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THE INFLUENCE OF EMOTIONS IN THE CHEMISTRY LEARNING PROCESS: A PHENOMENOLOGICAL STUDY OF ANXIETY AND LEARNING MOTIVATION

Yosephine Debbie Damayanti, Melania Eva Wulanningtyas*

Universitas Katolik Parahyangan

Keywords

emotions, anxiety, motivation, chemistry learning

Abstract

This study aims to understand the influence of emotions, especially anxiety and motivation, on the chemistry learning process. This study uses a qualitative approach with a phenomenological method, involving seven students from various levels of education. Students of the class of 2024 experience academic anxiety related to their choice of major, inability to attend lectures, and uncertainty about the future. Meanwhile, final year students face anxiety about completing their studies and the challenges of entering the workforce. The results of the study show that excessive anxiety has an impact on low student engagement in learning, especially in class discussions and problem solving. Students with high anxiety tend to rely on passive learning methods and have difficulty understanding chemistry concepts in depth. In contrast, high motivation plays a role in increasing academic engagement, building better conceptual understanding, and encouraging students to be more active in finding solutions to learning difficulties. These findings emphasize the importance of learning strategies that can reduce academic anxiety and increase student motivation. A more interactive learning approach and emotional support from the academic environment have the potential to create a more effective and productive learning experience. Thus, this study provides insights for educational institutions to design more adaptive strategies in improving the quality of chemistry learning.

*Correspondence Address:
E-mail:
melaniaeva@unpar.ac.id

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INTRODUCTION

Chemistry learning is a complex and challenging process, which not only depends on the understanding of concepts and theories, but is also influenced by students' emotional factors (SYAMSIYAH, 2022). Emotions in the context of education have a significant role in shaping a person's learning experience, both positively and negatively (Allo & Azrun, 2023). In the field of chemistry education, emotional aspects such as anxiety and motivation have a direct impact on the effectiveness of learning, student engagement, and their academic outcomes (Yusna, 2021). This study aims to examine the influence of anxiety and motivation in the chemistry learning process in two groups of students, namely four students from the class of 2024 and three final year students who are completing their final assignments. Students from the class of 2024 tend to experience various academic anxieties, including feelings of being in the wrong major, uncertainty in taking lectures, ignorance about future prospects, doubts about becoming a teacher, and other fears relevant to their studies. Meanwhile, final year students experience different anxieties, such as concerns about not being able to complete their studies on time and difficulty getting a job after graduation.

Anxiety in the class of 2024 often stems from feelings of uncertainty about their choice to study chemistry. Some students feel that they do not have a strong enough interest in this field, so they have difficulty understanding abstract and complex material. This anxiety can hinder their ability to concentrate, absorb material, and actively participate in class discussions. In addition, students who are unsure about their future prospects tend to lose motivation to study optimally, which has the potential to lead to less than satisfactory academic results. In some cases, high academic anxiety can also trigger a passive attitude in class, where students prefer to remain silent and do not dare to ask questions when they have difficulty understanding the material (Amaliyah, 2019). On the other hand, final year students face different challenges. The pressure to complete their final assignments on time is often a dominant source of anxiety. They feel burdened by high academic expectations, demands for research completion, and pressure from their surroundings, including family and peers. In addition, uncertainty in getting a job after graduation is also a contributing factor to their anxiety. Concerns about competition in the workforce, lack of confidence in facing job interviews, and uncertainty about career choices further worsen their emotional condition. As a result, some final year students have difficulty managing their time and energy, which can negatively impact the quality of the final assignments they produce.

