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The Study of Constructivistic Learning Experience, Democratic Attitude, Learning Independence & Learning Motivation of Senior High School Students at Wajo Regency South Sulawesi

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ABSTRACT

This study employs a quantitative survey method with correlation analysis to investigate the influence of constructivist biology learning experiences, democratic attitudes, and learning independence on the learning motivation of high school students in Wajo Regency. The research utilizes Structural Equation Modeling (SEM) for path analysis to determine the direct and indirect effects among the studied variables. The population comprises all high school students in Wajo Regency, with a sample of 274 students selected through simple random sampling from three schools: SMAN 1 Wajo, SMAN 3 Wajo, and SMAN 7 Wajo. Data were collected using four validated instruments: a 35-item constructivist biology learning experience questionnaire, a 30-item democratic attitude questionnaire, a 49-item learning independence questionnaire, and a 30-item learning motivation questionnaire. Descriptive analysis reveals that the average scores for constructivist learning experience, democratic attitudes, learning independence, and learning motivation are 66.16%, 67.56%, 70.79%, and 72.35%, respectively. SEM results show that constructivist biology learning experiences positively influence learning motivation (path coefficient = 0.228), as does learning independence (path coefficient = 0.430). In contrast, democratic attitudes exhibit a significant negative influence on learning motivation (path coefficient = -0.645). These findings highlight the critical role of active, student-centered learning approaches and learner autonomy in enhancing motivation. Interestingly, the negative correlation between democratic attitudes and learning motivation suggests a complex relationship that may reflect contextual or cultural factors specific to the student population. This study contributes to the field of educational psychology by emphasizing the effectiveness of constructivist pedagogical strategies and the promotion of student independence in motivating learners. The results provide practical implications for educators and policymakers seeking to improve motivation and learning outcomes through the design of more effective instructional practices.

Keywords: Constructivistic Learning Experience, Democratic Attitude, Learning Independence, Learning Motivation

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INTRODUCTION

Traditional learning often focuses on memorizing facts and concepts without giving students the opportunity to apply this knowledge in a real context (Rousoulioti & Seferiadou, 2023; Triayomi et al.., 2024). This approach can reduce student motivation and interest, and does not encourage independent learning and critical thinking. 21st century education requires students to have critical, independent, democratic thinking skills, and learning motivation. However, in reality, the learning system that is still centered on teachers causes the learning

process to decline (Lestari & Iryanti, 2024). Therefore, a more dynamic and interactive approach such as constructivism is needed to improve the quality of learning. Constructivistic approaches encourage learners to participate in discussions, experiments, problem-solving and reflection on their experiences to build deep and relevant understanding (Adnan et al., 2021; Winarti et al., 2025).

Constructivism and other more dynamic and interactive learning approaches are acknowledged as successful tactics to raise the standard of instruction at the academic level. Students can actively engage in the learning process in this setting because to constructivism learning theory, which motivates individuals to seek knowledge and apply it to their experiences (Pramana et al., 2024). The constructivistic approach in education focuses on students' active construction of knowledge. Students are encouraged to build their own understanding of material concepts through experience and interaction with their learning environment. The main principles of constructivistic approach include, student-centered learning as active learners who are responsible for their own learning (Phogat, 2017). Emphasis on experience and inquiry, students learn through hands-on experience and scientific inquiry (Arpentieva et al., 2021). Collaborative learning, students learn better when they work together with their peers (Sasson et al., 2022). Authentic assessment. assessment is based on demonstration of student understanding, not just memorization (Thomas, 2023).

The learning process that is based on the constructivistic paradigm in the implementation of learning, applies the principles of constructivistic learning. The principles of constructivist learning implementation consist of: (1) learning personalization, (2) reflective thinking, (3) problem-solving and investigation, (4) relevance to daily-life, (5) collaborative learning, (6) discussion, and (7) teacher scaffolding. The learning process that takes place is expected to develop students' skills in constructing their knowledge to be applied in everyday life (Adnan et al., 2019). In the context of learning, active and inquiry-based learning experiences provide students with opportunities to relate new knowledge to the experiences and knowledge they already have (Riesen et al., 2018). This is in accordance with the theory of constructivism proposed by Jean Piaget and Lev Vygotsky, which emphasizes that learning is an active process in which students construct understanding through interaction with their world over time(Zhang, 2022).

Democratic attitude is an attitude that leads to mutual respect and respect, recognizes an equality of degrees, upholds mutual help, cooperation is fair to everyone, appreciates differences and differences in opinion (Rodiyana, 2019). Students' democratic attitudes should grow in a participatory and inclusive learning process so that students can learn to appreciate differences, dare to express their opinions, and actively participate in decision-making in class. However, due to the low understanding and experience of democracy in the educational environment, students hesitate or are limited in expressing their opinions in class (Insan et al., 2022).

