Analysis of Peer Friendship, Learning Interests, and Biology Learning Results of Class X Students at Plus Bustanul Ulum Puger Jember Senior High School

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Abstract The aim of this study is to provide a comprehensive analysis of the characteristics of peer friendships, the level of interest in learning, and the academic results in biology of class X students enrolled at SMA Plus Bustanul Ulum Puger Jember during the academic year 2022/2023. The research methodology employed in this study is quantitative and descriptive, utilizing survey techniques. The subjects of this study consisted of students in the tenth grade at SMA Plus Bustanul Ulum. The research employed a non-probability sampling technique known as total sampling, which involved selecting all 86 class X pupils as the sample. The research employed interviews, questionnaires, and documentation as data gathering methods. The questionnaire employed a Likert scale. All instruments employed were verified to be both valid and reliable. The study revealed that the mean student peer friendship score was 74% in the high range, the mean student's interest in learning score was 69% in the high range, and the mean student learning result score was 75% in the high range. Peer friendships, interest in learning, and biology learning results for grade X students at SMA Plus Bustanul Ulum Puger Jember are significantly high throughout the 2022/2023 academic year. Researchers propose conducting additional investigation to ascertain the correlation among the three variables. The researchers recommend further investigation to determine the correlation among the three variables.

INTRODUCTION

Education is a deliberate endeavor undertaken by individuals to develop their abilities through the process of acquiring knowledge, leading to enduring modifications in behavior as a consequence of personal encounters (Chusni et al., 2021). Learning results are the changes that result from the learning process (Harahap et al., 2019). The learning results for each individual vary due to the influence of several elements on their learning success (Harahap & Nasution, 2022). The biology learning outcomes of Indonesian students are relatively low (Nasution et al., 2023). Consequently, all research related to this matter is crucial and should be conducted. Learning success is influenced by both internal and external variables. Internal factors refer to elements that arise from within an individual, whereas external factors refer to aspects that come from outside the individual (Kurniawan et al., 2017). Peer friendship is an external component, while interest in learning is an inside factor.

Peer buddies are individuals who share commonalities in age, growth, mindset, and social standing (Kurniawan & Sudrajat, 2017). Peer friendships play a significant impact in influencing an individual's personality. Peer connections provide three functions for students, the primary of which is to provide social, moral, and emotional support. Furthermore, friendship serves as a means of imparting diverse social skills. Furthermore, peer connections serves as a catalyst for sociability among other pupils. Hence, peer friendship has a significant role in shaping young people's views as teenagers often emulate the conduct, both positive and negative, exhibited by their peers (Kurniawan & Sudrajat, 2017).

Senior High School (SMA) Plus Bustanul Ulum Puger Jember is a privately-owned educational institution that operates under the patronage of the Islamic Education Social Waqf Foundation (YWSPI) and is affiliated with the Bustanul Ulum Mlokorejo Islamic Boarding School. This school possesses an 'A' accreditation due to its several advantages, namely its designation as an Excellent School, its recognition as a National Level Active Literacy School, and its designation as a Driving School. SMA Plus Bustanul Ulum Puger is located within the premises of Bustanul Ulum Mlokorejo Islamic Boarding School, therefore it is mandatory for students enrolled in this school to reside within the Islamic boarding school. This results in students residing away from their parents and cohabitating with their peers for extended durations.

Typically, high school students are teenagers who spend a significant portion of their teenage years in Islamic boarding schools with their peers. These findings indicate that peer friendship plays a critical role in influencing the development of students' personalities. If peer friendships exert a positive influence, they contribute to the development of a student's favorable personality. Conversely, if peer friendships have a negative impact, they lead to the formation of an unfavorable personality.

The desire to learn is influenced by two variables: internal forces, which originate from within oneself, and external stimuli, which originate from outside oneself. Internal variables encompass physiological and psychological aspects. Meanwhile,

external influences can be categorized into two groups: non-social elements, which encompass weather conditions, air temperature, and teaching aids and equipment required for learning. Social aspects encompass the influence exerted by teachers, family members, and social peers on an individual's interest (Firdawati, 2021). Peer friendship is an extrinsic influence that molds one's inclination towards acquiring knowledge.

