

# Factors that Influence Learning Outcomes and Nutritional Knowledge of Students Majoring in Family Welfare Education and Culinary Arts at Universities

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## ABSTRACT

This research aims to identify factors that have the potential to influence the learning outcomes and nutritional knowledge of students majoring in PKK Culinary Arts at Manado State University. Students in this major are expected to have a deep understanding of culinary and nutrition, so their learning outcomes are crucial in determining the quality of graduates. Through an approach, this research method uses a quantitative approach with survey techniques using a structured questionnaire. The research sample will be randomly selected from active semester students in the PKK Culinary Management Department, Manado State University. The data obtained will be analyzed using descriptive and inferential statistical techniques. Factors considered include educational background, motivation, study habits, access to learning resources and nutritional information, and other environmental factors. The factors that will be studied include internal variables, such as learning motivation, lecture attendance, and independent study time, and external variables, such as family support, learning facilities, and social environment. Apart from that, this research will also measure students' level of nutritional knowledge and relate it to their learning outcomes. This research has the potential to provide an in-depth understanding of the relationship between various factors and learning outcomes and nutritional knowledge of students majoring in PKK Culinary Arts. It is hoped that the research findings can provide valuable input for curriculum development, learning strategies, and the provision of more effective educational resources in the Manado State University PKK Culinary

Educational environment. Thus, it is hoped that this research can contribute to improving the quality of education and understanding of nutrition among PKK Culinary Arts students and society in general.

**Keywords:** culinary management, learning outcomes, nutritional knowledge

## INTRODUCTION

Education is the main foundation in preparing individuals to face the demands of the complexity of the modern era. During globalization and changes in life patterns, education has a very important role in building quality and highly competitive human resources (Abdullah et al., 2020). One important aspect of education is the formation of knowledge and skills in the health sector, especially related to understanding nutrition and cooking. At Manado State University, the Culinary Family Welfare Education (PKK) Study Program is one of the study programs that offers special learning in the field of culinary arts and nutrition. Students in this study program are expected to have a deep understanding of nutritional principles, and cooking techniques, as well as the application of sanitation and food safety standards. The learning outcomes and nutritional knowledge possessed by PKK Culinary Arts students are important indicators in evaluating the success of education at the tertiary level.

However, the factors that influence the learning outcomes and nutritional knowledge of PKK Culinary Management students at Manado State University still require further research. In this context, an in-depth understanding of these factors is crucial for increasing learning effectiveness, identifying obstacles that students may face, and designing appropriate strategies to improve learning outcomes and nutritional knowledge. Research problems can be described as Student Learning Outcomes, namely the factors influencing student learning outcomes in the PKK Culinary Arts Department. This includes aspects such as exam results, projects, assignments, and the quality of practical work produced by students. In addition, the issue of Student Nutrition Knowledge is the level of student knowledge related to nutrition, including understanding of nutrition, balanced diets, food processing, and the relevant health implications of nutrition (Anderson & Smith, 2018). Next are Student Internal Factors, namely student internal factors such as motivation, interest in subjects, learning styles, and study skills examined. The research question involves the extent to which these factors influence students' ability to understand the material and achieve satisfactory learning outcomes (Arifin, 2018). Meanwhile, external factors such as the social environment, family support, access to learning resources, and the availability of laboratory or practicum facilities will also be the focus of the research. Research questions include the extent to which these factors contribute to students' achievement of learning outcomes and nutritional knowledge (Dewi & Putra, 2019). Next is the relationship between learning outcomes and nutritional knowledge. Apart from identifying factors that influence these two variables separately, the research will also explore whether there is a relationship or link between learning outcomes and students' nutritional knowledge. This will help understand whether students who have better nutritional knowledge tend to have better learning outcomes, and vice versa (Fikri & Wahyuni, 2019). The research will place the special context of the PKK Culinary Management department at Manado State University. Due to the specifics of this field of study, the

factors that influence learning outcomes and nutrition knowledge in this major may have unique characteristics that need to be further understood.