If referring to psychological studies perspective, high anxiety in chemistry learning can have an impact on various cognitive and affective aspects of students (Pebriani et al., 2024). Excessive anxiety can inhibit cognitive capacity in processing information, cause difficulties in understanding abstract chemical concepts, and reduce students' ability to solve problems that require critical thinking (Parikesit, 2020). In addition, students who experience high academic anxiety tend to avoid situations that require them to interact with lecturers or peers, which can ultimately hinder the development of their social and academic skills. Meanwhile, motivation plays a very important role in supporting student success in chemistry learning (Rosa & Nursa'adah, 2023). Students who have intrinsic motivation tend to be more enthusiastic in exploring chemical concepts, try to understand the material more deeply, and have a higher fighting spirit in facing academic challenges (Herlina et al., 2020). Conversely, students who are less motivated tend to have difficulty in maintaining learning consistency, give up easily when faced with difficulties, and lack self-confidence in completing academic tasks (Yunita et al., 2024).

In the context of students in the class of 2024, learning motivation is often disrupted by the anxiety they experience. Feelings of doubt about their choice of major can make them lose interest in studying chemistry seriously. As a result, they tend to study passively and only try to pass the course without understanding the concept in depth. This certainly has an impact on the low level of understanding and mastery of the chemistry material needed for the next level of education or in the world of work. On the other hand, final year students who are highly motivated in completing their studies tend to be able to overcome the anxiety that arises and find strategies to complete their final assignments more effectively. Although anxiety can have a negative impact on learning, in some cases, anxiety that is well managed can be a trigger for students to increase their efforts in studying (Herlina & Ramawati, 2021). For example, final year students who are worried about not graduating on time are often motivated to be more disciplined in working on their final assignments, seek academic support, and develop more effective learning strategies. Likewise, students in the class of 2024 who experience anxiety about their future can use it as a motivator to more actively seek information about career prospects in chemistry, develop relevant skills, and build professional networks that can help them in getting jobs in the future.

This study uses a phenomenological approach to explore students' experiences in dealing with anxiety and motivation in the process of learning chemistry. Through in-depth interviews with participants, this study aims to understand how their emotions affect the way they learn, interact in class, and develop strategies to overcome the academic difficulties they face. By understanding the emotional dynamics in chemistry learning,

this study is expected to provide insight for lecturers, study program managers, and other related parties in designing more effective learning strategies and supporting students' emotional well-being. The urgency of this study lies in the importance of understanding and managing emotional factors in chemistry learning so that students can learn more optimally. With increasing awareness of the role of emotions in education, academic institutions can design strategies that are more inclusive and responsive to students' needs (Ibrahim & Iksan, 2018). In addition, the results of this study can be the basis for the development of pedagogical interventions that help students overcome academic anxiety and increase their motivation in learning chemistry. Thus, this study not only contributes to academic understanding but also has practical impacts in creating a more supportive and effective learning environment for students.

METHODS

This study uses a qualitative approach with a phenomenological method to understand students' emotional experiences in the chemistry learning process. Phenomenology is the science of something that appears or appears to human consciousness (Hamid, 2015). The phenomenological method was chosen because it allows researchers to explore students' subjective experiences in dealing with anxiety and motivation that affect their involvement and understanding of the lecture material. With this method, the study focuses on the meaning given by students to their experiences in facing academic challenges. The research subjects consisted of seven students who were selected purposively, namely four students from the class of 2024 and three final year students who were completing their final assignments. The selection of subjects was based on the characteristics of their experiences in dealing with different academic anxieties. Students from the class of 2024 were chosen because they experienced anxiety due to feelings of being in the wrong major, uncertainty about the future, and difficulty in understanding lectures. Meanwhile, final year students were chosen because they faced challenges in completing their studies on time as well as anxiety about job prospects after graduation. The selection of participants was carried out by considering the diversity of their academic backgrounds and emotional experiences so that the study could provide deeper insights.

