students develop their abilities, have their own knowledge and practice it in daily life and society. Physics is also expected to increase one's sense of majesty towards God, foster a scientific attitude, add experience, and develop thinking skills through various natural events (Salman, 2012).

Physics has an important role in sports because many physics concepts are applied in sports activities. However, the results obtained show that many students do not apply physics concepts to everyday life, because the physics learning process still lacks inviting students to contribute directly to the environment in the teaching and learning process and linking the application of physics in sports, resulting in a lack of student interest and motivation to learn physics. Students' interest and motivation to learn physics at the School of Sports Excellence has an important role in influencing students' academic achievement. Therefore, it is important for teachers and school authorities to pay attention to students' interest and motivation to learn physics and develop physics learning models, media, strategies that are interesting and challenging for students. In addition, student characteristics, curriculum, and the way physics learning is delivered must be considered. In physics learning, it is important to provide students with opportunities to cooperate and interact with the learning and teaching environment so as to increase student learning motivation. Thus, increasing students' interest and motivation to learn physics at the School for Sports Excellence can help to improve students' learning achievement in academic performance.

CONCLUSION

The interest and motivation to learn physics of students at the School of Sports Excellence is measured from a questionnaire item statement of interest and motivation to learn and is believed to be with supporting questions about students' opinions about physics and see interest in physics is still low. The level of interest and motivation to learn physics of students is categorized as low with a value range of 20-39 (%). Then supported by supporting questions obtained with the results of three supporting questions to see student interest and motivation around 94% of students are not interested in physics, 100% of students say physics is difficult, 94% of students have the motivation to want to study harder, 98% of students do not choose physics for their future and 7% of students who want to continue their career in sports. Physics learning has not emphasized the understanding of concepts and theories, but still on the process of memorizing formulas. Physics learning that only displays complicated physics formulas will make students afraid and dislike physics.

REFERENCES

- Abror, Abdul Rahman. (1993). *Psikologi Pendidikan*. Yogyakarta: PT. Tiara Wacana
- Adi, S., & Fathoni, A. F. (2020). Blended Learning Analysis for Sports Schools in Indonesia. *International Journal of Interactive Mobile Technologies*, 14(12), 149–164.
- Ahmad, N., & Kholis, M. N. (2020). Implementasi Revolusi Industry 4.0 Dalam Mendukung Akselerasi Informasi Keberbakatan Olahraga Melalui Pembelajaran Pendidikan Jasmani.

TRIHAYU: *Jurnal Pendidikan Ke-SD-An*, 7(1), 1024–1030.

- Alfarimba, R., Ardianti, S. D., & Khamdun, K. (2021). the Impact of Online Learning on the Learning Motivation of Primary School Students. *Progres Pendidikan*, 2(2), 94–99.
- Alhamdu, A. (2015). Interest and Reading Motivation. *Psikis : Jurnal Psikologi Islami*, 1(1), 1–10.
- Aminatun. (2019). *Pengaruh Motivasi Belajar Dan Regulasi Diri Terhadap Prestasi Belajar Fisika Siswa Kelas XI IPA di SMA Negeri 2 Singaraja*. 5(May 2013), 55–67.
- Anggraini, I. A., Utami, W. D., & Rahma, S. B. (2020). Mengidentifikasi Minat Bakat Siswa Sejak Usia Dini di SD Adiwiyata. *Islamika*, 2(1), 161–169.
- Apriyani, D. D., & Sirait, E. D. (2021). Pengembangan Instrumen Minat Belajar Siswa pada Pelajaran Matematika. *SAP (Susunan Artikel Pendidikan)*, 6(1).
- Astalini, A., Darmaji, D., Pathoni, H., Kurniawan, W., Jufrida, J., Kurniawan, D. A., & Perdan, R. (2019). Motivation and Attitude of Students on Physics Subject in the Middle School in Indonesia. *International Education Studies*, 12(9), 15.
- Aurora, A., & Effendi, H. (2020). JTEV (Jurnal Teknik Elektro dan Vokasional) Pengaruh Penggunaan Media Pembelajaran E-learning terhadap Motivasi Belajar Mahasiswa di Universitas Negeri Padang. *Universitas Negeri Padang. JTEV*, 5(2), 11–16.
- Chaplin, J.P. (2006). *Kamus Lengkap Psikologi*. Jakarta : PT. Raja Grafindo Persada.
- Datu, I., et, A. (2019). Magistra : Jurnal Keguruan dan Ilmu Pendidikan. *Jurnal Keguruan Dan Ilmu Pendidikan*, 6, 101–109.
- Djaali. (2009). *Psikologi Pendidikan*. Jakarta : Bumi Aksara.
- Hamid, A. A. (2011). Pembelajaran Fisika di Sekolah. In *Yogyakarta: Fakultas MIPA, UNY*.
- Harefa, A. R. (2019). Peran Ilmu Fisika dalam Kehidupan Sehari-Hari. *Jurnal Warta*, 60(April), 1–10.
- Huda, K., Kristiyanto, A., & Doewes, M. (2016). Kerangka Dasar dan Struktur Kurikulum di Sekolah Menengah atas Keberbakatan Olahraga” dalam *Jurnal Media Ilmu Keolahragaan Indonesia. Jurnal Media Ilmu Keolahragaan Indonesia*, 6(1), 29–30.
- Kartika, S., Husni, H., & Millah, S. (2019). Pengaruh Kualitas Sarana dan Prasarana terhadap Minat Belajar Siswa dalam Pembelajaran Pendidikan Agama Islam. *Jurnal Penelitian Pendidikan Islam*, 7(1), 113.
- Mahdzar, M., Jaapar, A., & Zain, W. Z. W. M. (2022). *High School Students' Motivation Needs and Their Intentions to Pursue Tertiary Education*. 37.
- Makkonen, T., Tirri, K., & Lavonen, J. (2021). Engagement in Learning Physics Through Project-Based Learning: A Case Study of Gifted Finnish Upper-Secondary-Level Students. *Journal of Advanced Academics*, 32(4), 501–532.
- Martawijaya, M. A. (2014). Buku Fisika Peserta Didik Berbasis Kearifan Lokal Untuk Meningkatkan Karakter Dan Ketuntasan Belajar. *Buku Sains Dan Pendidikan Fisika*, 10(3), 285–292.
- Mufit F dan Fauzan A. (2019). *Model Pembelajaran Berbasis Konflik Kognitif*. Padang: CV. IRDH.
- Mufit, F., Festiyed, Fauzan, A., & Lufri. (2019). The Application of Real Experiments Video Analysis in the CCBL Model to Remediate the Misconceptions About Motion's Concept. *Journal of Physics: Conference Series*, 1317(1).
- Muhibbin, Syah. (2004). *Psikologi Pendidikan*. Bandung : Rosda Karya.