The latest understanding of factors that have been researched and proven to influence student learning outcomes and nutritional knowledge, especially in the field of PKK Culinary Management, such as student internal factors, namely motivation and interest in the subject. This can be explained by the fact that previous research has shown that intrinsic motivation and high interest in certain subjects can contribute to better learning outcomes (Harahap & Lubis, 2021). In addition, learning styles show that various learning styles such as visual, auditory, and kinesthetic have been considered in the educational context. Studies related to the learning styles of PKK Culinary Arts students can provide insight into the best way to convey material to students (Kadafi & Sari, 2017). Next are external factors such as social and family support. Previous research highlights the role of social support from peers and family in increasing student motivation and learning outcomes. In addition, access to learning resources such as laboratory facilities, libraries, and access to digital technology has been proven to influence students' ability to gain deeper knowledge (Kurniawan & Sari, 2019). Next is the Learning Strategy and Curriculum. Research on the effectiveness of various learning methods in PKK Catering can provide insight into the most effective learning strategies (Khan et al., 2017). In addition, curriculum evaluation such as a review of the curriculum used in the PKK Culinary Program can help identify weaknesses and strengths that may affect students' learning outcomes and nutritional knowledge. The next factor is the relationship between learning outcomes and nutritional knowledge. Longitudinal research that tracks the relationship between learning outcomes and nutrition knowledge over time can provide a better understanding of how nutrition knowledge influences academic achievement (Li & Zhang, 2020). Cross-section analysis Between Departments, such as comparing the learning outcomes and nutritional knowledge of PKK Culinary Arts students with students from related departments, such as nutrition or culinary science, can provide an understanding of the unique characteristics of education in that department. New research on factors that influence learning outcomes and nutritional knowledge of PKK Catering Students at Manado State University can enrich the literature and make a meaningful contribution to the development of education and learning at the tertiary level.

This research aims to answer this problem by systematically analyzing the factors that influence the learning outcomes and nutritional knowledge of students in the PKK Culinary Department at Manado State University. Through a comprehensive approach, it is hoped that this research can provide a better understanding of the dynamics of learning among PKK Culinary Arts students and provide recommendations that can improve the quality of education in this department. In this view, this research is expected to make a significant contribution to curriculum development, preparation of learning strategies, and resource management in the Manado State University PKK Culinary Study Program. Apart from that, it is hoped that the results of this research can also be a reference for educational researchers and practitioners to develop further research in this field. Thus, it is important to identify and analyze the factors that influence the learning outcomes and nutritional knowledge of PKK Culinary Arts students at Manado State University to increase the effectiveness of learning and ensure graduates are qualified and ready to compete in an increasingly complex and dynamic world of work.

## METHODS

The research method used in this research is a quantitative research method with survey techniques using a structured questionnaire.

### **Research Design**

This research uses a quantitative approach to collect data about factors that influence learning outcomes and nutritional knowledge of PKK Culinary Arts students at Manado State University. This research design is descriptive and correlational, intending to identify the relationship between the variables studied.

### **Population and Sample**

The population of this research is all students registered in the PKK Culinary Arts Department at Manado State University in 2023. The research sample will be selected randomly from this population, taking into account the number of respondents who are representative enough for valid analysis. The sample used in this research was 150 respondents.

### **Questionnaire Development**

This research questionnaire was developed based on related literature and research objectives. The questions in the questionnaire will be structured to cover the variables to be studied, such as learning motivation, social support, access to learning resources, and nutritional knowledge. Testing the validity and reliability of the questionnaire will be carried out to ensure that the instrument used can measure the variables accurately and consistently.

### **Data collection**

Questionnaires were distributed to respondents, namely students of the PKK Culinary Arts Department at Manado State University. Data collection can be done online or directly on campus, depending on respondent preference and availability. This researcher provided adequate explanations to respondents about the objectives of the research and how to fill out the questionnaire.

### **Data analysis**

The collected data is analyzed using descriptive and inferential statistical techniques, such as linear regression, Pearson correlation test, or analysis of variance (ANOVA), depending on the relationship to be studied. The results of the analysis will be used to identify significant factors that influence learning outcomes and nutritional knowledge of PKK Culinary Arts students at Manado State University.

### **Interpretation of Results**

The results of the analysis are interpreted to draw conclusions and make recommendations based on research findings. Practical implications of the research results will be considered, including implications for learning in the PKK Culinary Arts Department and educational policy development. By using quantitative research methods with survey techniques using structured questionnaires, this research can provide an in-depth understanding of the factors that influence learning outcomes and nutritional knowledge of PKK Culinary Students at Manado State University, as well as provide a basis for developing more effective educational strategies in the future.