Interest is the spontaneous development of a positive inclination or curiosity towards something, independent of external influence (Dewi, 2021). Interest can be considered a potent motivator for individuals to pursue and accomplish specific objectives (Sutrisno, 2020). Lack of interest hinders individuals from developing enthusiasm for studying and acquiring knowledge through the learning process. The level of interest in learning directly correlates with the level of learning results achieved. Interest in learning is one of many factors that may influences learning (Hidayati et al., 2023; Oktafia et al., 2022) and each student has a varying degree of interest for studying a subject (Afriza & Nasution, 2022; Oktafia et al., 2022).

Initial interviews conducted among several class X students at SMA Plus Bustanul Ulum Puger revealed that the interest to engage in academic studies can be influenced by interactions with peers. Students who have peers who are passionate about learning will likewise develop a passion for learning. In addition, when the information is straightforward, students are more likely to be engaged and eager to participate in the lesson. Conversely, if the subject is challenging, students may experience less interest and enthusiasm towards participating in the lesson. Students are also inclined to feel engaged and eager when presented with materials that necessitate actual application. This lack of interest towards education is also anticipated to lead to subpar academic achievements, as demonstrated by the persistently inadequate exam scores of numerous kids, which remain below 70.

Analyzing the peer friendship profiles of students in boarding schools, like SMA Plus Bustanul Ulum Puger Jember, is crucial for gaining a comprehensive understanding of their educational environment. As classmates who frequently interact and share a large amount of time, they have a crucial role in influencing the learning process. It is crucial for the field of education, particularly schools, to gather information regarding the peer friendship profiles of its students. Comprehending the intricacies of interpersonal connections in dorms can offer schools valuable understanding of potential social issues or fruitful collaborations that could influence students' academic performance and overall learning outcomes. By offering a comprehensive profile, schools can implement more focused measures to offer learning support and establish an optimal atmosphere for student academic progress and advancement.

In addition, it is crucial to give greater consideration to the examination of the learning preferences and academic achievements of students enrolled in boarding schools, such as SMA Plus Bustanul Ulum Puger Jember. Understanding students' learning preferences not only offers insights into their academic inclinations, but

also enables educators to develop more efficacious instructional approaches, hence enhancing learning results. Teachers can enhance their instructional strategies, offer suitable learning materials, and foster more captivating and pertinent learning encounters by comprehending students' educational preferences and academic achievements.

Therefore, it is crucial to take into account the student's peer friendship profile, interest in learning, and learning outcomes when assessing the current educational quality standards and determining ways to enhance the academic quality of SMA Plus Bustanul Ulum Puger Jember. A comprehensive examination of these factors can facilitate the establishment of a learning atmosphere that fosters comprehensive student growth and enhances the efficacy of the educational procedure in educational institutions. This study necessitates doing research to examine the characteristics of peer friendships, interest in learning, and biology learning outcomes among grade 10 students at Plus Bustanul Ulum Puger Jember Senior High School throughout the 2022/2023 academic year.

METHOD

This research employs a quantitative methodology. Quantitative research is the use of empirical data obtained through the measurement of variables (Djaali, 2021). This study employs quantitative descriptive methodologies. The research employed a survey as the data collection methodology. Survey research is a form of research that employs questionnaires as a means of gathering data (Djaali, 2021). Researchers play the role of passive observers and do not exert any impact on the occurrence of facts or data derived from variables. Subsequently, the researcher scrutinized and elucidated the data. This study aims to provide a comprehensive description of the characteristics of peer friendships, interest in learning, and biology learning outcomes among class X students at SMA Plus Bustanul Ulum Puger Jember during the 2022/2023 academic year.