Wulandari dan Febriana (2020) describe the connection between learning achievements and students' attitudes. A positive attitude toward education can be linked to an awareness of democratic values, as evidenced by the finding that 90% of students with a positive attitude toward learning obtained high learning outcomes. In this regard, interactive and participatory learning opportunities are crucial for developing students' democratic abilities. It can be concluded that the indicators of democratic attitudes are equality of degrees, respect for opinions, cooperation, respect for differences, behaving fairly, helping each other, and participating (Akbar et al., 2023).

The principles of democratic attitudes have a correlation with the constructivistic learning approach. The principles of democratic attitudes that are correlated and can be improved with constructivistic learning based on literature review are; (1) individual freedom, (2) independence, (3) critical thinking, (4) social care, (5) diversity, (6) equality, and (7) communication (Haruthaithanasan, 2010). Through events like OSIS elections, students' social awareness and engagement can enhance their democratic views. They learn how to voice their thoughts, respect differences, and be tolerant—all of which are critical traits of democratic citizens (Insan et al., 2022).

Learning independence is a person's ability to organize, manage, and control their own learning process without relying significantly on external assistance. High learning independence is expected to create individuals who are able to face challenges in learning and are responsible for the results achieved (Kurniasih et al., 2021). It involves self-awareness of learning goals, the ability to identify necessary resources, and the willingness and ability to motivate oneself. The importance of learning independence lies in the fact that the world is constantly changing, and individuals need to continuously learn and develop to remain relevant and successful in various life contexts. With learning independence, one can take the initiative to learn new things, explore their own interests and talents, and overcome challenges and obstacles that may arise in the learning process (Rahayu et al., 2022). In an era where information is widely available and technology has become an integral part of daily life, learning independence is becoming an increasingly important skill. With learning independence, individuals can access, evaluate and use information in an effective way, thus enabling them to continue learning and developing throughout life (Purnama & Sriliasta, 2023).

Learning motivation is a factor that encourages students to learn. Learning motivation can be divided into two types: intrinsic motivation, students learn because they are interested in the subject matter and want to understand the concepts and extrinsic motivation, students learn because they want to get good grades, pass exams, or meet the expectations of others (Diseth et al., 2020; Prabowo & Jatmiko, 2025; Haratua et al., 2024). Learning motivation is important to build new knowledge about a learned concept and accommodate information. Without the motivation to learn, the desire to build this knowledge will disappear (Alcivar et al., 2020; Wulandari et al., 2024; Arifin & Yusuf, 2024). The ability to build motivation starts from a student but learning motivation can come from various aspects. For example, bringing up learning motivation for a reason or a clear goal that you want to build. With this learning motivation, students are able to improve learning outcomes in achievement alone (Serin, 2018). Constructivist learning environments are positively correlated with constructive activities and teacher-student interactions, which increase intrinsic motivation to learn and contribute to academic self-efficacy (Sharma, 2020).

The findings on the relationship between constructivistic learning experiences, learning independence and students' learning motivation have important implications for learning. Teachers can apply constructivistic approaches in learning to improve students' understanding, learning independence, and learning motivation. Provide students with opportunities to learn independently through student-centered learning activities, such as scientific inquiry and learning projects (Alt, 2015). Making learning interesting and relevant to students by using a variety of interesting learning methods and resources (Alam, 2017). Creating a collaborative and supportive learning environment to encourage students to learn together and help each other (Sasson et al., 2022). By implementing these strategies, teachers can help students to reach their full learning potential and develop a love for the subject.

The constructivistic approach to learning can provide significant benefits, including improving Conceptual Understanding i.e. students construct knowledge by connecting new concepts with existing knowledge, which improves their overall understanding. Developing critical thinking skills i.e. students are encouraged to analyze, evaluate and synthesize information, which strengthens their critical thinking skills. Encouraging active engagement i.e. inquiry and experiment-based learning allows students to actively engage and participate in the learning process (Bada & Olusegun, 2015).

Constructivistic learning experiences can also develop democratic attitudes with constructivistic learning environments encouraging student participation in decision-making and valuing diversity of opinions. This helps students develop a democratic attitude (Mustaji et al., 2019). Increasing learning independence by taking an active role in learning, students learn to manage and direct their own learning process, which strengthens learning independence(Dimitrova, 2022). Strengthening learning motivation i.e. active engagement and relevance of learning to real life increases students' intrinsic motivation, making them more interested and committed to learning (Alt, 2016).

