



# Recognition of Emotions to Increase Student Self-Efficacy in Learning

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## ABSTRACT

Self-efficacy is a determinant of students' success in learning. Ignoring the emotional aspect cannot be taken lightly for students' self-efficacy. This study aims to determine the effect of emotion recognition on students' self-efficacy in learning. This research is descriptive-analytic using a pre-post one-group design approach. The research was conducted in May-June 2023 at Sompok, Imogiri, Bantul elementary school. The population was students of Sompok Elementary School, while the sample was taken using purposive sampling based on inclusion criteria; three classes were selected, namely classes III, IV, and V, with the number of students 12, 13, and 14, respectively. The instrument was a closed questionnaire presented before and after the intervention. Data were analyzed based on univariate and bivariate proportions using the Wilcoxon sign test. The results showed increased students' self-efficacy after getting an emotional recognition intervention from the teacher. It was found that the significance value (Sig.) for all aspects was  $<0.05$ , and the Z value was above 1.96. The analysis results were closed with the discovery of an increase in self-efficacy in all aspects, so descriptively, there is a difference in the mean value of student self-efficacy between pre and post-emotion recognition intervention. Emotion recognition is a simple but powerful intervention to increase students' self-efficacy in the learning context. This intervention is expected to be further developed into a more applicable model.

**Keywords:** recognition of emotion, self-efficacy, learning, increase.

## 1. INTRODUCTION

In education, self-efficacy or student self-belief is central to motivation [1], learning, and academic achievement. [2]. Self-efficacy refers to an individual's belief in their ability to accomplish specific tasks or challenges. Self-efficacy reflects students' views on their ability to deal with subject matter, overcome difficulties, and achieve academic success [3]. Students with high self-efficacy tend to be more motivated to learn and strive to achieve educational goals [4]. Strong self-efficacy stimulates intrinsic motivation, where students can influence their learning outcomes through effort [5]. Students develop resilience to challenges and obstacles in learning. They tend to see mistakes or difficulties as part of the learning process rather than as a sign of failure. Students with high self-efficacy are more likely to choose effective learning strategies. They feel

confident to try different ways of learning and develop methods that suit their learning style [6].

Amidst the complexity of the modern world, emotion recognition is emerging as a significant approach to improving student self-efficacy [7]. Emotion recognition teaches students to identify, understand, and manage emotions [8]. Students' ability to recognize emotions impacts their academic learning, mental well-being, and social interactions [9]. Those with a better understanding of emotions tend to better cope with stress, improve focus, and increase self-confidence [10].

Today, the world of education is starting to care about the emotional situation of students in learning. A study involving 67 students identified changes in student emotions throughout the lecture using software developed through the Microsoft Emotion Recognition

API and the C# programming language. As a result, each student showed different emotions in each lecture session, ranging from sad angry to serious expressions that increased from the beginning to the core session. Still, most of them showed happy faces at the end of the lecture session [11]. Another study shows that teachers' recognition of students' emotions positively impacts the quality of learning [12]. In education, emotional aspects are often overlooked in efforts to improve learning outcomes. Including emotion recognition as a critical factor represents a significant paradigm shift, and linking it with self-efficacy adds a new dimension in a more holistic approach. This approach leads to more adaptive learning and responds to students' needs. Emotion recognition helps students feel more connected to their own emotions, and this approach can potentially reduce anxiety, increase mental resilience, and ultimately strengthen their positive view of their ability to overcome challenges.

Based on observations and interviews, we found various facial expressions every morning, ranging from sadness, frowning, smiling, and laughing. The emotional atmosphere in the morning affects the quality of students participating in learning. Some gave testimonies that they just wanted to go home because they were not enthusiastic and found it difficult to accept the lesson. At the same time, other students who had a happy expression since morning would remain excited about learning until the class was over. Some students lacked confidence in achieving the expected grades because they felt they were not good at the type. Based on observations, in addition to students who appeared to be in a negative emotional state, some students looked positive, smiling, and actively communicating with each other, and could follow the learning well until the end.