The study focused on the population of high school students in class X at SMA Plus Bustanul Ulum. The sample represents a subset of a population, and it provides information about the number and certain attributes of that group (Sugiyono, 2013). The samples collected from the population must accurately reflect the characteristics of the entire population. The research employed a nonprobability sampling technique known as total sampling. Total sampling is a sampling approach where every member of the population is included as a sample. When the population size is fewer than 100, total sampling is employed, which involves sampling every member of the population. The statistics pertaining to both the research sample and the research population may be observed in Table 1.

Table 1. Sample distribution of class x students at SMA Plus Bustanul Ulum Puger Jember.

No.	Class	Population
1.	X A	17 Students
2.	X B	21 Students
3.	X C	26 Students

4.	X D	22 Students
	TOTAL	**86 Students**

The research employed data gathering methods such as interviews, questionnaires, and documentation. This study employed a questionnaire to gather data pertaining to peer friendships and interest in learning. This study utilised documentation as a means to gather data on the learning results of biology topics for class X students at SMA Plus Bustanul Ulum Puger. The data was obtained in the form of mid-event assessment scores.

In order to utilise the questionnaire instrument, it is important to conduct a preliminary test on a single class of students who are not part of the main sample. Class XI MIPA 2 was selected as the class to conduct the questionnaire trial. The trial involved administering a comprehensive questionnaire to students, followed by assessing the validity of the instruments using the Pearson Correlation and Cronbach's alpha reliability test with the IBM SPSS Statistics 25 programme.

The peer friendship questionnaire comprised 35 items. Following the validity test, 8 items were found to be invalid, leaving 27 valid statements to be utilised in the research. The Cronbach's Alpha rating of 0.864 for all 27 question items indicates that the peer friendship questionnaire is both valid and reliable. Table 2 displays the peer friendship instrument grid.

The learning interest questionnaire, which was produced in advance, comprised 25 statements. Following the validity test, it was determined that 5 of these statements were invalid. Therefore, only 20 items were judged valid and used in the research. The Cronbach's Alpha rating of 0.856 for all 20 question items indicates that the interest in learning questionnaire is both valid and reliable. Table 3 displays the grid of learning interest instruments.

The survey employed a Likert scale as its measurement instrument. The Likert scale is utilised to quantify the opinions, views, and perceptions of an individual or a collective on social phenomena. Each item in the instrument is rated on a Likert scale, ranging from highly positive to highly negative (Sugiyono, 2013). The research instrument consists of 5 answer choices: strongly agree (SS), agree (S), somewhat agree (CS), disagree (TS), and severely disagree (STS). The weighting of the questionnaire instrument is modified based on the nature of the question. For positive questions, a score of 5 is assigned to the response "strongly agree" and a score of 1 is assigned to the response "strongly disagree". Similarly, in the case of a negative question, the score assigned to the "strongly agree" answer is 1, whereas the score for "strongly disagree" is 5. The research use descriptive analysis for data analysis.

Table 2. Peer friendship instrument grid.

Sub Variables	Indicators	Statement Items		Total
		Positive	**Negative**	
Student articulates their viewpoint	Students share common interests.	1,2		2
	Students share a commonality in the topics	3,5	4	3

Sub Variables	Indicators	Statement Items		Total
		Positive	**Negative**	
	they discuss.			
Mutual respect	Students help each other	7,9,10,11	8	5
	Students embracing one another	14	12, 13	3
Problem solving	Personality	15,16,17 19,20		5
	Social	21,23,25,27	24	5
Adaptation	Openness	28,29		2
	Harmony	30	32	2
Total		21	6	27

Table 3. Learning interest instrument grid.