Constructivistic teaching emphasizes students' motivation and critical thinking skills, and encourages them to learn independently (Sugrah, 2019). In the constructivistic learning approach, students gain understanding through an active process of forming their own knowledge. Thus, they are able to organize their learning steps continuously and consistently to complete tasks and face new situations with meaningful influence (Nitbani, 2022). Learning motivation is related to students' democratic attitudes. Students who have a democratic attitude tend to have motivation in learning. Such as having the courage to express opinions, and respecting other students' differences of opinion, especially in the classroom(Djurumudi et al., 2021).

The constructivistic learning experience can foster learning motivation because in constructivistic learning students are actively involved in learning, namely finding out and processing and analyzing problems (Sharma, 2020). If students lack involvement in learning, there will be a sense of irresponsibility for the problems given by the educator and no problem solving (Mattar, 2018). Information discovery can be obtained if motivation in students arises. As learning progresses, it is hoped that students will be able to maintain learning motivation and even be able to increase learning motivation by exploring more deeply the information provided and generating a sense of responsibility for the obligations of a student that must be completed (Al-Darei & Ahmed, 2022).

Research has shown that constructivistic learning experiences, democratic attitudes, learning independence and students' learning motivation are interconnected with each other. This can occur because constructivistic learning experiences can help students to build their own understanding of material concepts that are more in-depth and meaningful (Halpern, 2017). The implementation of the learning process in the classroom can increase students' confidence and ability to learn independently. Motivate students to learn because they feel engaged and interested in the subject matter.

Based on the above background, which shows the relationship between constructivistic learning experiences, democratic attitudes, learning independence and student learning motivation, so the researcher conducted a study that aims to explore the effect of constructivistic learning experiences, democratic attitudes, learning independence, on student learning motivation for students in XII Science Class in Public High Schools in Wajo Regency. Understanding these four variables is important for designing learning strategies that are not only effective in conveying knowledge but also in shaping the skills and attitudes necessary for success in students' personal and professional lives. By examining some of these factors in learning, it is hoped that the results of the study can provide insights for educators and education policy makers to integrate constructivistic approaches in the curriculum and other subjects. This approach can be an effective tool to prepare students to face challenges in an increasingly complex and dynamic world. Specifically, this study aims to determine how constructivistic learning experiences influence democratic attitudes and learning independence, and how these variables together affect students' learning motivation. The goal is to build an integrated model that explains students' motivational dynamics within the context of high schools in Wajo Regency.

METHOD

This research is a quantitative descriptive research using path analysis. This research was conducted in January-February 2024 in public high schools in Wajo Regency. The population in this study were all students in XII Science Class from 15 public high schools in Wajo Regency in the 2023/2024 academic year. Determination of the sample to determine the school where data collection is using random sampling technique. The sample schools are: SMA Negeri 1 Wajo, SMA Negeri 3 Wajo, and SMA Negeri 7 Wajo. The number of samples taken was 274 people. The data collection technique is by using a constructivistic biology learning experience questionnaire instrument of 35 questions, a democratic attitude questionnaire of 30 questions, a learning independence questionnaire of 49 questions and a learning motivation questionnaire of 30 questions that have been tested for reliability and validity.

Data collection is done by filling out a questionnaire by students. The form of answer choices given from strongly agree with a score of 5, agree score 4, neutral score 3. disagree score

2, and strongly disagree is given a score of 1. The data obtained from the questionnaire results are then tabulated in the excel application which is then ready for further analysis. Further analysis is carried out by inferential statistics using SEM analysis using the SPSS 24 and IBM AMOS 24 applications.

RESULT AND DISCUSSION

1. Descriptive Statistical Analysis of Constructivistic Learning Experience, Democratic Attitude, Learning Independence & Learning Motivation of XII Science Class Students of Public Senior High Schools in Wajo Regency.

Statistical data on the value of constructivistic learning experience variables, democratic attitudes, learning independence and learning motivation of XII Science Class Students of Public Senior High Schools in Wajo Regency, can be seen in table 1:

Table 1 Descriptive Statistical Analysis of Constructivistic Learning Experience Variables, Democratic Attitude, Learning Independence & Learning Motivation of XII Science Class Students of Public Senior High Schools in Wajo Regency.

		Constructivistic Learning Experience	Democratic Attitude	Learning Independence	Learning Motivation
N	Valid	274	274	274	274
	Missing	0	0	0	0
Mean		66,16	67,56	70,79	72,35
Std. Deviation		10,07	5,65	5,66	6,06
Minimum		40	57	58	55
Maximum		100	100	100	90

Table 1 shows that the average value of constructivistic learning experience is 66,16 ± 10,07, and the Standard Deviation (SD) is 10,07. The maximum value on the constructivistic learning experience variable is 100 and the minimum value is 40. The democratic attitude variable in XII science class students in Wajo Regency shows an average value of 67,56 ± 5,65, and Standard Deviation (SD) of 5,65. The maximum value on the democratic attitude variable with a value of 100 and the minimum value is with a value of 57. The average value of learning independence in XII science class students in Wajo Regency is 70,79 ± 5,66, and the Standard Deviation (SD) is 5,66. The maximum value on the learning independence variable with a value of 100 and the minimum value is with a value of 58. On the learning motivation variable in XII science class students in Wajo Regency, the average value is 72,35 ± 6,06, and the Standard Deviation (SD) is 6,06. The maximum value on the learning motivation variable is 90 and the minimum value is 55.