The relationship between emotion recognition and student self-efficacy is not fully understood in the educational context. Therefore, this study aims to fill this knowledge gap by investigating the impact of an emotion recognition intervention on improving students' self-efficacy. The results of this study are expected to be a valuable contribution to the effort to develop more personalized and effective learning methods.

## 2. METHOD

The type of research used is quasi-experimental with a one-group pre-posttest design. The population in this study were students of Sompok, Imogiri, Bantul Elementary School. The sample was selected purposively based on the inclusion criteria, including cooperative students, effective two-way communication, and not the highest grade level. Three grade levels were obtained, namely III, IV, and V, with 12, 13, and 14 students, respectively.

The research was conducted for two months, May and June 2023, at Sompok Kapanewon Imogiri Elementary School to identify students' emotions in the morning before learning began. Students were asked to point to emoticon pictures that matched their mood. Emotion recognition through facial emoticon images is one of the effective methods of positive communication. [13]. Teachers provide student support according to the chosen emoticon. The instrument was a questionnaire consisting of 10 closed questions. Students' answers were expressed in five self-efficacy scales. Univariate data were analyzed based on percentage, while bivariate data were analyzed using the Wilcoxon sign test.

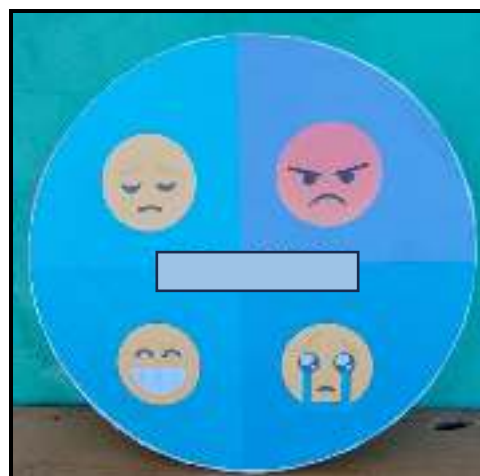


Figure 1. Emotion expression media



Figure 2. The teacher facilitates the acknowledgment of students' emotions.

## 3. RESULT

Based on Table 1, the gender of the respondents was predominantly female, while the average age was homogeneous in each class, with 9, 10, and 11 years for classes III, IV, and V, respectively.

**Table 1.** Characteristics of respondents

Characteristics	f	%
Gender		
Male	18	46.15
Female	21	53.85
Total	39	100
Age (mean±SD)		
Class III	12	30.77
Class IV	13	33.34
Class V	14	35.89
Total	39	100

Then, table 2 presents the results of analyzing the mean of students' learning self-efficacy before and after applying the emotion recognition model. Five aspects

are assessed: lesson comprehension, resilience to overcome challenges, effective communication, improving achievement, and self-development.

**Table 2.** Students' self-efficacy in learning before and after the use of the emotion recognition model

Aspect	Mean		Poor category (%)		Medium category (%)		excellent category (%)		Statistic Value		Wilcoxon signed ranks		
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Z	Sig.	Negative ranks	Positive ranks	Ties
Lesson understanding	54.4	70.3	20.00	4.00	80.00	76.00	-	20.00	3.00	0.003	-	39	-
Resilience overcomes challenges	45.9	68.9	4.00	-	88.00	20.00	8.00	20.00	2.00	0.046	-	39	-
Effective communication	55.7	61.5	12.00	-	76.00	72.00	12.00	28.00	2.33	0.020	-	39	-
Increase performance	51.4	67.9	4.00	-	84.00	64.00	12.00	36.00	2.33	0.020	-	39	-
Self development	49.8	57.2	16.00	8.00	72.00	72.00	12.00	20.00	2.00	0.046	-	39	-

