



Positive Teaching as an Instructional Innovation: Effects on Students' Cognitive Learning Outcomes and Motivation in Biology Learning within Higher Education

Inovasi Pembelajaran *Positive Teaching*: Analisis Pengaruhnya terhadap Hasil Belajar Kognitif dan Motivasi Belajar Mahasiswa dalam Pembelajaran Biologi

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ARTICLE INFO	ABSTRACT
Article history Dikirim: 27 Februari 2026 Direvisi: 20 April 2026 Diterima: 5 Mei 2026 Dipublikasi: 29 Juli 2026 Keywords: <i>Positive teaching</i> <i>Cognitive learning outcomes</i> <i>Learning motivation</i>	<i>This study investigates the effectiveness of positive teaching as an instructional innovation in enhancing students' cognitive learning outcomes and learning motivation in biology courses, particularly on reproductive system topics. Preliminary observations indicated low levels of cognitive achievement and learning motivation, primarily attributed to the continued use of conventional, teacher-centered instructional methods. To address this issue, the Positive Teaching approach emphasizing appreciation-based instruction, emotional support, and interactive learning environments was implemented in the experimental group, while the control group continued with conventional teaching methods. The study employed a non-randomized pretest–posttest control group design to examine differences in cognitive outcomes and learning motivation between the two groups. The results demonstrated that the implementation of Positive Teaching significantly improved both students' cognitive learning outcomes and learning motivation. These improvements were associated with the creation of a supportive classroom climate, increased student self-confidence, and enhanced ability to relate biological concepts to real-life contexts. This study provides valuable insights into the development of more adaptive and holistic instructional strategies aligned with the Merdeka Curriculum framework and contributes to the growing body of literature on the positive impacts of Positive Teaching beyond psychology-based learning contexts.</i> ABSTRAK Penelitian ini bertujuan untuk menganalisis efektivitas <i>positive teaching</i> sebagai inovasi pembelajaran dalam meningkatkan hasil belajar kognitif dan motivasi belajar mahasiswa pada mata kuliah biologi, khususnya materi sistem reproduksi. Hasil observasi awal menunjukkan rendahnya capaian kognitif dan motivasi belajar mahasiswa yang disebabkan oleh dominasi metode pembelajaran konvensional yang berorientasi pada pengajar. Untuk mengatasi permasalahan tersebut, pendekatan <i>positive teaching</i> yang menekankan pembelajaran berbasis apresiasi, dukungan emosional, serta penciptaan lingkungan belajar yang interaktif diterapkan pada kelompok eksperimen, sementara kelompok kontrol tetap menggunakan metode konvensional. Penelitian ini menggunakan desain <i>nonrandomized pretest–posttest control group</i> untuk mengkaji perbedaan hasil belajar kognitif dan motivasi belajar

antara kedua kelompok. Hasil penelitian menunjukkan bahwa penerapan positive teaching secara signifikan meningkatkan hasil belajar kognitif dan motivasi belajar mahasiswa. Peningkatan tersebut berkaitan dengan terciptanya suasana kelas yang kondusif, meningkatnya kepercayaan diri mahasiswa, serta berkembangnya kemampuan mahasiswa dalam mengaitkan konsep biologi dengan konteks kehidupan nyata. Temuan ini memberikan kontribusi penting dalam pengembangan strategi pembelajaran yang adaptif dan holistik sesuai dengan tuntutan kurikulum merdeka, serta memperkaya kajian empiris mengenai dampak positif *positive teaching* dalam pembelajaran di luar ranah psikologi.

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INTRODUCTION

Learning in higher education is directed toward the implementation of institutional curricula (Baharuddin, 2021; Hattarina et al., 2022; Manalu et al., 2022; Mursyid et al., 2023). The realization of innovative learning practices is a key requirement of the *Merdeka Curriculum* in higher education (Manalu et al., 2022; Mursyid et al., 2023; Usanto, 2022). The implementation of this curriculum emphasizes a student centered learning system aimed at enabling students to achieve the three core domains of learning outcomes: attitudes, knowledge, and skills (Hattarina et al., 2022).