2. Descriptive Statistical Analysis of Sub-Variables of Constructivistic Learning Experience, Democratic Attitude, Learning Independence & Learning Motivation of XII Science Class Students of Public Senior High Schools in Wajo Regency.

Statistical data on the value of the sub-variables of constructivistic learning experience, democratic attitudes, learning independence and democratic attitudes of students of XII Science Class Students of Public Senior High Schools in Wajo Regency, can be seen in table 2:

Table 2 Descriptive Statistical Analysis of Sub-Variables of Constructivistic Learning Experience, Democratic Attitude, Learning Independence & Learning Motivation of XII Science Class Students of Public Senior High Schools in Wajo Regency.

N	**Valid**	**274**	**Minimum value**	**Maximum value**	**Mean**	**Std. Dev**
	Missing	**0**				
Constructivistic Learning Experience						
Self-Directed Learning			30	100	55.18	15.18
Reflective Thinking			30	100	59.18	14.85

Investigation & Problem Solving	32	100	61.69	13.86
Relevance to Daily Life	33	100	69.82	16.46
Collaborative Learning	30	100	74.76	14.99
Group Discussion	30	100	71.02	12.94
Teacher Scaffolding	36	100	71.55	12.73
Democratic Attitude				
Individual Freedom	40	100	69.47	8.11
Freedom	30	100	50.73	12.81
Critical Thinking	30	100	73.23	9.52
Social Care	40	100	69.23	8.17
Diversity	50	100	72.10	8.60
Equality	40	100	66.68	10.97
Communication	36	100	71.31	10.27
Learning Independence				
Planning	54	100	71.15	6.85
Implementation	55	100	68.86	5.90
Evaluation	51	100	72.38	7.97
Learning Motivation				
Desire & Will to Succeed	47	97	77.54	8.31
Encouragement & Needs in Learning	43	100	73.09	8.34
Future Hopes & Goals	48	96	66.77	7.28
Appreciation in Learning	44	96	69.80	8.62
Interesting Activities	40	96	72.31	7.94
Conducive Learning Environment	40	100	73.84	12.65

Table 2 shows that the average value of the highest sub-variable variable constructivistic biology learning experience as a whole students of XII Science Class Students of Public Senior High Schools in Wajo Regency is greatest derived from indicators of collaborative learning at 74,76. The lowest value of constructivistic biology learning experience comes from the independent learning indicator of 55.18. Analysis of the sub-variables of democratic attitudes shows the results of students' responses with the highest value on critical thinking at 73,23 and the lowest value on the independence indicator at 50,73. The learning independence sub-variable shows the response of students with the highest average score on evaluation of 72,38 and the lowest score on planning of 68,86. The learning motivation variable with 6 sub-variables shows the highest learner response value on the desire and desire to succeed of 77,54 with the lowest value on future hopes and aspirations of 66,77.

3. Instructional Statistical Analysis of Constructivistic Learning Experience, Democratic Attitude, Learning Independence, and Learning Motivation of XII Science Class Students of Public Senior High Schools in Wajo District.

a. *Corelational Variable*

The correlation between research variables was calculated using SEM analysis (Structural Equal Modeling) to determine the direct correlation and indirect correlation with the help of AMOS 24 application. The results of the analysis related to the direct influence between indicators of critical thinking ability, creative and learning outcomes of students of Class XII Science Class Students of Public Senior High Schools in Wajo Regency can be seen in Table 3.