Data collection was conducted through in-depth semi-structured interviews. These interviews aimed to explore students' personal experiences in dealing with anxiety and motivation during the chemistry learning process. Interview questions focused on students' experiences in dealing with academic challenges, their strategies in overcoming anxiety, and how their feelings affect their understanding and engagement in lectures. In addition to interviews, participant observation was also conducted to understand how students interact in class, respond to lecture materials, and deal with situations that cause academic anxiety. The data obtained were analyzed using thematic analysis methods, which aimed to identify the main patterns and themes that emerged from interviews and observations. The analysis process was carried out in several stages, namely interview transcription, data coding, identification of main themes, and interpretation of results. Interview transcriptions were carried out verbatim to ensure that each student's statement could be analyzed accurately. After that, the data was coded to find patterns related to anxiety and motivation in chemistry learning. The themes that emerged were then analyzed in depth to understand how emotions affect students' academic experiences.

This study applied the technique of source and method triangulation. Source triangulation was conducted by comparing information obtained from various participants to see the consistency of their experiences. Meanwhile, method triangulation was conducted by combining data from interviews and observations so that the research results were more accurate and comprehensive. In addition, member checking was also conducted by giving participants the opportunity to review their interview transcripts to ensure that the interpretations made by the researcher were in accordance with their experiences. Research ethics are also an important aspect in the implementation of this study. Before the interview was conducted, each participant was given an explanation of the purpose of the study and was given the freedom to participate voluntarily. Written consent was obtained from each participant before the interview was conducted. In addition, the identities of the participants were kept confidential by using codes or initials, so that their privacy was protected. During the research process, the researcher attempted to create a comfortable and open environment so that participants could express their experiences honestly and without pressure. This study is expected to provide a deeper understanding of how anxiety and motivation play a role in chemistry learning. The results of this study are also expected to contribute to the development of pedagogical strategies that better support students' emotional well-being and improve the effectiveness of learning in the field of chemistry.

RESULTS AND DISCUSSION

Based on the results of interviews and observations conducted on seven students who participated in this study, it was found that emotions play a very significant role in the chemistry learning process. Students' anxiety and motivation directly affect their involvement in lectures, understanding of the material, and their

ability to complete academic assignments (Wardani et al., 2024). Students from the class of 2024 experienced anxiety related to feelings of being in the wrong major, uncertainty in taking lectures, ignorance about future prospects, and uncertainty about becoming a teacher. This anxiety negatively impacted their involvement in the learning process. One student said that he often felt hesitant to ask questions in class because he was afraid of being considered not understanding basic concepts (Solihah & Liana, 2017). This causes understanding of the material to be less than optimal because they tend to be passive and reluctant to discuss with lecturers or peers. In addition, academic anxiety also affects the learning strategies of students from the class of 2024. Some of them admitted that they often had difficulty understanding abstract chemistry concepts, such as chemical reactions and molecular structures. Because of the uncertainty they feel, they often choose to memorize the material without really understanding the concept. This has an impact on their low ability to solve problems that require analytical and critical thinking.

On the other hand, final year students face different emotional challenges. Their biggest concerns are not being able to complete their final project on time and the uncertainty of getting a job after graduation. This anxiety often causes high psychological stress, which results in decreased productivity and motivation in completing their final project. Several final year students interviewed revealed that they felt pressured by the expectations of their families and social environment, who expected them to graduate and get a job soon. This pressure sometimes made it difficult for them to manage their time and focus on their final project research. However, not all impacts of anxiety are negative. Some final year students actually use it as motivation to be more disciplined in managing their time and completing their research. Those who are able to manage anxiety well tend to be more focused in developing academic strategies, such as setting daily targets in completing their thesis and seeking academic support from their supervisors. In other words, anxiety can be a trigger for some students to increase their efforts in achieving their academic goals.

Motivation also plays an important role in supporting student success in learning chemistry. Students who have intrinsic motivation tend to be more active in finding out concepts that they do not yet understand, discussing with peers, and trying various approaches to understanding the material. Conversely, students who have low motivation often have difficulty maintaining focus and consistency in learning (Mukholil, 2018). They are more easily frustrated when faced with difficulties in understanding the material, which has an impact on less than optimal academic performance. In students of the class of 2024, motivation is often disrupted by the academic anxiety they experience. Uncertainty about their future causes them to lose interest in learning and tend to see lectures as a burden. This is different from final year students who, despite facing anxiety about job prospects, are more motivated to complete their studies so that they can immediately enter the workforce.

