

Conference Paper

Analysis of the Level of Saturation and Fatigue in Offline Learning Academic Year 2022-2023 at ABC Elementary School in Surabaya

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ABSTRACT

The effectiveness of the system of public education in a country is one of the most important aspects of its development. The COVID-19 initiative affected the educational system previously. The education system in Indonesia, however, is utilizing the offline or non-network learning approach now that the COVID-19 pandemic conditions, particularly in Indonesia, have abated. The teaching and learning process that takes place in schools exposes pupils to issues that develop in the educational setting and are frequently experienced by students. The frequent occurrence of saturation and exhaustion during school activities is one example. The objective of this final project is to determine the level of saturation and fatigue in offline learning among students at ABC Elementary School and to propose improvements to minimize the levels of saturation and fatigue. The methods used for research are MBI-SS (Maslach Burnout Inventory-Student Survey) for the level of saturation and SOFI (Swedish Occupational Fatigue Inventory) for the level of fatigue. The research results from 75 students show that for the level of saturation, there are 49 students (65%) in the low category, 25 students (34%) in the moderate category, and 1 student (1%) in the high category. For the level of fatigue, there are 56 students (75%) in the moderate category, 19 students (25%) in the moderate category, and 0% in the high category. To saturation and fatigue, the school can engage in ice-breaking activities, inject humor during learning sessions, and provide additional nutrition such as pudding or similar items in the morning.

Keywords: Education, saturation, fatigue, MBI-SS, SOFI

Introduction

In education, there is information provided by the teacher and intentionally received by the students, whether consciously or not. The thoughts and opinions of each individual may differ. The development and progress of a country will be greatly determined by how its education system functions (Karalis, 2020). According to Law Number 20, Article 2003, Article 1 regarding the national education system, education is a planned and conscious effort to create an atmosphere and learning process so that learners actively realize their potential in the areas of spiritual strength, self-control, personality, intelligence, character, and skills needed for themselves and society. The goal is to unleash all the potential of learners through the practice of the learning process (Puspitarini & Hanif, 2019). As the conditions of the COVID-19 pandemic have eased, particularly in Indonesia, the education system in Indonesia is using offline or non-network learning. Offline learning, or non-network learning, is a type of learning that does not rely on an internet connection. Offline learning takes place using media such as student guidebooks, television, and radio (Rasmitadila et al., 2020). Offline learning is also implemented when teachers and students meet face-to-face.

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In the teaching and learning system that occurs in schools, students are confronted with issues that arise in the school environment and are often experienced by students. One common example is saturation and fatigue in school activities (Aguiar et al., 2021). Burnout issues are still frequently encountered. This is supported by the emergence of signs indicating when a student feels bored or tired during learning, such as talking to oneself when the teacher explains a topic and inviting friends to talk when the teacher is presenting a lesson. Some students often struggle to stay awake and even fall asleep in class. Some students engage in individual activities like playing with pens, and gadgets, or doodling in their study materials. Signs of academic saturation include emotional exhaustion (lack of self-control and excessive anxiety), cognitive fatigue (poor concentration, inability to complete complex tasks, loneliness, and reduced resistance to perceived frustration), loss of motivation (demoralization, lack of enthusiasm, wavering in idealism, disappointment, withdrawal from the environment, and saturation). Saturation in learning occurs due to demands that students must adhere to the rules and tasks assigned to them (Kurnia, 2023). Factors causing saturation are typically activities performed continuously for a long time without variation or monotony (Zeng, 2023). Factors contributing to learning saturation include 1) Minimal variation in teaching methods, 2) Learning only in specific locations, 3) Unchanging learning environments, 4) Lack of entertainment or recreation, and 5) Prolonged mental tension during learning. A relevant method for measuring the level of saturation is the Maslach Burnout Inventory-Student Survey (MBI-SS) method. Saturation has indicators or signs that can be categorized into three dimensions outlined in the Maslach Burnout Inventory-Student Survey: emotional exhaustion, cynicism or depersonalization, and academic performance decline (Hutami, 2020). Fatigue can be physical and mental, and these two dimensions of fatigue influence each other. When fatigue occurs, a person's ability to work may decrease (Bennett, 2021). Each individual's vulnerability to fatigue varies because everyone has diverse physical and mental endurance. As workload increases, performance decreases, and fatigue becomes more noticeable because more time is spent on work tasks than usual.