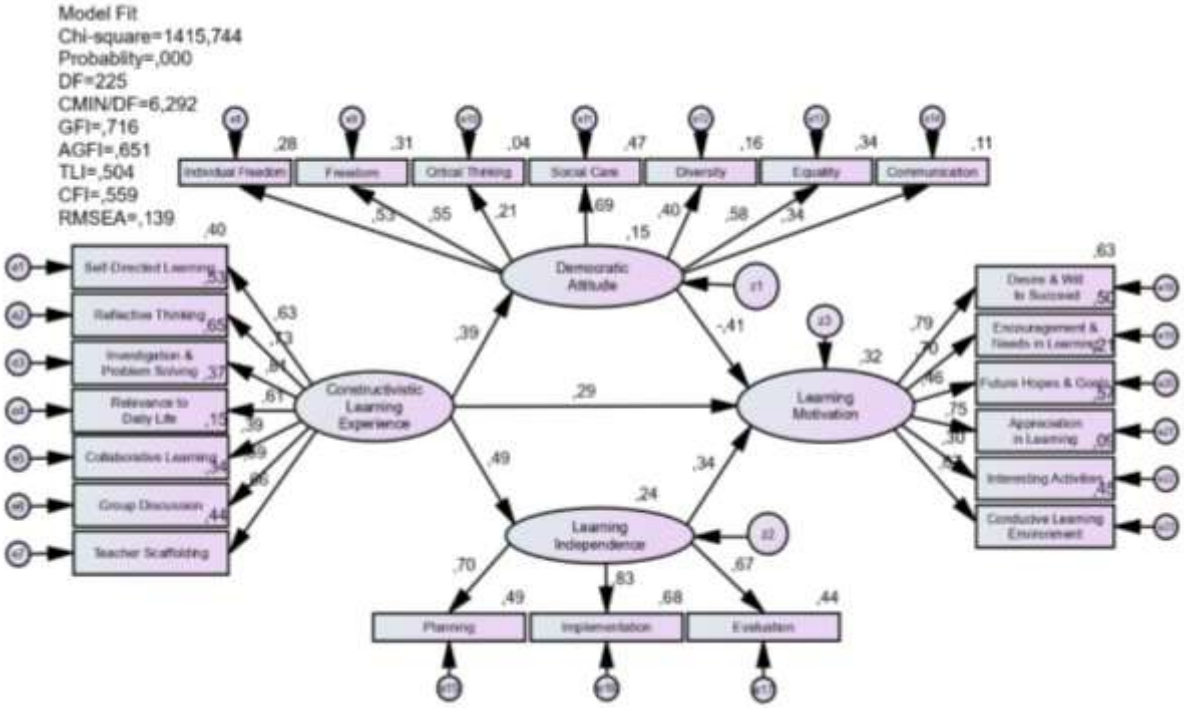
Table 3 Analysis of the Relationship between Constructivistic Learning Experience Variables, Democratic Attitudes, Learning Independence, and Learning Motivation of XII Science Class Students of Public Senior High Schools in Wajo Regency.

	Estimate	S.E.	C.R.	P	Label

Democratic Attitudes	<---	Constructivistic Learning Experience	,197	,047	4,215	***	par_23
Learning Independence	<---	Constructivistic Learning Experience	,306	,054	5,665	***	par_24
Learning Motivation	<---	Democratic Attitudes	-,645	,203	-3,174	,002	par_15
Learning Motivation	<---	Constructivistic Learning Experience	,228	,068	3,359	***	par_16
Learning Motivation	<---	Learning Independence	,430	,122	3,521	***	par_17

Table 3 shows that the constructivistic learning experience variable has a significant effect on democratic attitudes, learning independence and learning motivation with a P (probability) value = *** showing a value below 0,001 or the standard value of significance criteria <0,05. The effect of the democratic attitude variable on learning motivation has a significant effect with a P value = 0,002 <0,05. The learning independence variable on learning motivation is shown to have a significant effect with a P value = *** (below 0,001) <0,05. Table 3 also shows the effect of constructivistic learning experience on democratic attitudes of 0,197 (20%), on learning independence of 0,306 (31%) and on learning motivation of 0,228 (23%), a positive effect. The effect of democratic attitudes on learning motivation of -0,645 (-64%) has a negative effect. The effect of learning independence on learning motivation of 0,430 (43%) has a positive effect. Graphically, the results of testing the path coefficients of exogenous indicators and endogenous indicators are presented in the following path diagram:

Figure 1. Path Analysis Diagram Based on AMOS (Standardized Estimate)



The results of the data analysis above show that the variable values of constructivistic learning experiences, democratic attitudes, learning independence, and learning motivation are important factors that are interrelated in influencing the learning process of students. Effective learning at the senior high school level requires an approach that not only focuses on delivering material but also how students are involved and motivated in the learning process. Constructivistic learning experiences, democratic attitudes in the classroom, and learning independence are three elements that can significantly influence students' learning motivation.

b. Effect of Constructivistic Learning Experience on Learning Motivation

Constructivism, the learning paradigm popularized by Jean Piaget and Lev Vygotsky, emphasizes that learning is an active process in which learners construct their own knowledge

through interaction with their world (Zhang, 2022). The constructivistic approach to learning emphasizes the formation of knowledge through active experience, reflection, as well as collaboration with others called constructivistic learning experience (Mishra, 2023). Through this way, individuals have a more meaningful and relevant learning experience to their daily lives, which can increase their motivation to learn (Matthewman et al., 2018)..