The achievement of these learning outcomes is reflected in students' cognitive learning outcomes and learning motivation. Cognitive learning outcomes indicate students' level of understanding of instructional content, and they serve as a primary indicator of learning success (Shi et al., 2020). Students with strong cognitive achievement are better able to apply learned concepts to real-life situations. Enhancing cognitive learning outcomes can be achieved through various strategies, such as implementing appropriate instructional models (Watini, 2019), utilizing diverse learning resources, and adopting innovative teaching approaches. Another critical indicator of successful learning is students' learning motivation.

Learning motivation refers to the internal drive that encourages individuals to engage in learning activities to achieve educational goals (Anas & Aryani, 2014; Duncan & McKeachie, 2005; Mendari & Kewal, 2015). Learning success is strongly influenced by students' motivation (Anas & Aryani, 2014; Mendari & Kewal, 2015). Highly motivated students tend to demonstrate positive attitudes and active engagement during the learning process (Mendari & Kewal, 2015). Therefore, efforts to enhance learning motivation should involve all educational stakeholders, including both instructors and students.

Observations of the learning process were conducted among fifth-semester biology students in classes A and B from September to December 2023. Data were collected through direct classroom observations, interviews, and analyses of learning outcomes. The findings revealed generally low levels of cognitive learning outcomes and learning motivation. Low cognitive achievement was evidenced by an average midterm examination score of 65.8 and a final examination score of 68.7, both categorized as low. These results indicate that students had not yet fully mastered the learning material. Observations of learning motivation focused on students' interest in learning tasks, efforts to achieve academic success, persistence, and self-confidence in participating during the learning process (Hamdu & Agustina, 2011; Nasrah & Muafiah, 2020; Sudibyo et al., 2016; Syachtiyani & Trisnawati, 2021). The results of direct observations and interviews indicated that all aspects of students' learning motivation remained at a low level.

Further analysis identified the continued use of conventional, teacher-centered instructional methods as a major factor contributing to low cognitive learning outcomes and learning motivation. Instruction was primarily focused on outcomes and dominated by the instructor. This approach tends to prioritize high-

achieving students, results in monotonous learning experiences, and limits opportunities for students to explore, evaluate, and critically engage with learning materials. As a result, students often perceive learning as burdensome, feel neglected, and lack motivation to develop their potential. Lectures and discussions were the dominant teaching methods; however, these methods were insufficient to achieve the expected learning outcomes. Consequently, instructional innovation is required to address these challenges.

Positive Teaching has emerged as a contemporary instructional innovation that effectively addresses various challenges in the learning process (Elton, 2001; MacSuga-Gage et al., 2012; Voogt et al., 2013; Wheldall & Merrett, 2017; Xie & Derakhshan, 2021). This approach fosters a supportive classroom environment (Newberry, 2010; Voogt et al., 2013), promotes interactive learning (Iranda & Periantalo, 2022; Naz & Murad, 2017; Sieberer-Nagler, 2016), and avoids emphasizing individual dominance (Barnes, 2002; Biswas-Diener & Patterson, 2011; McAllister, 2012). Positive Teaching views each student as a unique individual and a valuable learning partner (Biswas-Diener & Patterson, 2011; Iranda & Periantalo, 2022; Xie & Derakhshan, 2021), thereby preventing negative labeling and providing opportunities for growth (Wheldall & Merrett, 2017).

The implementation of Positive Teaching offers numerous benefits, including fostering students' self-reflection skills (McAllister, 2012), helping students identify their potential, encouraging mutual motivation (Elton, 2001; MacSuga-Gage et al., 2012; Xie & Derakhshan, 2021), improving self-management in time and task organization (Naz & Murad, 2017), and enhancing social competence (Barnes, 2002). By addressing challenges related to the learning process, Positive Teaching serves as an effective means of achieving learning outcomes (Iranda & Periantalo, 2022; MacSuga-Gage et al., 2012; McAllister, 2012; Naz & Murad, 2017; Sieberer-Nagler, 2016). Previous studies have demonstrated that Positive Teaching improves content mastery, cognitive learning outcomes (Sieberer-Nagler, 2016), learning interest (Naz & Murad, 2017), learning motivation (Iranda & Periantalo, 2022), and other educational outcomes.