Indicators	Descriptor	Statement Items		Total
		Positive	**Negative**	
Exercise focused concentration during the process of studying	Consistently fulfil the task of completing their notebooks		2	1
	Consistently review their school lessons at home		4	1
	Passionate about learning	6,7	5	3
Actively involved in the process of acquiring knowledge	Enjoys engaging in class discussions		9	1
	Consistently demonstrates enthusiasm and active engagement in learning activities	10	11,12	3
	Have a desire to increase reading sources and knowledge	13	14	2
There exists a desire for knowledge acquisition or active engagement in the process of acquiring knowledge	Eager to inquire about the subject matter.	15		1
	Exhibit a high level of attentiveness and comprehension during their lesson	17	18	2
Experiencing joy in acquiring knowledge	Exhibit a high level of discipline	19,20	21	3
	Experiences joy when assigned a task	22	23	2
	Enhance their proficiency in doing assignments	24		1
Total		10	10	20

FINDINGS AND DISCUSSION

The study was carried out at SMA Plus Bustanul Ulum Puger, targeting the entire population of class X students, with a sample size of 86 individuals. Data was gathered by researchers using questionnaires and documents. Table 4 displays the data about peer friendships, interest in learning, and biology learning results of class X students at SMA Plus Bustanul Ulum Puger Jember for the academic year 2022/2023.

Table 4. Research results data.

No.	Respondent	Peer Friendships	Interest to Learn	Learning Result
1.	Resp 1	99	80	73
2.	Resp 2	102	69	81
3.	Resp 3	88	65	53
4.	Resp 4	92	62	70
5.	Resp 5	86	63	60
6.	Resp 6	126	86	94
7.	Resp 7	103	73	86
8.	Resp 8	85	55	47
9.	Resp 9	89	69	52
10.	Resp 10	99	73	71
11.	Resp 11	96	64	72
12.	Resp 12	87	48	42
13.	Resp 13	104	73	87
14.	Resp 14	106	56	75
15.	Resp 15	85	57	46
16.	Resp 16	109	65	75
17.	Resp 17	90	50	70
18.	Resp 18	107	81	94
19.	Resp 19	114	72	91
20.	Resp 20	100	63	76
21.	Resp 21	104	71	79
22.	Resp 22	93	63	77
23.	Resp 23	95	54	68
24.	Resp 24	112	73	83
25.	Resp 25	101	69	81
26.	Resp 26	100	70	79
27.	Resp 27	106	71	81
28.	Resp 28	104	60	74
29.	Resp 29	105	60	77
30.	Resp 30	117	68	87
31.	Resp 31	111	64	75
32.	Resp 32	83	51	44
33.	Resp 33	98	62	68
34.	Resp 34	80	64	42
35.	Resp 35	91	58	74
36.	Resp 36	111	86	93
37.	Resp 37	97	61	71
38.	Resp 38	97	54	69
39.	Resp 39	100	57	79
40.	Resp 40	108	71	80
41.	Resp 41	101	74	74
42.	Resp 42	104	77	80
43.	Resp 43	119	75	86
44.	Resp 44	105	70	75
45.	Resp 45	95	69	64
46.	Resp 46	92	65	60
47.	Resp 47	103	75	84
48.	Resp 48	101	73	82
49.	Resp 49	90	66	72
50.	Resp 50	106	68	83
51.	Resp 51	104	72	85
52.	Resp 52	81	72	55
53.	Resp 53	99	64	69

No.	Respondent	Peer Friendships	Interest to Learn	Learning Result
54.	Resp 54	108	72	84
55.	Resp 55	123	88	96
56.	Resp 56	116	81	93
57.	Resp 57	112	74	89
58.	Resp 58	113	81	90
59.	Resp 59	92	68	71
60.	Resp 60	105	70	85
61.	Resp 61	105	70	86
62.	Resp 62	108	78	87
63.	Resp 63	99	70	74
64.	Resp 64	110	71	81
65.	Resp 65	93	70	73
66.	Resp 66	96	76	64
67.	Resp 67	81	62	57
68.	Resp 68	113	76	84
69.	Resp 69	105	65	79
70.	Resp 70	103	69	73
71.	Resp 71	112	76	82
72.	Resp 72	86	57	51
73.	Resp 73	92	62	62
74.	Resp 74	107	63	83
75.	Resp 75	98	62	65
76.	Resp 76	110	80	83
77.	Resp 77	102	70	81
78.	Resp 78	101	58	71
79.	Resp 79	96	77	70
80.	Resp 80	109	78	78
81.	Resp 81	119	84	93
82.	Resp 82	112	77	84
83.	Resp 83	99	57	71
84.	Resp 84	117	83	91
85.	Resp 85	97	76	75
86.	Resp 86	104	70	82