## RESULTS AND DISCUSSION

### **Internal Factors**

The results of this research show that internal factors such as learning motivation, interest in subjects, and learning style have a significant influence on student learning outcomes. Students who have high intrinsic motivation and great interest in the subject tend to achieve better learning outcomes. Apart from that, learning style also plays an important role, where students who use a learning style that suits their individual preferences tend to have better learning outcomes.

#### ***1. Motivational and Interest Factors***

Research shows that measuring the level of student motivation in learning. Motivation can be divided into two types: intrinsic (motivation from within the student himself) and extrinsic (motivation from external factors such as praise, prizes, etc.). The results of this research will show the extent to which motivation influences the level of learning success of PKK Culinary Arts students. To measure the level of student motivation, this research uses a questionnaire that has been adapted from a trusted instrument such as the Motivation to Learn Scale (MSL) which has previously been tested for validity and reliability. The questionnaire includes questions related to intrinsic motivation (such as interest in course material, and desire to learn for personal achievement) and extrinsic motivation (such as academic rewards, and pressure from the environment).

The results of this research show variations in the level of motivation among PKK Culinary Arts students. Some students may have high intrinsic motivation due to their interest in nutrition and culinary topics, while others may be more influenced by external factors such as pressure from family or social expectations. Motivation can also vary over time and be related to specific contexts, such as particular course materials or learning environments. Results Data analysis shows that there is a positive correlation between students' level of motivation and their academic achievement in courses related to nutrition and culinary arts. Students with high motivation tend to achieve better learning outcomes. Intrinsic motivation was shown to be more strongly related to academic achievement than extrinsic motivation, indicating the importance of cultivating intrinsic interest in learning.

The findings of this research also identify several factors that influence students' motivation levels. These factors include support from lecturers, a motivating academic atmosphere, opportunities to participate in practical activities, and opportunities to develop in their areas of interest. This research highlights the importance of supporting and maintaining students' intrinsic motivation in the context

of PKK Culinary Management learning. This can be achieved through a student-centered teaching approach, the use of engaging learning methods, and the creating of a positive learning environment. Lecturers and educational program administrators can also use the results of this research to design more effective teaching strategies that take into account the variability of motivation among students.

The analysis shows that there is a significant positive correlation between students' motivation levels and their learning outcomes in courses related to nutrition and culinary arts. Students who have a high level of motivation tend to achieve better learning outcomes than those who have a low level of motivation. The results of the analysis show that there is a significant positive correlation between students' interest in nutrition studies and their level of nutritional knowledge. Students who show a high interest in nutrition topics tend to have a better understanding of nutrition concepts and their application in culinary practice.

The findings of this research show that there is a significant positive correlation between students' level of nutritional knowledge and their learning outcomes in courses related to nutrition and culinary arts. Students who have a better understanding of nutrition tend to achieve higher learning outcomes in exams, assignments, and projects related to nutrition and culinary arts. Results Multi-variable correlation analysis was also carried out to take into account the simultaneous effects of motivation, interest, and nutritional knowledge on student learning outcomes. The results of this analysis can provide a more holistic picture of how these factors influence each other and predict student learning outcomes. The results of this correlation analysis provide a deeper understanding of the relationship between motivation, interest, nutritional knowledge, and learning outcomes of PKK Catering Students. The practical implications of these findings can help in designing more effective and targeted learning strategies to improve the quality of nutrition education at Manado State University

## ***2. Interest in Nutrition Studies***

Student interest in nutritional studies is also the focus of research. This includes an interest in specific topics in nutrition, such as a balanced diet, nutritional intake, or nutritional management. By understanding student interests, researchers can explore how these interests relate to learning outcomes and nutritional knowledge. Student interest in nutrition studies was measured through a combination of questionnaires and interviews designed specifically for this study. The questionnaire identifies the extent to which students feel interested in specific topics in nutrition, such as balanced diets, nutritional management, nutritional intake, and practical applications in a culinary context.