Although Positive Teaching has been widely implemented in psychology-related courses, its application in biology education remains limited. The novelty of this study lies in applying Positive Teaching within a biology learning context to examine whether this instructional innovation can enhance learning outcomes in non-psychology disciplines. Furthermore, the principles of the *Merdeka Curriculum* can be effectively supported through Positive Teaching. This approach is expected to enhance students' cognitive learning outcomes and learning motivation. Therefore, this study aims to investigate the effectiveness of Positive Teaching as an instructional innovation in improving students' cognitive learning outcomes and learning motivation.

METHOD

This study employed a quasi-experimental approach within a quantitative research framework. The research design adopted was a nonrandomized pretest–posttest control group design, involving two classes assigned as the experimental group and the control group (Leedy & Ormrod, 2005). The experimental group received the Positive Teaching instructional innovation, while the control group was taught using conventional instructional methods.

The population of this study consisted of undergraduate students from the Department of Biology at the Faculty of Tarbiyah and Teacher Training (FTIK), IAIN Kerinci. The sample was selected using a simple random sampling technique, involving fifth-semester students from Class A and Class B. This study examined two primary variables: the independent variable, namely the Positive Teaching instructional innovation, and the dependent variables, which included students' cognitive learning outcomes and learning motivation.

The research procedure was conducted in three main phases. Preparation Phase: This stage included preliminary classroom observations, determination of the experimental and control classes, and preparation of research instruments. Implementation Phase: Positive Teaching was implemented in the experimental class, while the control class continued with conventional teaching methods. Final Phase: This stage involved data

processing, statistical analysis, and preparation of the research report.

Data were collected using two primary instruments. Cognitive learning outcomes were measured through an essay-based test developed according to Bloom's Taxonomy. Students' learning motivation was assessed using an observation sheet designed to evaluate key motivational dimensions, including interest in learning tasks, effort to achieve academic goals, persistence, and self-confidence during classroom participation.

Data were analyzed using SPSS software. An Analysis of Covariance (ANCOVA) was conducted to examine differences between the experimental and control groups while controlling for pretest scores. In cases where the data did not meet the assumption of normality, a non-parametric alternative, namely Quade's Rank Analysis of Covariance, was applied.

RESULTS AND DISCUSSION

Preparation Phase

The preparation phase was conducted over a four-month period. This stage involved preliminary observations carried out through direct classroom observations, interviews, and analysis of learning outcomes. The findings indicated that students' learning achievements remained low, particularly in terms of cognitive learning outcomes and learning motivation. Low cognitive achievement was reflected in the average midterm examination score of 65.8 and final examination score of 68.7, both categorized as low. The observations also revealed that students' learning motivation was at a low level.

Several factors contributed to the low cognitive learning outcomes and learning motivation. One of the primary factors was the continued use of conventional teaching methods that were predominantly teacher-centered and outcome-oriented. This instructional approach tended to prioritize high-achieving students and resulted in monotonous learning experiences, limiting students' opportunities to explore, evaluate, and critically analyze the learning material. Consequently, students often perceived lectures as burdensome, felt overlooked, and lacked motivation to develop their potential. The dominant instructional methods were lectures and discussions, which were considered insufficient to achieve the intended learning outcomes. Therefore, the proposed solution to these challenges was the implementation of the Positive Teaching instructional innovation.

Implementation Phase

The implementation phase began after the proposal seminar had been completed. The initial step involved mapping the stages of Positive Teaching to ensure alignment with the enhancement of students' cognitive learning outcomes and learning motivation. The purpose of this mapping process was to ensure that each component of Positive Teaching effectively supported improvements in both cognitive achievement and learning motivation.