A highly relevant method for measuring the level of fatigue is the Swedish Occupational Fatigue Inventory (SOFI) method. SOFI can assess fatigue levels through five dimensions, which consist of lack of energy, lack of motivation, sleepiness, physical exertion, and physical discomfort (Febiyani et al., 2021). Many factors determine the occurrence of fatigue. Examples of influential factors include the learning environment or atmosphere. The learning environment or conditions encompass family circumstances, students' social situations, the school atmosphere, and learning conditions, especially with this new curriculum and suitable facilities for learning (Rahman, 2021). Among the components of the learning environment, some have a significant impact on student fatigue. For instance, if the family situation is not conducive to learning, the social circumstances of the learner affect their inclination to study, an unpleasant environment for learners, and inadequate learning facilities will influence the students' desire to learn, particularly their determination and fatigue levels. Since the onset of the COVID-19 pandemic in the academic year 2020, ABC Elementary School has been conducting online learning for all grade levels to ensure that the learning process continues, even amid situations where face-to-face learning is not feasible. At ABC Elementary School, online learning has been implemented from the academic year 2020-2021 until the academic year 2021-2022. Starting from the academic year 2022-2023, ABC Elementary School has resumed offline or non-network learning. As part of this contextual discussion, it is important to measure the saturation and fatigue of elementary school students in the context of offline learning. This study on the levels of saturation and fatigue is conducted among students of ABC Elementary School.

Material and Methods

Data collection techniques

The data used in this study are primary. Primary data refers to information collected by the researcher through on-site examination at the designated location. Data collection occurs through two

methods: observation and a questionnaire. Observation is conducted to directly observe the object under study at the research location to obtain accurate data. The observed object is the implementation of offline learning at ABC Elementary School. A questionnaire is one method used to collect data by presenting a series of written questions to respondents, which can be asked directly, via mail, or through the Internet. There are two types of questionnaires: closed and open-ended. In this case, the type of questionnaire used is a closed-ended questionnaire, where the answers are already provided, and respondents simply choose the appropriate answer directly. For this study, two questionnaires are used to measure the level of student saturation and fatigue: the burnout questionnaire (MBI-SS) and the fatigue questionnaire (SOFI).

Sampling techniques

In this study, the population selected consists of students in the fifth and sixth grades of ABC Elementary School for the Academic Year 2022/2023, composed of class V (A, B, C, D) with a total of 134 students and class VI (A, B, C, D) with a total of 140 students. The total number of students in grades V and VI is 274. Sampling aims to manage the space within the studied population when the subject is considered very large, beyond the researcher's scope, or when the initially set characteristics do not align with the studied population.

Data verification

The sufficiency, validity, and reliability testing are used as a way to analyze the required data, namely by conducting questionnaire data testing using the SPSS software. The results of the MBI-SS and SOFI questionnaire data collection are then calculated by averaging the scores for each dimension based on respondents' answers. The obtained data includes the calculation of Total Scores (specifically for MBI-SS), the calculation of Average Scores per person (specifically for SOFI), and the calculation of Average Scores for Each Dimension (all methods). Thus, scores are obtained from each questionnaire, namely the Satisfaction/Burnout Score for the MBI-SS questionnaire and the Fatigue Score for the SOFI questionnaire.

Results and Discussion

Data adequacy, validity, reliability test

The data adequacy test in the distribution of questionnaires to fifth and sixth-grade students at ABC Elementary School has met the minimum target sample size of 74. The validity test can be determined when the calculated r-value (corrected item-total correlation) > the critical r-value of 0.227. For $df = 75$; and $\alpha = 0.05$, if the r-value is greater than 0.227, the item/question is considered valid, and vice versa. Additionally, if the calculated r-value significance ($sig.$) ≤ 0.05 , it is declared valid; otherwise, if the $sig. > 0.05$, it is considered not valid. Based on the data processing through SPSS, it is evident that each statement is considered valid because all statements in MBI-SS and SOFI have a calculated r-value (corrected item-total correlation) > the critical r-value of 0.227, and the sig. value is ≤ 0.05 . A questionnaire is reliable if the Cronbach's alpha value is greater than 0.60. From the SPSS data processing, the reliability coefficient for the MBI-SS questionnaire is $r_{ll} = 0.894$, and the reliability coefficient for the SOFI questionnaire is $r_{ll} = 0.892$. Both questionnaires have an "Alpha Cronbach" score greater than 0.60, indicating that the instruments are reliable or meet the requirements.