The results of the analysis showed that the average value of constructivistic learning experience of students of XII Science Class Students of Public Senior High Schools in Wajo Regency was 66,16 ± 10,07, and the Standard Deviation (SD) was 10,07. Constructivistic learning variables have a significant effect on democratic attitudes, learning independence and learning motivation with a P (probability) value = *** showing a value below 0,001 or the standard value of significance criteria *** < 0,05. The magnitude of the effect of constructivistic learning experience on democratic attitudes is 0,197 (20%), on learning independence is 0,306 (31%) and on learning motivation is 0,228 (23%), each of which has a positive effect.

Representation of the magnitude of the influence of constructivistic learning experiences, an effect of 23% on learning motivation and the rest is influenced by other factors(Økland, 2012). Constructivistic learning experiences provide a framework that makes learning relevant and engaging. Learners engage in projects and inquiry, working in groups that relate to learners' interests tend to be motivated in every learning process (Calalb, 2023). Learning processes that are relevant to everyday life and meaningful collaborative learning lead learners to see direct links between the subject matter and their lives, increasing the relevance and meaning of what they learn (Sasson et al., 2022).

Active engagement of learners as independent learners in the learning process, which enhances positive experiences i.e. hands-on activities and creative exploration make learning more interesting and fun (Riesen et al., 2018). Increasing the development of critical thinking, namely challenging learning in the form of investigations and problem solving related to learning materials requires critical thinking, motivating students to continue learning and digging deeper into learning materials (Arpentieva et al., 2021).

c. Effect of Democratic Attitudes on Learning Motivation

Democratic attitudes in education, which involve freedom, active participation, and equality, have a significant impact on students' learning motivation. This approach gives students the opportunity to participate in the decision-making process and express their opinions (Maksum, 2021). However, although its benefits have been widely recognized, there are also situations where the application of democratic attitudes can negatively affect students' learning motivation, this was found in the analysis of the effect of students' democratic attitudes on learning motivation observed in students of XII Science Class Students of Public Senior High Schools in Wajo Regency. Such conditions can be caused by various factors, such as the lack of a clear teaching structure, conflicts in decision-making, or difficulties in balancing freedom and responsibility in the classroom.

Descriptive analysis of democratic attitudes variables in students of XII Science Class Students of Public Senior High Schools in Wajo Regency showed an average value of 67,56 ± 5,65, and Standard Deviation (SD) of 5,65. The infrential analysis of the effect of the democratic attitude variable on learning motivation was found to have a significant effect with a P (probability) value = 0,002 <0,05. The magnitude of the influence of democratic attitudes on learning motivation is -0,645 (-64%) with a negative direction of influence.

Democratic attitudes in education are often associated with increased student motivation and participation as it allows for greater involvement and giving students a voice in the learning process (Waghid et al., 2016). While this concept has good intentions, its ineffective or inappropriate implementation can have some negative impacts on students' learning motivation. In a highly democratic environment, students may feel overwhelmed or confused if there is not enough structure or guidance from the teacher. Students don't know what is expected of them or how to achieve their learning goals without clear guidelines. Too much freedom can make students lose focus on key academic goals (Taufan & Basalamah, 2021).

The collective decision-making process can lead to conflict within students, lack of confidence and frustration. Students may feel that their opinions are not valued or that the

decision is not in line with their wishes. Students with more dominant personalities may rule the discussion, leaving other students feeling marginalized. If students feel their voice doesn't really count, they can become frustrated and lose interest in learning (Puspitasari et al., 2022).

A well-fostered democratic attitude in the classroom plays a role in increasing learning motivation, because a democratic attitude will provide opportunities for each individual to participate in the learning process fairly and together. With a democratic learning atmosphere, individuals feel valued and have the autonomy to explore their own understanding, which can then be a driver of high learning motivation. A democratic attitude in the classroom refers to a learning environment where students are given the opportunity to participate in decision-making, share opinions, and feel valued (Solihah & Wati, 2023).

d. Effect of Learning Independence on Learning Motivation

Learning independence refers to the ability of learners to manage and direct their own learning process. This involves the ability to set goals, manage time, and evaluate their own progress (Rahayu et al., 2022)(Rahayu et al., 2022). The teacher's role as a companion in the learner's learning process is to guide students to set specific and realistic learning goals; Teach students how to effectively manage their time and resources to achieve learning goals; and Help students develop skills to assess their own progress and reflect on their learning process(Goodman et al., 2016).