Following the mapping process, a Semester Learning Plan (SAP) was developed to guide the implementation of the Positive Teaching model. The development process included: analyzing the Graduate Learning Outcomes (SCPL), Course Learning Outcomes (CPMK), Sub-Course Learning Outcomes (Sub-CPMK), and learning indicators; determining appropriate learning resources; and designing instructional scenarios aligned with the core principles of Positive Teaching. The completed Semester Learning Plan served as the primary guideline for instructional implementation. Subsequently, learning materials were prepared through the following activities: conducting discussions with fellow course instructors; synthesizing content from multiple academic sources; and organizing the material into structured presentation formats. A test blueprint was then developed to measure students' conceptual understanding. This process involved: constructing test items based on CPMK, Sub-CPMK, and learning indicators; preparing answer keys for each item; and determining item numbering and corresponding cognitive rubric levels.

In addition to cognitive outcomes, students' learning motivation was also measured in this study using a questionnaire. The motivational indicators included engagement in learning activities, preference for completing academic tasks over other activities, promptness in completing assignments, and effective time management to achieve learning objectives. The motivation questionnaire was developed to ensure alignment with these indicators.

Learning Activities in the Experimental Class

Learning activities in the experimental class were conducted using the Positive Teaching instructional innovation, which incorporates five core components: self-reflection, goal setting and planning (goal and plan-do), care, trust, and respect. The instructional intervention was implemented in the reproductive system topic and was conducted over three instructional meetings.

Self-Reflection

The self-reflection stage was conducted during the initial session of the reproductive system topic. The detailed procedures of the self-reflection stage are presented in the Table 1.

Table 1. Stages of Self-Reflection

Facilitation Process	Materials
Writing a Self-Description The facilitator asks participants to write a self-description with full concentration. The facilitator states: <i>“Please write on the blank sheet of paper you have prepared. Describe yourself as completely as possible on that sheet, and do not forget to include your talents and abilities.”</i>	Blank sheet of paper or the last page of a notebook
Providing Motivation and Instruction The facilitator responds to what the students have written. The facilitator explains the strengths of self-reflection and how personal potential can be actualized. The facilitator raises awareness about the importance of self-recognition, including individual intelligence and talents. The facilitator encourages participants to begin recognizing themselves, actualizing their potential, and developing the belief that a successful life is not merely defined by achieving external accomplishments such as material wealth, relationships, or employment. Rather, true success occurs when individuals are able to look within themselves, understand their soul, heart, thoughts, and reasoning, and discover happiness and fulfillment from within.	Visual presentation software - Laptop

The outcome of the self-reflection stage was a written self-description produced by each student. These written reflections served to provide a general overview of each student's personality characteristics. The results of the reflection process became the foundation for designing effective instructional strategies aimed at improving students' cognitive learning outcomes and learning motivation.

Goal and Plan Do

This stage required students to identify the outcomes they intended to achieve and outline the strategies they would implement to attain those outcomes. The detailed procedures of this stage are presented in the Table 2.

Table 2. Stages of goal and plan do

Facilitation Process	Materials
Writing Goals for the Reproductive System Course The facilitator asks students to write down the goals they intend to achieve during the reproductive system course. The goals must follow the SMART criteria (S: Specific, M: Measurable, A: Achievable, R: Reality-based, T: Time-bound). Students are informed that writing their goals signifies commitment to achieving them. The facilitator states: <i>“Please write on the blank sheet of paper you have prepared. Think carefully and formulate concrete goals for this course.”</i> Students are then instructed to begin writing the action plans and goals they will implement. After writing their goals, students are asked to review and revise them if necessary. Students discuss their goals and plans in small groups. During the discussion, they provide feedback to one another, and interactions may include sharing past learning experiences and meaningful stories from their school years. The lecturer facilitates discussion and interaction within the small groups.	Blank sheet of paper or the last page of a notebook
Providing Instructional Input The lecturer presents short videos and visual content. The lecturer explains the importance of the power of mindset in achieving intended goals. Emphasis is placed on the importance of developing structured goals and action plans in daily life.	Visual presentation software Laptop Zoom application

The outcome of this stage was that students documented the goals they intended to achieve and the strategies required to attain them. These written plans were intended to enhance students' motivation in implementing concrete strategies to accomplish their desired outcomes.