Level of saturation

The MBI-SS method is a relevant approach in measuring the level of saturation. The required data for data processing includes the total score and the average score for each dimension, namely:

Table 1. The average score for MBI-SS dimension

Dimension	Average	Percentage
Exhaustion	2,2	34%
Depersonalization/cynism	2,3	36%
inefficacy/reduced personal accomplishment	1,9	30%
Average Total	2,1	

For the calculation of saturation levels based on the MBI-SS questionnaire for fifth and sixth-grade students at ABC Elementary School, the results from 75 students in grades 5 and 6 were obtained. The saturation levels are categorized as follows: low saturation level at 65%, with a total of 49 students; moderate saturation level at 34%, with a total of 25 students; and high saturation level at 1%, with a total of 1 student. Thus, it can be concluded that the saturation level of fifth and sixth-grade students based on the MBI-SS questionnaire falls into the low category. The dimension with the highest average total is depersonalization/cynicism, with an average score of 2.3 (36%). The next highest dimension is exhaustion, with a score of 2.2 (34%). The dimension with the smallest average is inefficacy/reduced personal accomplishment, with a score of 1.9 (30%).

Level of fatigue

The level of fatigue can be tested using the Swedish Occupational Fatigue Inventory (SOFI) method. The required data for data processing includes the average score and the average for each dimension, namely:

Tabel 2. Average score for SOFI dimension

Dimension	Average	Percentage
Lack Energy	2,16	24%
Physical Activity	1,9605	21%
Physical Discomfort	1,072	12%
Lack Motivation	1,2427	14%
Sleepiness	2,6933	29%
Average Total	1,8257	

For the calculation of fatigue levels based on the SOFI questionnaire for fifth and sixth-grade students at ABC Elementary School, the results from 75 students in grades 5 and 6 were obtained. The fatigue levels are categorized as follows: low fatigue level at 25%, with a total of 19 students; moderate fatigue level at 75%, with a total of 56 students; and high fatigue level at 0%, with a total of 0 students. Thus, it can be concluded that the fatigue level of fifth and sixth-grade students based on the SOFI questionnaire falls into the moderate category. The dimension with the highest average total is sleepiness, with an average score of 2.6933 (29%). The next highest dimension is lack of energy, with a score of 2.16 (24%). Following that is the physical exertion dimension, with a score of 1.9605 (21%). The dimension of lack of motivation comes next with a score of 1.2427 (14%). The dimension with the smallest average is physical discomfort, with a score of 1.072 (12%).

Recommendation

Ice breaking

Conducting ice-breaking activities. Therefore, ice-breaking can be understood as an effort to transform a tense atmosphere into a more relaxed and enjoyable one, making it more flexible and comfortable. Students find it easier to comprehend subjects when the atmosphere is less tense, relaxed, enjoyable, and friendly. Some people believe that breaking the ice is a transition from a boring, sleep-inducing, and stressful situation to a relaxed, lively, joyful, and attentive atmosphere, making it

easier for students to listen or watch the teacher speak in front of the class. To promote the health of the students, ABC Elementary School can provide additional items such as pudding in the morning, ensuring that students' nutritional needs are met, allowing them to engage in learning activities healthily and cheerfully.

Adding enjoyment to learning

Introducing fun during learning. Injecting humor when explaining course materials indirectly captures students' attention, providing them with something new and interesting that can boost their mood. The use of humor or jokes during lessons has many benefits, including reducing students' academic boredom. This is possible because humorous conversations can enhance communication between students and teachers. Additionally, humor or jokes can package initially tedious topics to become more attractive, preventing anyone from feeling overly bored. This claim is supported by the research of several experts, especially Cooper and Sawaf, who state that a teacher's humor can keep children cheerful and happy and prevent them from quickly becoming bored or tired. This is further emphasized by the statements of Lomax & Moosavi, asserting that learning with humor or jokes creates a more conducive atmosphere in the classroom, as students become more focused, enthusiastic, and joyful, encouraging them to study more diligently.

Conclusion

From the results of the calculation and processing of the MBI-SS questionnaire data, the conclusion is that most students have a low level of saturation, with the highest dimension being depersonalization/cynicism. From the calculation and processing of the SOFI questionnaire data, the conclusion is that most students have a moderate level of fatigue, with the highest dimension being sleepiness. To reduce the levels of burnout and fatigue in students, the school can conduct ice-breaking activities and introduce enjoyment during learning.

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