The results of descriptive analysis of learning independence variables obtained the average value in XII Science Class Students of Public Senior High Schools in Wajo Regency of 70,79 ± 5,66, and Standard Deviation (SD) of 5,66. The results of the infrential analysis showed that the effect of learning independence variables on learning motivation had a significant effect with a P value = *** (below 0,001) <0,05. The value of the effect of learning independence on learning motivation is 0.430 (43%) with a positive direction of influence.

The data shows the value of the effect of learning independence on student learning motivation by 43%, the rest is influenced by other factors. The effect of learning independence on learning motivation provides an important reference for students in the form of students' ability to set learning goals (planning), manage their time and supporting resources (implementation) and reflect on learning achievements that have been achieved (evaluation). Learners who feel in control of their learning are more motivated and responsible for their academic success. Learning independence promotes the development of skills that are essential for lifelong learning, such as self-management and critical thinking. The ability to achieve learning goals and overcome challenges independently increases self-confidence and satisfaction with the learning process, which strengthens intrinsic motivation(Abdullah et al., 2023).

DISSCUSSION

Based on the research results, it shows that the effect of constructivistic learning experience on democratic attitudes of 0,197 (20%), on learning independence of 0,306 (31%) and on learning motivation of 0,228 (23%), a positive effect. The effect of democratic attitudes on learning motivation of -0,645 (-64%) has a negative effect. The effect of learning independence on learning motivation of 0,430 (43%) has a positive effect.

The data analysis's findings demonstrate that democratic attitudes, learning freedom, learning motivation, and constructivist learning experience variables are all significant and interconnected elements that affect students' learning processes. Despite the noble intentions behind this approach, students' willingness to learn may suffer if it is implemented poorly or inappropriately. Students may feel overburdened or perplexed in a strongly democratic setting if there is little structure or teacher direction. Without explicit instructions, students are unsure of what is expected of them or how to meet their learning objectives. Students who have too much independence may become distracted from their primary academic objectives.Pembelajaran yang efektif pada jenjang SMA memerlukan pendekatan yang tidak hanya berfokus pada penyampaian materi tetapi juga bagaimana siswa terlibat dan termotivasi dalam proses pembelajaran. Pengalaman belajar konstruktivistik, sikap demokratis di kelas, dan kemandirian belajar merupakan tiga unsur yang secara signifikan dapat memengaruhi motivasi belajar siswa.

The main findings of this study indicate that constructivist learning experiences have a positive influence on democratic attitudes (20%), learning independence (31%), and learning motivation (23%) of students. Interestingly, democratic attitudes have a negative effect on students' learning motivation (-64%), while learning independence has a significant positive effect (43%). This finding differs from several previous studies that generally show a positive relationship between democratic attitudes and learning motivation.

Students' intrinsic motivation can be raised in a democratic classroom setting. Students' enthusiasm and attitude toward studying biology can be improved by implementing the project-based learning paradigm. In this regard, project-based learning participants expressed greater enthusiasm and a more favorable attitude toward biology content, and they participated more actively in class discussions and hands-on activities. One of the main elements in raising intrinsic motivation is fostering a sense of ownership over their learning process, which is what this does (Kortam et al., 2018).

Democracy-based education promotes internal motivation and active participation. Strong learning motivation makes students more likely to participate in class and finish assignments. Students will be more inclined to actively participate and conduct additional research in the context of biology classes if they believe they have the right to speak up on issues like ecosystems or environmental health. This phase makes the learning environment more engaging and fun (Suprihatin, 2015). This discrepancy suggests that, in some situations, a democratic mindset that is not properly managed may actually cause students to become confused about their roles or feel uncertain, which lowers their motivation.

Constructivist learning experiences also have a favorable impact on learning independence, which is consistent with research showing that constructivist methods promote independent learning. Students are encouraged to participate in experiments and ask questions through interactive learning experiences, both of which are crucial components of studying biology. Allowing students to come to their own conclusions fosters a sense of accountability for their education, which is crucial for fostering learning independence. (Sugrah, 2020).

The findings also indicate that the research was Zaliani et al, (2024) shows that constructivism-based learning allows students to actively construct knowledge, which in turn increases learning motivationWhen it comes to learning materials, well-made materials can enhance students' learning results. Teachers can empower students to learn on their own by utilizing interactive learning tools or software, which give them access to a variety of material (Febriansyah et al., 2023). Students are encouraged to learn and practice on their own with this method. Students in grade XII can benefit from enhanced activities and learning outcomes when interactive learning materials are used in the Discovery Learning framework. Students are more driven to comprehend the content when they are actively involved in the learning process, which makes it a great way to boost their independence and enthusiasm for learning (Efendi et al., 2023).