Care, Trust, and Respect

This stage was implemented during instructional sessions on the reproductive system topic. The purpose of this component was to cultivate a classroom environment characterized by closeness between the lecturer and students, the lecturer's openness and willingness to listen to students' academic concerns, and the development of mutual respect and trust.

Social Contribution

The social contribution aspect was integrated into the learning process by engaging students in collaborative group learning. Students were assigned case studies or problem-based questions that required group discussion and collective problem-solving.

Learning Activities in the Control Class

Learning activities in the control class were conducted in accordance with conventional instructional practices. Instruction was carried out through classroom-based teaching methods, primarily consisting of lectures, discussions, and question-and-answer sessions.

Evaluation

Implementation of the Positive Teaching Instructional Innovation to Improve Cognitive Learning Outcomes

The results of the homogeneity and normality tests indicated that the data were neither normally distributed nor homogeneous. Therefore, the data were analyzed using non-parametric statistical procedures.

The selected non-parametric analysis was Quade's Rank Analysis of Covariance. The results of the hypothesis testing are presented in Table 3.

Table 3. Summary of the Final Results of Quade's Rank Analysis of Covariance Cognitive Learning Outcomes

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.582.845	1	2.584.230	5.697	.007 ^b
Residual	25.949.265	38	374.228		
Total	28.532.110	39			

Table 3 shows that the calculated F value obtained was 5.607 with a p-value of $0.007 < \alpha$ ($\alpha = 0.05$). The analysis results indicate a significant difference in cognitive learning outcomes between students who learned using the positive teaching learning innovation (experimental class) and students who did not use the positive teaching learning innovation (control class).

The Basic Principles of Positive Teaching and Its Relevance to Biology Learning. The implementation of the positive teaching learning innovation was applied to the reproductive system material. The positive teaching-based learning innovation in the reproductive system material for biology students aims primarily to create a more conducive, supportive learning environment, focused on developing each student's strengths and positive motivations (Baylis, 2004; Ciaccio, 2004). This method emphasizes the importance of a learning environment that is attentive, empathetic, and appreciative of individual achievements, in contrast to traditional approaches that are more focused on correcting mistakes and applying uniform assessment standards. The implementation of positive teaching, which has been carried out, focuses on utilizing positive feedback, affirmations, and reinforcement of student behaviors and achievements in the learning process. Through this approach, students are recognized for their efforts, given opportunities to celebrate small successes, and facilitated in gaining a deeper understanding of the learning goals (Iranda, 2023; Naz & Murad, 2017; Wheldall & Merrett, 2017). In the context of biology learning, particularly in sensitive topics such as the reproductive system, this approach helps students become more open and comfortable in discussing topics that they might consider taboo or complex. This method not only facilitates a better understanding of the material but also helps reduce anxiety or fear that students may feel regarding the topic. With a positive learning atmosphere, students can focus more on understanding the concepts rather than feeling intimidated by performance expectations. As a result, learning becomes a more meaningful and enjoyable experience for students (Dahl, W.J., Telg, R.W., & Turner, 2019; Voogt et al., 2013; Xie & Derakhshan, 2021).

The Impact of Positive Teaching on Cognitive Learning Outcomes. This study shows that the positive teaching-based learning innovation is capable of enhancing students' cognitive learning outcomes. In Bloom's taxonomy, the cognitive domain encompasses various aspects, ranging from recall, comprehension, application, to analysis and evaluation (Bloom et al., 1956). By using the positive teaching approach, students are more motivated to actively participate, ask questions, and challenge their understanding of the concepts being studied. This positive learning also helps students connect abstract concepts, such as physiological mechanisms in the reproductive system, to real-life applications (Cichocki & Kuleshov, 2021; Costley, 2014). For example, they may better understand the importance of a healthy reproductive system or the hormonal mechanisms involved, which then enhances their ability to apply this knowledge in personal or professional health contexts in the future.