In understanding the lesson, students' self-efficacy increased from the beginning (average 8.00) to 11.00 after implementing the model. The excellent category increased from none % to 20%, and the less type decreased from 20% to 4%. Second, the aspect of resilience to defeat challenges, the average self-efficacy increased from 9.12 to 12.12. The excellent category increased from 8% to 20%, and the poor type decreased from 4% to none. Third, on effective communication, it was found that the mean self-efficacy increased from 8.92 to 11.92. The poor category decreased from 12% to 0%, and the excellent type rose from 12% to 28%. In improving achievement, mean self-efficacy increased from 9.52 to 12.52. The less category decreased from 4% to 0%, and the excellent type rose from 12% to 36%. Finally, developing oneself showed an increase in self-efficacy from 8.20 to 11.20. The less category

decreased from 16% to 8%, and the excellent type increased from 12% to 20%.

The Wilcoxon signed ranks statistical test results showed significant differences between self-efficacy scores before and after applying the emotion recognition model, indicated by significance values (Sig.) for all aspects <0.05 and Z values above 1.96. The analysis concluded with the finding of increased self-efficacy in all aspects.

#### 4. DISCUSSION

The results showed that the emotion recognition intervention could significantly increase students' self-efficacy. This increase can indicate that students experience increased confidence in their ability to overcome learning challenges. Emotion recognition

interventions, which enable students to be more aware and manage their emotions, appear to positively reinforce a positive view of oneself in an academic context. The results of this study are [14] that emotion recognition, or the ability to recognize, understand, and manage emotions, can significantly impact shaping students' views of themselves in a learning context. This increase in self-efficacy can have essential implications for learning. Students who believe more strongly in their abilities will likely be more motivated to put in effort, overcome obstacles, and achieve academic goals. As such, this increased self-efficacy can potentially improve overall academic achievement.

The first implication drawn from these results is the need for a holistic approach to education. Emotion recognition shows that students' emotional well-being is relevant and significantly impacts their academic outcomes. Therefore, curricula and learning practices must integrate vital emotional components to help students overcome challenges confidently and optimize their learning potential. Through emotional recognition, Students can communicate well in conveying their feelings using good and correct Indonesian. Being able to communicate in two directions is a provision that children must have to prepare their lives for the future. [15].

This finding supports the teacher's role in helping students' emotional and academic development. Teachers should not only act as conveyors of information but also as facilitators of students' personal development. Training focused on emotion recognition and management strategies can empower teachers to create a supportive learning environment where students feel safe sharing and learning. The results of this study also serve as a reference to reflect on the role of evaluation methods in the education system. So far, assessment has often focused on cognitive aspects only. However, with increased self-efficacy due to emotional recognition, a more holistic approach to evaluation may be worth considering, which measures students' emotional and psychological development more thoroughly.

In the ever-evolving context of education, it is increasingly evident that psychological and emotional factors play a crucial role in effective learning [16]. A critical indicator of students' conduciveness to understanding is the recognition of emotions through facial expressions. [11]. Facial expression symbols or emojis are one of the fastest methods of expressing one's feelings to others validly and objectively [17]. This finding strongly supports the results of a study by Du et al. that recognizing students' emotions improves the quality of learning evaluation [18].

However, while these results show a significant positive impact of the emotion recognition intervention, it is essential to remember that other factors may have

influenced the change in students' self-efficacy, which may need further exploration in follow-up research. In addition, the time scale of the intervention and the long-term impact of this approach also need to be considered to gain a more comprehensive understanding. The practical implications of these findings may encourage the development of learning strategies that are more holistic and support students' positive development in academic contexts.

## 5. CONCLUSION

In conclusion, emotion recognition is a simple yet powerful intervention to increase students' self-efficacy in the context of learning. We recommended that teachers and educational institutions design and implement a structured program for emotion recognition. The development program should include special training for teachers in integrating emotion recognition into daily learning and special sessions for students that help them recognize and manage emotions effectively.

## AUTHORS' CONTRIBUTIONS

RDK The first author was responsible for planning, conducting, analyzing data, and writing the manuscript. AAY contributed to the research planning, preliminary data analysis, and drafting of the background and methodology sections of the article.

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