The results of this study indicate that emotional factors, especially anxiety and motivation, have a complex impact on chemistry learning. Anxiety that is not managed well can hinder the learning process, reduce involvement in class discussions, and reduce understanding of the material. Conversely, high motivation can help students to be more courageous in facing academic challenges, find solutions to the difficulties they face, and increase their learning effectiveness (Alim et al., 2023). Other studies also show that academic anxiety can have a significant impact on students' academic performance. For example, research by Zeidner (2007) found that high academic anxiety is negatively correlated with academic achievement, especially in science fields that require logical and analytical thinking. Another study by Cassady and Johnson (2002) also showed that students who experience high anxiety tend to have difficulty remembering information and applying previously learned concepts.

In the context of chemistry learning, academic anxiety can hinder the understanding of abstract concepts. Research by Pekrun et al. (2010) found that high academic anxiety can interfere with information processing and reduce learning motivation. Students who feel stressed tend to have difficulty understanding the relationship between theory and application in laboratory experiments. Therefore, it is important for lecturers and educational institutions to develop teaching strategies that can reduce student anxiety and increase their motivation to learn. In addition, problem-based learning (PBL) has been shown to be effective in increasing student engagement and motivation in chemistry learning. According to research by Savery (2015), the PBL method can help students develop a deeper understanding of the material because they are encouraged to solve problems independently and work in groups. With this approach, students are more motivated to learn because they feel they have control over their own learning process.

A study by Owens et al. (2020) showed that active learning, such as group discussions and laboratory simulations, can reduce students' anxiety in understanding complex chemistry concepts. Meanwhile, a study by Smith and Roehrig (2018) found that students who received emotional support from lecturers and peers had lower levels of anxiety and higher learning motivation. Furthermore, a study by Putwain and Daly (2013) indicated that anxiety management strategies implemented in educational settings, such as mindfulness training and academic counseling, can help students develop skills in coping with academic stress. This is in line with the findings of Ritchie et al. (2019), which showed that an emotionally supportive learning environment can increase students' academic engagement in science learning. In an effort to improve the effectiveness of chemistry learning, it is important for lecturers to apply approaches that can reduce anxiety

and increase student motivation. Some strategies that can be applied include providing constructive feedback, creating a supportive classroom environment, and encouraging students to be more active in discussing and exploring chemistry concepts independently. Thus, students can develop better critical and analytical thinking skills, which will help them in facing academic and professional challenges in the future. Therefore, this study provides important insights into how emotions can affect the chemistry learning process. By understanding the emotional factors that affect students, educational institutions can design more effective learning strategies and support students' emotional well-being. Thus, it is expected that students can be more motivated in learning and achieve better academic success.

CONCLUSION

This study highlights the role of emotions, especially anxiety and motivation, in chemistry learning. Involving seven students from various levels of education, this study found that emotional factors greatly affect student engagement, understanding of the material, and learning strategies. Students of the class of 2024 experienced anxiety related to the uncertainty of their majors, their ability to face lectures, and unclear future prospects. This anxiety caused them to be less involved in class discussions and rely more on memorization than conceptual understanding. In contrast, final year students were more likely to worry about completing their final assignments and the uncertainty of employment after graduation. Some students managed this anxiety by improving their discipline and academic strategies, while others felt burdened to the point of decreased motivation. Motivation is an important factor in overcoming academic anxiety. Students with intrinsic motivation are more proactive in understanding chemistry concepts, discussing, and seeking additional learning resources. In contrast, students with low motivation are more prone to academic burnout and loss of interest in learning. Social support from the academic environment and family also plays an important role in maintaining student motivation. The results of this study indicate that unmanaged anxiety can hinder the learning process, while high motivation helps students face academic challenges. Therefore, it is important for educational institutions to implement strategies that can reduce anxiety and increase motivation in order to create a more effective learning experience and support students' future academic and professional development.

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