The Role of Motivation and Self-confidence in Cognitive Improvement. Intrinsic motivation generated by positive teaching plays an important role in cognitive improvement (Cavas & Cavas, 2020; Dahl, W.J., Telg, R.W., & Turner, 2019; Hutauruk, 2022). When students feel appreciated and supported in their learning, they tend to be more confident in exploring the topics being taught. This study observed that students who received support in the form of positive encouragement showed significant improvement in tests assessing

their understanding and application of the material, particularly in problem-solving and analysis aspects. They tend to develop curiosity and are willing to delve deeper into information, which ultimately enriches their learning outcomes. The self-confidence fostered through this approach also influences students' metacognitive aspects. They are more likely to reflect on their learning process, such as identifying which concepts they understand well and which ones require further exploration (Elton, 2001). This metacognitive ability is an important aspect of higher-order learning, as students will be able to learn independently and critically in the future.

Implementation and Benefits in Teaching the Reproductive System. The reproductive system material often presents challenges for students because this topic involves biological aspects that are personal and may be considered taboo in some cultures. Positive teaching allows educators to create a safe and supportive environment, where students feel free to ask questions and discuss complex concepts without shame or fear (Newberry, 2010). For example, with this approach, lecturers can start by reinforcing students' curiosity about the role and function of the reproductive system in human survival and individual health. Directed discussions and positive responses to questions raised by students can build a deeper understanding, as they feel valued and not afraid of making mistakes. Through this approach, students' understanding of the material becomes more profound, where they not only grasp the biological aspects but also its health and social implications.

Long-Term Implications for Students' Abilities in Biology Education. This learning innovation has significant long-term implications. With the positive teaching approach, students not only gain knowledge about the reproductive system but also develop learning skills that will be valuable in their future biology education (Hutauruk, 2022). They learn to appreciate the learning process itself and cultivate a positive attitude toward challenging or taboo material. Another long-term implication is the enhancement of critical thinking, analytical abilities, and problem-solving skills. The positive teaching learning innovation has a strong impact on improving cognitive learning outcomes in biology students regarding the reproductive system material. This approach not only enhances students' academic understanding but also builds self-confidence, intrinsic motivation, and independent learning skills, which are crucial in higher education. The findings of this study support the use of "positive teaching" as an effective method for teaching complex or sensitive subjects, and suggest its broader application in the biology curriculum.

Implementation of Positive Teaching Learning Innovation to Improve Learning Motivation

The results of the homogeneity and normality tests showed that the data were not normally distributed and were not homogeneous. The data were analyzed using non-parametric methods. The chosen non-parametric analysis was Quade's rank analysis of covariance. The hypothesis testing results can be seen in Table 4.

Table 4. Summary of Final Results of Quade's Rank Analysis of Covariance for Learning Motivation

Model	Total Sum of Squares	Df	Mean Square	F	Sig.
Regression	2.351.242	1	2298.98	4.728	0.004
Residual	23.486.926	38	252.987		
Total	23847.33	39			

Table 4 shows that the calculated F value obtained was 4.6728 with a p-value = $0.004 < \alpha$ ($\alpha = 0.05$). The analysis results indicate a significant difference in learning motivation between students who learned using the positive teaching learning innovation (experimental class) and students who did not use the positive teaching learning innovation (control class).

In biology learning, particularly in the reproductive system material, the implementation of the Positive Teaching method has been proven to have a significant impact on enhancing students' learning motivation.

Positive Teaching is an approach that emphasizes positive aspects in the interaction between lecturers and students, such as providing appreciation, emotional support, positive reinforcement, and developing a safe and supportive learning environment. This approach not only focuses on delivering the material effectively but also on developing students' attitudes, values, and self-confidence in the learning process (Biswas-Diener & Patterson, 2011; Brunzell et al., 2016; Slemp et al., 2017).

One of the key aspects of Positive Teaching is to create a more conducive and enjoyable learning atmosphere so that students feel more motivated to learn. In this study, it was evident that this innovation had a significant impact on students' learning motivation, especially since the reproductive system is often considered a complex and sensitive topic. With a positive environment and an approach centered on psychological reinforcement, students became more open to exploring the material and were more motivated to ask questions and overcome conceptual understanding challenges.