This research also differs from the results Indrayati dan Marzuki (2021) discovered that classroom democratic attitudes serve as a mediator, enhancing the impact of learning experiences on motivation. This study's findings, which need more investigation in the context of culture, class structure, or the use of learning methodologies, indicated that democratic attitudes have a detrimental impact on learning motivationDemocratic attitudes can serve as a connecting factor in mediation, reinforcing the favorable correlation between learning motivation and constructivist learning experiences. This suggests that if a democratic classroom environment that encourages active student participation is present, constructivist learning experiences will be more successful in raising learning motivation (Muin, 2025).

Additionally, democratic attitudes help pupils develop their social and critical thinking abilities, which might boost their drive to learn. Students who adopt a democratic mindset learn to accept others' viewpoints and have the courage to voice their own, which makes learning more engaging and meaningful. (Turabik & Gün, 2016). In contrast, findings on learning independence positively mediating the influence of learning experiences on motivation emphasize the importance of self-regulated learning as a prerequisite for learning motivation.

Penyesuaian diri terhadap tuntutan akademik sangat terkait dengan learning independence. Students who are able to adapt well can reduce stress and focus better on learning,

which has a positive impact on their learning motivation. In this context, learning experiences, including collaboration in biology projects, can strengthen students' independence and, ultimately, trigger motivation to learn more deeply. (Kasari & Sawitri 2020). In this context, constructivist learning experiences become a strong foundation for fostering student learning independence.

The practical application is that in order to maximize students' motivation to learn, educators and educational institutions must establish a learning environment that encourages student freedom, for instance through autonomous projects, active learning techniques, and training in learning strategies (Manap, 2025). This study demonstrates notable variations in the direction of the link between democratic views and learning motivation, despite the majority of findings supporting a positive relationship between variables. This demonstrates the necessity of strengthening learning independence as the primary means of raising student motivation and the significance of taking contextual and cultural aspects into account when adopting learning strategies in the classroom.

Challenges in implementing optimal democratic attitudes, such as the limited ability of students to express opinions and lack of experience in decision-making in class. Therefore, fostering democratic attitudes must be carried out systematically through learning methods that encourage active participation, such as group discussions, collaborative projects, and class leader election simulations. (Sumampouw & Rompas, 2025). Teachers who apply a democratic approach are able to increase students' learning motivation by providing space for students to ask questions, discuss, and express opinions freely. This has been shown to increase students' attention and interest in Biology material, which has a positive impact on their learning motivation. (Afni & Sitepu, 2024).

The creation of a democratic learning environment is also significantly influenced by the inventiveness of teachers. the significance of teachers' roles as facilitators who may establish engaging learning environments in the classroom. Teachers can foster student engagement and internal drive to comprehend intricate biological ideas by implementing creative and cooperative teaching strategies like project-based learning or group discussions. This approach gives pupils the impression that the material they are studying is applicable to both their everyday life and their future employment. (Oktiani, 2017). In order to increase students' enthusiasm to learn, biology professors should practically include democratic ideals into their lesson plans. As a result, students not only get a cognitive understanding of biology, but they also cultivate a positive outlook, self-assurance, and a strong desire to keep learning and succeeding (Afni & Sitepu, 2024).

CONCLUSION

Based on the results of the study, it can be concluded that students of XII Science Class Students of Public Senior High Schools in Wajo Regency have an average constructivistic learning experience value of 66.16%, democratic attitude value of 67.56%, learning independence value of 70.79%, and learning motivation value of 72.35%, these values are obtained from student responses in filling out questionnaires for each variable observed. Overall, the results of this study indicate that constructivistic learning experiences, democratic attitudes and learning independence significantly affect student learning motivation. The results of the analysis show that the effect of constructivistic learning experiences on democratic attitudes has a significant effect, amounting to 0.197 (20%), on learning independence 0.306 (31%) and on learning motivation of 0.228 (23%), with a positive direction of influence. The effect of democratic attitudes on learning motivation has a significant effect of -0.645 (-64%) with a negative direction of influence, and the effect of learning independence on learning motivation has a significant effect of 0.430 (43%) with a positive direction of influence. These findings indicate the importance of these factors in influencing aspects of student learning motivation in the context of the research conducted.

It is advised that educators maximize the use of constructivist learning in order to boost students' motivation for learning, based on the findings of the study. To avoid lowering motivation, democratic attitudes must be guided by explicit instructions. Schools should also

promote students' independence in learning by encouraging them to reflect, plan, and evaluate themselves. To gain a deeper understanding of the social context of student learning, more research employing a mixed or qualitative method is advised.

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AUTHOR CONTRIBUTION STATEMENT

MA was responsible for conducting the fieldwork and analyzing the collected data. SR and SM provided mentorship in selecting and citing appropriate journal articles to support the research findings. SS and BS offered guidance on utilizing SEM-PLS for data processing and analysis.

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