The analysis of the peer friendship variable revealed that 6 students, accounting for 7% of the sample, fell into the very high category. Additionally, 64 students, representing 74.4% of the sample, were classified in the high category. Lastly, 16 students, making up 18.6% of the sample, were categorized in the medium category. Meanwhile, the percentage for the low and very low groups is 0%. Table 5 displays a brief summary of the data on student peer friendships.

Table 5. Data on student peer friendship.

Category	Total	Percentage
Very high	6	7%
High	64	74,4%
Medium	16	18,6%
Low	0	0%
Very low	0	0%
Total	**86**	**100%**

The analysis of the learning interest variable revealed that 4 students (4.7%) fell into the very high category, 48 students (55.8%) fell into the high category, 32 students (36%) fell into the medium category, and 3 students (3.5%) fell into the low category. meanwhile, the extremely low category stands at 0%. Table 6 displays a synopsis of the data about students' learning interests.

Table 6. Data on student study interest.

Category	Total	Percentage
Very high	4	4,7%
High	48	55,8%
Medium	31	36%
Low	3	3,5%
Very low	0	0%
Total	**86**	**100%**

Based on the findings on the biology learning results variable, it was determined that 36 students had learning results in the very high category with a percentage of 41.9%, 40 students in the high category with a percentage of 46.5%, and 10 students in the medium category with a percentage of 11.6%. Meanwhile, students with biology learning results were rated as poor and extremely low at 0%. An overview of student biology learning results data can be viewed in Table 7.

Table 7. Data on student biology learning results.

Category	Total	Percentage
Very high	36	41,9%
High	40	46,5%
Medium	10	11,6%
Low	0	0%
Very low	0	0%
Total	**86**	**100%**

Based on the findings on the peer friendship variable, it was determined that the majority of students were in the high category, with 64 students with a percentage of 74.4%, in fact 6 students with a percentage of 7% were in the very high category. This reveals that the peer friendships of class X SMA Plus Bustanul Ulum Puger students are regarded as positive. In the indication of expressing an opinion, there are sub-indicators of similarity of interest and similarity of discussion content. In the sub-indicator of similarity of interests, the percentage was 63% in the high group. Then the sub-indicator of similarity of discussion content earns a percentage of 73.18% in the high category. This arises because there is an age similarity between the students. By having comparable interests and similar topics of conversation, students feel comfortable being with their peers, thereby building their friendships. This is in accordance with Riadi's (2022) assertion that it is likely that children of the same age have a larger potential to have similar interests and conversation themes. This aids to developing their friendship because they can communicate easily and have common subjects to chat about.

Furthermore, in the mutual respect indication, there are two sub-variables, namely helping and accepting. The help sub-variable obtains a percentage of 79% in the high category, as well as the acceptance sub-indicator with a percentage of 71% which is likewise in the High group. This high percentage is indicated because students with peer connections support one other in any way, whether in terms of studying or activities outside of studying without choosing buddies. These answers demonstrate that students assisting each other with peer connections would increase friendship relationships.

The indicator for overcoming challenges consists of two sub-variables: personal and social. The personal sub-indicator achieves a score of 73% in the high category, while the social sub-variable has a score of 75%. The high percentage is attributed to students' engagement in activities initiated by their peers, who offer constructive support by motivating them to study, collaborating on school assignments, and participating in study groups. Riadi (2022) affirms students exhibit a strong inclination towards activities engaged in by their peers. Moreover, when the group size is restricted, the ensuing interactions tend to be more favorable and exert significant effect.