- Murdani, E. (2020). Hakikat Fisika dan Keterampilan Proses Sains. *Jurnal Filsafat Indonesia*, 3(3), 72–80.
- Nirfayanti, & Nurbaeti. (2019). Pengaruh Media Pembelajaran Google Classroom Dalam Pembelajaran Analisis Real Terhadap Motivasi Belajar Mahasiswa. *PROXIMAL: Jurnal Penelitian Matematika Dan Pendidikan Matematika*, 2(1), 50–59.
- Nurbaiti, K., Astuti, N., & Destini, F. (2022). *PEDAGOGI: Jurnal Pendidikan Dasar Hubungan Pengelolaan Kelas Daring dan Minat Belajar dengan Hasil Belajar IPA Kelas IV Sekolah Dasar keluarnya surat edaran oleh Menteri Pendidikan dan Kebudayaan Republik Indonesia Nomor 4 Tahun 2020 tentang Pelaksanaan*. 10(1), 58–69.
- Occe, L. (2018). Peranan Morning Briefing Terhadap Motivasi Belajar dan Inspirasi Bagi Mahasiswa Teknik Elektro Politeknik Enjinering Indorama : Telaah Hasil Jawaban Pada Kuesioner. *Jurnal Ilmu Dan Budaya*, 41 No. (61, 7189–7200.
- Pane, A., & Darwis Dasopang, M. (2017). Belajar Dan Pembelajaran. *FITRAH:Jurnal Kajian Ilmu-Ilmu Keislaman*, 3(2), 333.
- Putri, Y. L., & Rifai, A. (2019). Pengaruh Sikap dan Minat Belajar terhadap Motivasi Belajar Peserta Didik Paket C. *Journal of Nonformal Education and Community Empowerment*, 3(2), 173–184.
- Riskawati, ., Nurazmi, ., & Marisda, D. H. (2022). High School Students' Interest in Choosing Physics as a Major in College. *KnE Social Sciences*, 2022, 356–366.
- Salman, F. (2012). *Pengaruh Model Kooperatif Tipe Problem Possing dan Motivasi Awal Siswa Kelas XI SMA Negeri 12 Padang*. 5–6.
- Slameto. (2017). Pengaruh minat belajar terhadap prestasi belajar bidang studi ekonomi siswa MA Al Fattah Sumbermulyo. *Jurnal Ilmiah Pendidikan dan Ekonomi*, 1(1), 21–36.
- Studi, P., Fisika, P., Madiun, U. P., Dalam, P. P., Dan, E., Ditinjau, D., Motivasi, D., Siswa, B., Fadillah, N., & Sasono, M. (2020). *Makalah Pendamping ISSN : 2527-6670 Pembelajaran Fisika Menggunakan Model TGT Dengan Metode*.
- Syaparuddin, S., & Elihami, E. (2020). Peningkatan Motivasi Belajar Siswa Melalui Video pada Pembelajaran PKn di Sekolah Paket C. *Jurnal Edukasi Nonformal*, 1(1), 187–200.
- Widodo, W. (2010). *Pengembangan Model Belajar "MiKiR" pada Perkuliahan Fisika Dasar untuk Meningkatkan Keterampilan Generik Sains dan Pemecahan Masalah Calon Guru SMK Program Keahlian Tata Boga*. 17, 140–146.