This increase in motivation can be explained through the following mechanisms: 1) Intrinsic Reinforcement through Appreciation and Positive Feedback. Positive Teaching provides non-material rewards, such as praise and recognition for students' efforts and understanding. These rewards have been proven to be effective in enhancing students' intrinsic motivation, which comes from within themselves. When students receive positive feedback on their efforts, they tend to feel more appreciated and motivated to continue the learning process (McAllister, 2012). Ultimately, they become more confident in tackling challenging topics like the reproductive system and more enthusiastic to delve into this often considered complex material, 2) Increased Motivation through Active and Collaborative Learning. This innovation encourages students to actively participate in learning activities through group discussions, presentations, and simulations. These activities provide students the opportunity to share their understanding, experiences, and perspectives on the material being studied (Elton, 2001; MacSuga-Gage et al., 2012). For reproductive system material, collaborative learning allows students to understand various physiological and biological aspects from different viewpoints, helping them relate the concepts learned to real life. This approach enhances student engagement and fosters a higher spirit of learning, 3) Increased Learning Satisfaction through Emotional Support and a Positive Environment. In biology learning, reproductive system topics can sometimes trigger discomfort or unease for some students. Positive Teaching reduces this barrier by creating a comfortable and safe learning environment. Lecturers who provide emotional support help students overcome discomfort, making them feel more at ease and motivated to learn. A safe environment allows students to feel free from pressure, making it easier to interact with the material, ask questions, and seek deeper understanding (Sieberer-Nagler, 2016), 3) Reinforcement of Autonomy and Relevance of the Material. In Positive Teaching, students are given space to develop autonomy in learning, which increases their engagement. They are given opportunities to choose specific topics or learning approaches that they find interesting, such as conducting case studies or researching specific reproductive diseases (Xie & Derakhshan, 2021). This enhances their sense that the material they are learning is relevant to their lives and beneficial for long-term knowledge. In turn, this boosts their extrinsic motivation as they feel that what they are learning has a greater purpose and relevance in the real world, 4) Increased Focus on Learning through Positive Reinforcement and Stress Reduction. This approach has also been proven to reduce stress and anxiety often experienced by students when faced with difficult topics. For reproductive system material, students often feel overwhelmed by the complexity of the topic. Positive Teaching consistently uses positive reinforcement, building a positive mood and reducing anxiety. This allows students to focus better on learning and be more motivated to understand the material without feeling burdened.

Based on the research data, it is clear that Positive Teaching has a significant positive impact on students' learning motivation. By focusing on emotional aspects, intrinsic motivation, and developing a collaborative learning environment, students are better prepared to face the challenges of complex and sensitive learning materials, such as the reproductive system.

These findings have broad implications for curriculum development and classroom learning practices. The application of Positive Teaching is not limited to biology topics but can also be applied to various disciplines that require positive interaction and a supportive learning environment. Moreover, this approach opens educators' perspectives to pay more attention to psychological aspects in learning, in order to achieve more optimal learning outcomes.

The Positive Teaching approach in biology learning, especially on complex and sensitive topics like the reproductive system, plays a crucial role in enhancing students' learning motivation. This motivation can be understood through three main aspects: motivating states, motivated behavior, and the goals or ends of such behavior (Duncan & McKeachie, 2005). The following is a detailed discussion on how Positive Teaching impacts these three aspects.

Motivating states refer to the internal psychological conditions that drive an individual to take action. In the context of learning the reproductive system, this drive is often determined by positive feelings or interest in the topic being studied. Through Positive Teaching, students' motivational states for learning the reproductive system are increased through approaches focused on positive reinforcement, such as praise, verbal recognition, and emotional support from lecturers. This creates a sense of being valued, recognized, and cared for, which significantly influences their mental state and makes them more motivated to learn. Positive Teaching facilitates students' motivating states by: 1) Reducing anxiety: The reproductive system is often a topic that causes anxiety or discomfort for students. By providing emotional support and creating a safe learning environment, students feel more at ease and motivated to overcome these fears or discomfort, 2) Increasing curiosity and interest: Lecturers who approach students with a positive attitude tend to foster curiosity about the material. For instance, the lecturer can present real-life applications of the reproductive system or the benefits of this knowledge in health understanding, which triggers students' internal motivation to delve deeper into the topic.