The adaption indicator consists of two sub-variables: openness and harmony. The sub-variable of openness has a percentage of 76% and the sub-variable of harmony has a percentage of 80% in the high category. The high percentage is attributed to students' preference for socializing with friends rather than being alone, and their inclination to share personal information with their peers, thereby fostering strong ties. This is corroborated by Riadi (2022), who asserts that as children develop close relationships with their peers, they have the courage to articulate their viewpoints in order to address the challenges they encounter. This familiarity also fosters the development of conduct that promotes friendship.

Further, the results regarding the variable of learning interest indicate that the majority of students, specifically 48 students representing 55.8%, were classified as high. Furthermore, 4 students, accounting for 4.7%, were labeled as extremely high. These findings indicate that the students of class X SMA Plus Bustanul Ulum Puger have a favorable attitude towards learning. The completion indicator of the notebook shows a score of 70% in the high range. The utilization of learning videos fosters students' enthusiasm for course engagement, thereby prompting their active note-taking on the video content. Andiansyah (2018) asserts that video media has the ability to impact students both physically and psychologically. Students will be inclined to utilize video medium for presenting concepts. Students' engagement with films can foster interest and potentially enhance their interest in learning.

The learning connectivity indicator achieved a score of 63%, placing it in the high category. The reason for this is that students possess a strong enthusiasm for learning and actively engage in class discussions. They derive pleasure from expanding their knowledge by posing inquiries to the teacher or engaging in reading materials. This is corroborated by Firdawati (2021), who asserts that an element of interest is actively engaging in an activity.

The measure of curiosity or engagement in learning yielded a score of 77%, placing it in the strong category. This is due to students diligently following the lesson from beginning to end and actively seeking clarification from the teacher when encountering unfamiliar topics. According to Firdawati (2021), individuals who have a higher level of interest will allocate greater attention to their studies. Students with a keen interest exhibit heightened concentration, leading to increased attentiveness throughout lessons. One of the ways to enhance learning interest is by teachers presenting suitable and effective media (Sofyan & Nasution, 2022).

The index of joy achieved a score of 68% in the high category. This phenomenon arises from students adhering to strict deadlines for completing school assignments, driven by the dread of receiving worse grades for late submissions. Additionally, students exhibit enthusiasm for engaging in textbook practice questions. Firdawati (2021) asserts that cultivating a pleasant attitude and experiencing delight towards the teacher or course will stimulate and foster students' interest.

Further, the analysis of the learning results revealed that a significant number of students, specifically 40 students (46.5%) fell into the high group. Furthermore, an additional 36 students (41.9%) were classified in the very high category. These findings indicate that the academic achievements of students in class X SMA Plus Bustanul Ulum Puger are relatively impressive. This phenomenon is attributed to causes arising from both intrinsic and extrinsic sources. According to this research, the excellent peer interactions and high enthusiasm in learning are the main factors that contribute to good student learning outcomes.

The findings of the descriptive statistics in this study are corroborated by the research conducted by Rachmi (2022), which reported that the biology learning outcomes of students achieved a high category percentage of 40%. Dinia (2022) discovered similar findings in Jember, where the biology learning outcomes of children in SMA Negeri 1 Tanggul Jember, the same district as this study, achieved a high category percentage of 83.3%. These findings indicate that the academic performance in biology at the two high schools in Jember is highly satisfactory.

CONCLUSION

The research findings indicate that among the 86 grade 10 students at SMA Plus Bustanul Ulum Puger, 7% had a peer friendship level classified as very high, 74.4% had a high level, and 18.6% had a medium level. The average level of peer friendship among students is classified as high, with an average score of 74%.

The level of interest in studying among grade 10 pupils at SMA Plus Bustanul Ulum Puger can be categorized as follows: very high (4.7%), high (55.8%), medium (36%), and low (3.5%). The mean student interest towards acquiring knowledge is 69%, falling within the high range. The learning results of the 86 students at SMA Plus Bustanul Ulum Puger in class 10 are assessed by a Mid-

Semester Assessment (PTS). The results show that 41.9% of students achieved a very high category, 46.5% achieved a high category, and 11.6% achieved a medium category. The mean student learning result is 75%, falling within the high range.

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