The results of this research show that there are variations in the level of student interest in nutrition studies. Some students may have a strong interest and be attached to a particular nutrition topic due to personal interest or previous experience. However, some students may have lower interest and need additional stimulation to increase their interest in nutrition topics. Results Data analysis shows that there is a positive correlation between students' level of interest in nutrition studies and their learning outcomes. Students who have a high level of interest tend to achieve a better level of nutritional knowledge and higher learning outcomes. This shows the importance of cultivating a strong interest in the topic of nutrition as a determining factor for academic success in the PKK Culinary Arts major.

Research findings also identify factors that influence students' interest in nutrition studies. These factors may include personal experiences, environmental influences, or future professional needs. Faculty and educational program administrators can use this information to design teaching strategies that motivate and engage students, as well as identify ways to strengthen their interest in the study of nutrition. This research shows that a high interest in nutrition studies has a positive impact on students' learning outcomes and nutritional knowledge. Therefore, supporting and maintaining student interest in nutrition topics is important in the context of PKK Culinary Education. Lecturers can integrate teaching methods that are interesting and relevant to student's interests in nutrition topics to increase their interest and learning outcomes.

### ***3. Academic Achievement***

The results of the analysis carried out through the data that has been collected show an assessment of the academic achievements of PKK Culinary Arts students, such as grades in courses related to nutrition, projects or assignments given, and general academic achievement. This will help in assessing the extent to which motivation and interest influence student academic achievement. Student academic achievement is measured based on various indicators, including grades in nutrition-related courses, project or assignment assessments, participation in class discussions, and general academic achievement. Academic data was obtained from official university academic records as well as surveys and interviews with students to gain a deeper understanding of the factors that influence their achievement.

Results Statistical analysis revealed a positive correlation between students' level of motivation and interest and their academic achievement. Students who have high motivation and strong interests tend to achieve better learning outcomes in nutrition and culinary arts courses. This correlation suggests that high motivation and interest in nutrition studies may be a good predictor of successful academic achievement. Research results show that intrinsic motivation has a more significant impact on academic achievement than extrinsic motivation. Students who have strong intrinsic motivation, namely motivation that comes from an internal desire to learn and develop, tend to achieve higher academic achievements. Extrinsic motivation such as academic awards or social pressure also contributes to academic achievement, but its impact may not be as strong as intrinsic motivation (Putri & Hidayat, 2020).

This research highlights the importance of intrinsically motivating students and supporting their interest in nutrition studies to improve their academic achievement. Lecturers can use teaching strategies that encourage independent exploration, creativity, and active involvement of students in the learning process to stimulate intrinsic motivation. Additionally, considering students' interests in designing curricula and offering relevant and interesting electives in nutrition courses can also improve their academic achievement. Follow-up studies could dig deeper into the relationship between motivational factors, interests, and academic achievement, as well as expand the scope of research to other factors that may influence academic achievement, such as the learning environment, social support, and individual characteristics.

### ***4. Nutrition Knowledge***

Nutritional knowledge is an important factor in the field of PKK Culinary Management. Research has measured students' level of nutritional knowledge, including their understanding of nutritional principles, nutritional requirements, and their practical application in the context of cooking and food management. Students' nutritional knowledge was measured through a questionnaire specifically designed to assess their understanding of nutritional principles, nutritional needs, food benefits, and their practical application in a culinary context. Questionnaires may include multiple choice questions, essay questions, or case studies to test their understanding and application of nutrition knowledge.

The results of this research show the level of variation in nutritional knowledge among PKK Catering students. Some students may have a deep understanding of nutrition, while others may need improvement in their understanding. A better understanding of nutrition includes not only knowledge about nutrition but also an understanding of how to apply nutritional concepts in daily culinary practices. Results Data analysis shows that there is a positive correlation between students' level of motivation and interest and their nutritional knowledge. Students with high motivation and interest tend to have better nutritional knowledge. This shows that strong motivation and interest in nutrition studies can help improve students' understanding and practical application related to nutrition. Research findings also identify factors that influence the nutritional knowledge of PKK Culinary Management students. These factors include previous learning experiences, support from lecturers, opportunities to participate in practical practice, and use of appropriate learning resources.

By understanding these factors, lecturers and educational program administrators can design more effective teaching strategies to increase students' nutritional knowledge. This research shows that good nutritional knowledge is an important component of PKK Culinary Education. By increasing students' motivation, interest, and learning experience, lecturers can help increase understanding and practical application of nutrition in the context of culinary arts. Through the use of innovative and relevant teaching methods, as well as practice-based learning, students can be allowed to develop their overall nutritional knowledge.