Motivated behavior refers to the actual actions that students take in response to the internal drive they experience. In Positive Teaching, this behavior is seen in how students engage more actively in learning, such as participating in discussions, asking questions, searching for additional literature, or even leading groups in reproductive system material discussions. Positive Teaching encourages motivated behavior by: 1) Increasing active involvement: By assigning tasks designed positively and encouraging independent exploration, students become more actively engaged. They feel more confident participating in group discussions or giving presentations on reproductive system concepts, leading to increased active participation, 2) Developing independent learning initiative: In a supportive and positive environment, students are encouraged to take more initiative in their learning. For example, they may become more interested in studying specific aspects of the reproductive system in depth or conducting additional research on related diseases, reflecting constructive motivated behavior, 3) Reducing avoidance behavior: Positive Teaching reduces the tendency for students to avoid difficult material. Positive support helps students face the reproductive system content without fear of failure, making them more consistent in their efforts to understand and complete assigned tasks.

The goals or ends of such behavior are the desired outcomes or achievements that students seek as a result of their drive and behavior. For reproductive system material, students may aim to understand the material thoroughly, achieve good grades, or gain in-depth knowledge that will be useful in their future careers, such as in medical or health fields. Positive Teaching helps students achieve these goals by: 1) Linking material to long-term goals: By using a positive approach in teaching, lecturers can help students see the relevance of reproductive system material to their long-term goals, such as working in healthcare or becoming educators who understand biological aspects well. When students realize that learning goals align with their professional or life aspirations, they are more motivated to achieve a deeper understanding, 2) Creating realistic and measurable goals: Lecturers who provide positive and constructive feedback can help students set more realistic learning goals for reproductive system material. Positive Teaching allows them to understand their capabilities and encourages them to achieve measurable goals, such as understanding basic

concepts before advancing to more complex topics, 3) Fostering a sense of achievement and learning satisfaction: Students guided by a positive approach are more likely to experience a sense of accomplishment when they understand or complete a task successfully. This sense of achievement not only increases learning satisfaction but also motivates them to continue their learning efforts in the future. This satisfaction makes them more enthusiastic about achieving their academic goals.

In biology learning, especially with topics like the reproductive system that require comprehensive understanding and are often considered sensitive, the implementation of Positive Teaching has proven to significantly enhance students' learning motivation. This approach fosters motivating states by creating a supportive environment and reducing fears or anxiety in learning. It also facilitates motivated behavior by encouraging students to become more active, engaged, and responsible in the learning process. Finally, this approach helps students achieve the goals or ends of their behavior, where they are able to gain a deeper understanding, satisfaction in learning, and relevance of the material to their long-term goals. With stronger behavioral drives, more motivated learning behaviors, and clearer goals, biology students become better prepared to face learning challenges and are motivated to achieve optimal learning outcomes. Learning innovations like Positive Teaching serve as an example of an approach that not only focuses on knowledge transfer but also on the development of student motivation and self-confidence as the foundation for their future academic success.

CONCLUSION

This study demonstrates that the application of the Positive Teaching learning innovation significantly enhances both cognitive learning outcomes and students' motivation. The results from the experiments indicated a clear improvement in cognitive achievement ($p\text{-value} = 0.007$) and motivation ($p\text{-value} = 0.004$) for students in the experimental group, compared to those in the control group. Positive Teaching, with its emphasis on creating a supportive, appreciation-based learning environment, encourages active participation and enhances students' self-confidence, making them more motivated to explore challenging subjects such as the reproductive system. The long-term implications of this innovation suggest that it not only improves academic performance but also fosters essential skills such as self-reflection, critical thinking, and autonomous learning. These skills are vital for future academic success, especially in complex or sensitive subjects like biology. Given the success observed, it is recommended that Positive Teaching be integrated more widely within the curriculum, particularly in biology and other disciplines that require an empathetic and interactive approach. Future research could further explore how Positive Teaching could be adapted to different academic environments and whether its impact varies across various disciplines.

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