### ***5. Supporting and Inhibiting Factors***

The results of this research also pay attention to factors that support or hinder the motivation, interest, learning outcomes, and nutritional knowledge of PKK Catering Students. This can include support from lecturers, learning facilities, and curriculum, as well as personal factors such as self-motivation and individual interests.

#### **a. Supporting factors**

- **Lecturer Support**

Students admit that support and guidance from lecturers greatly influence their motivation and interest in learning. Lecturers who care and are actively involved in learning provide positive encouragement for students.

- **Facilities and Learning Resources**

The availability of adequate learning facilities, such as libraries, and laboratories, and access to literature and online resources, supports the development of nutritional knowledge. Students feel more motivated when they have easy access to relevant learning materials.

- Relevant Curriculum

The existence of a curriculum that is directly related to the needs of the culinary and nutrition industry provides additional encouragement for students. A curriculum that is well designed and relevant to job market needs increases student interest in learning.

b. Obstacle factor

- Limited Resources

Students experience problems when there are limited resources available, such as expensive textbooks, limited practical equipment, or inadequate laboratory facilities. This can reduce their motivation and interest in learning.

- Pressure from the Social Environment

Some students may experience pressure from their social environment, such as family or peer expectations, which can interfere with their motivation to study. This pressure can cause stress and reduce interest in nutritional studies.

- Lack of Recognition and Understanding

The general public's lack of understanding of the importance of nutrition and culinary arts often results in a lack of recognition of the PKK Culinary Arts major. This can affect student motivation due to a lack of appreciation for their field of study.

Understanding these supporting and inhibiting factors is important for designing effective strategies for increasing the motivation, interest, and learning outcomes of PKK Culinary Arts students at Manado State University. Lecturers and educational program administrators can use this information to identify areas where improvement is needed, such as increased faculty support, increased access to learning resources, or approaches to reduce social and environmental stress. The results of this research provide valuable insights for curriculum development, teaching methods, and motivational approaches in PKK Culinary Education. Apart from that, it will also provide input for lecturers and program organizers to improve the effectiveness of students' learning and nutritional knowledge.

## **External Factors**

The results of this research identify external factors such as social support from family and peers, as well as access to learning resources which also influence students' learning outcomes and nutritional knowledge. Students who receive strong social support and have adequate access to learning facilities tend to achieve better learning outcomes. In addition, there is a significant relationship between learning outcomes and students' nutritional knowledge, where students who achieve high learning outcomes also have better nutritional knowledge, and vice versa.

### ***1. Family and peer factors***

The study of family and peer factors that influence learning outcomes and nutritional knowledge of students majoring in PKK Culinary Arts at Manado State University is an interesting topic in the context of nutrition education.

a. Family Influence

▪ Family support

The findings of this research show that family support has a significant positive influence on students' learning outcomes and nutritional knowledge. Students who receive emotional and financial support from their families tend to have higher motivation in studying and find it easier to access support resources.

▪ Family Diet

The results of this research show that family eating patterns can also influence students' nutritional knowledge. College students who are accustomed to healthy eating at home tend to have a better understanding of nutrition and may be more motivated to explore the topic further.

▪ The Role of Parents in Nutrition Education

The findings of this research show that the role of parents in providing information about nutrition and providing examples of healthy eating patterns can shape students' perceptions and behavior regarding nutrition. Support and education from parents can provide a strong foundation for students to develop better nutritional knowledge.

b. Peer Influence

▪ Study Group Influence

These research findings show that peers who are involved in studying together or in study groups can provide valuable emotional and academic support for students. Discussion and collaboration between peers can help deepen understanding of nutrition and facilitate the learning process.

▪ Behavioral Models

The results of this research show that peers can also act as models for behavior related to nutrition. If peers show interest and healthy behavior related to nutrition, students are likely to be interested in following in their footsteps and deepening their nutritional knowledge.

▪ Group Pressure

The results of this research show another side, namely that peer pressure can also influence students' eating behavior and study patterns. If peers encourage unhealthy behavior or do not support learning, this can become an obstacle for students in achieving an optimal understanding of nutrition.

The findings of this research highlight the importance of involving family and peers in nutrition education efforts for PKK Culinary Students. Nutrition education programs can strengthen the role of families as partners in supporting students' nutrition learning, while also gathering support from peers in the context of group learning. Supporting open communication between students, families, and peers can be an effective strategy for improving understanding of nutrition and student learning outcomes (Nasution & Pranoto, 2017).

2. Factor of access to learning resources

The results of this study show that the factors of access to learning resources that influence learning outcomes and nutritional knowledge highlight the importance of access to various learning resources in the context of nutrition education.

a. Access to Reading and Reference Materials

The results of this research show that students who have easy access to quality reading materials, scientific journals, and online references tend to have better nutritional knowledge. The results of this research also show that students who have access to a complete university library and access to online databases can improve their understanding of nutritional concepts.

b. Access to Practicum and Laboratory Facilities

The results of this research show that students who have access to complete and modern practicum and laboratory facilities have a greater opportunity to develop practical skills in preparing healthy food and measuring nutritional value. This research also shows that good practicum experience can improve understanding and practical application of the nutrition concepts learned.

c. Access to Learning Technology

The results of this research show that access to modern learning technology, such as computers, the internet, and educational software, can increase the effectiveness of nutrition learning. Students who have access to online learning platforms and video tutorials have the flexibility to study independently and deepen their understanding of nutrition.

d. Access to Interactive Learning Materials

The results of this research show that the use of interactive learning materials, such as simulations, educational games, and multimedia content, can help increase student involvement in nutrition learning. The findings of this research indicate that students who use interactive learning materials tend to have higher levels of motivation and achieve better learning outcomes in nutrition studies.

The results of this research highlight the importance of paying attention to access to learning resources in designing effective nutrition education programs (Santoso & Riyanto, 2021). Lecturers and educational program administrators must ensure that students have adequate access to reading materials, practicum facilities, learning technology, and interactive learning materials. Investments in developing learning infrastructure, providing reading materials, and increasing access to learning technology can help improve the quality of nutrition education at Manado State University.

The findings from this research provide an in-depth understanding of the factors that influence learning outcomes and nutritional knowledge of students in the PKK Culinary Arts Department at Manado State University. This finding is consistent with previous research which shows that learning motivation, interest in the subject, and social support are key factors in determining student learning outcomes (Siregar & Simanjuntak, 2019). These results have important implications for the development of more effective learning strategies in the PKK Culinary Arts Department. Emphasis

should be placed on developing student motivation programs, increasing access to learning resources, and providing adequate social support. In addition, the curriculum can also be adjusted to emphasize more aspects of nutritional knowledge, so that students can have a better understanding of important concepts in this field (Smith & Brown, 2019). However, this research has certain limitations, such as the limited sample size and focus on one educational institution only. Therefore, future research can expand the sample scope and involve more educational institutions to generalize the findings more widely.

## CONCLUSION

The research conclusion for the study is that student internal factors such as learning motivation, interest in subjects, and learning style are internal factors that significantly influence student learning outcomes. Students with high levels of motivation and great interest in the subject tend to achieve better learning outcomes. Meanwhile, external factors such as social support from family and peers, access to learning resources, and the availability of practicum or laboratory facilities also play an important role in determining students' learning outcomes and nutritional knowledge. The Relationship between Learning Outcomes and Nutritional Knowledge, this research concludes that there is a significant relationship between learning outcomes and students' nutritional knowledge. Students who achieve high learning outcomes tend to have better nutritional knowledge, and vice versa. This research recommends improving the quality of learning to improve the quality of learning in the PKK Culinary Department, recommendations include developing student motivation programs, increasing access to learning resources, providing social support, and adjusting the curriculum to place more emphasis on aspects of nutritional knowledge. This research has implications for educational policy such as the development of educational policies at the university level, including increasing the availability of learning facilities, supporting students in terms of learning motivation, as well as developing curricula that are more appropriate to student needs. This research has identified factors that influence the learning outcomes and nutritional knowledge of students in the PKK Culinary Arts Department at Manado State University. The results provide a deep understanding of the dynamics of learning in this department and provide a basis for the development of more effective educational strategies in the future. Thus, this research provides a significant contribution to the understanding of the factors that influence student learning outcomes and nutritional knowledge in the PKK Culinary Arts Department, as well as providing direction for the development of better educational policies and practices at Manado State University and similar educational institutions.

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