Factors that cause students not to choose physics subject in national examination (NE) 2018

A Farhan¹, N K Devy², A Wahyuni³, E Kasli¹ and E Mahzum¹
¹Department of Physics Education, Universitas Syiah Kuala, Banda Aceh, 23111, Indonesia
²Department of Science Education, Universitas Syiah Kuala, Banda Aceh, 23111, Indonesia

E-mail: farhan@unsyiah.ac.id

Abstract. The Indonesian Ministry of Education and Culture in Circular Letter No.0204/H/EP/2017, make significant changes in implementation of national examinations; student individually can choose subjects that are tested on the implementation of the national examination. Based on the result of previous studies, there were students from the science department whose first scores in physics were categorized as high, but didn’t choose these lessons as subjects in the national examination. Any factors that affect students didn’t choose physics subject at national examination, which is interesting to aim why that happen it. Descriptive research with a qualitative approach was carried out to reveal the problem, 40 students of public senior high school at Banda Aceh in the 2017/2018 school year were selected by random sampling as the subject. Documentary data and interviews were used in this study. Based on the data and analysis, it was found that family factors had a strong influence and other factors, specifically teacher, peers, self-ability and ideals sufficiently influence the reasons for students didn’t choose 2018 NE physics subjects. The government is advised to review the decision letter on the implementation of the national high school level exams so that students are not too influenced by external factors.

1. Introduction
The implementation of education in Indonesia has changed, as an effort to improve quality and adapt to the demands of changing times. One of the changes occurred in the implementation of the national examination specifically at the level of the Senior High School and all of the same level. Based the result NE on the 2017 and 2018, students are allowed to choose one of the majors that will be tested on the national exam (NE Requirements Circular 2017). The implementation of the 2017 national examination included subjects in Indonesian, English, mathematics and one of the subject matter that is chosen by students. In particular, science students can choose one of the majors (Biology, Physics or Chemistry) as NE subjects.

Improvements to the implementation of the national exams in 2017 and 2018 are intended to increase the learning outcomes of students nationally. Students can choose subjects that are tested based on the level of mastery of the subject matter; students who have high first scores for a subject matter are expected to choose these lessons as national exam subjects. Implementation in the real condition at 2017, it turned out those high school students (high school) whose first score of high physics subjects didn’t choose these subjects for their national examination [1,2].
Weak linkages between the first scores of high school students for Physics lessons with subjects for the national examination chosen from the majors’ group, become indications, there are other factors that influence the decisions of these students. This case is interesting to learn more about what factors influence the high school students of Banda Aceh city whose first scores are high but choose other subjects (Biology or Chemistry) as NE subjects in 2018, the focus of this research study.

2. Method
Qualitative research methods were used for this research. The type of research is descriptive. The research data consisted of documentary data and interview data. Documentary data obtained from school archives, consisting of (1) the value of Physics lessons; obtained from report cards for semester V (five) students 2017/2018 school year, used as students’ first score, and (2) choice of student subjects at the time of NE in 2018. The reasons for students who have high first scores in Physics, but didn’t choose Physics in the NE, are obtained through interviews and a questionnaire. Questionnaires are arranged based on the Likert scale.

Students of the science department of the Banda Aceh public high school who took part in the 2018 NE were designated as research locations. There were four schools were selected, there are Public Senior High School Number 2, 3, 7 and 9.

Based on documentary data, students who were selected for semester 5 grades for Physics were selected high, but didn’t choose Physics lessons as their NE subjects. The high learning outcomes of physics subject is > 70 [3]. The semester 5 of learning outcome is set as the first scores of students, obtained 40 students who met the criteria. The chosen subjects were used as respondents to be interviewed. Qualitative analysis of each question was carried out as follows:

- Each answer from each respondent is multiplied by a predetermined score
- Maximum score = (the number of respondents x the highest Likert score)
- Minimum score = (the number of respondents x the lowest Likert score)
- Interpretation using the percentage index equation (%), that is [4]

$$\text{Index (\%)} = \frac{\text{Total Score}}{\text{Maximum Score}} \times 100\%$$ (1)

Obtaining result is one reflection of the ability/potential in student on the certain subjects. So, the possibility of students chosen subjects whose scores were high on the previous exam (first score) for the next exam was quite huge [5]. However, in the high school national examination in 2017 [1] and high school in NE 2018 [2] it is precisely the correlation between the first scores of high school students for Physics and the lessons they chose when the NE were very weak. Students who have first scores for high physics tend to choose Biology lessons for their national exams. So, the potential of students in Physics is not the only factor that determines the lesson chosen for the student's national exam concerned.

| Influential factors | Score (%) | Category |
|---------------------|-----------|----------|
| Family              | 78.50     | Strong   |
| Teacher             | 61.75     | Enough   |
| Peers               | 54.12     | Enough   |
| Self-ability        | 53.72     | Enough   |
| Ideals              | 44.75     | Enough   |

3. Result and Discussion
Data and analysis are summarized in Table 1. External factors, apart from the potential of students and their aspirations, have a strong influence on students' decisions in determining the choice of subjects for their national exams. Environmental conditions (family, teacher and peers) have a big influence, with a strong category - enough for students' decisions in determining NE subjects, compared to internal factors (self-ability and ideals). The social interaction of students with their families is very strong and the interaction time is also quite long, causing family impressions to be inherent in them [3].

The attitude and response given by parents greatly influences children's choices [6]. The influence of other family members is also quite dominant in determining children's choices [7]. Student independence will decrease, if family members tend to help excessively.

This situation is closely related to the psychological condition of students. The age of students in the third grade of high school is included in the criteria for early adolescents/adults [8]. The level of student independence is still relatively low. During that age, students are in a state of doubt to make decisions. The level of doubt increases if the information related is not received enough. They also lack awareness of their potential. So, external factors of students will dominate decision making.

The second external factor which is the reason students didn’t choose physics subjects in the national examination is the influence of the teacher. The teacher gives a strong impression on the choice of students to decide the NE subjects [3]. Suggestion and motivation given by the teacher can cause students didn’t choose physics subjects at the NE. Pedagogic competence and the professionalism of the teacher; intellectual attitude and mastery, able to enhance the teacher's impression of authority in students 'perceptions, even able to influence students' interest in learning [9]. Positive impressions from the teacher cause students to accept the suggestions given; even students tend to consult with the teacher in choosing their national exam.

The third external factor that affects students didn’t choose physics subjects at the national examination is their peers. Peers, especially classmates, are students' social environments that significantly affect student psychology, 54.12% students whose physics scores are high, but didn’t choose the physics subjects in the NE 2018 are influenced by peers. They chose the same lesson with peer choice. They feel that there is social support if the exam subjects are the same as their friends [9].

Two internal factors (self-ability and ideals) contribute lower in students choosing the NE subjects. Ignoring the ability factor of self in determining the choice of national exams, it can result in a lack of exploited potential of students, low motivation in solving problems [10]. The result can cause low values achieved by students.

External factors influence the choice of students not to choose the subject of Physics in the national exams, in the strong category, indicating that the Senior High Schools' students in Banda Aceh are still pessimistic or doubtful about their ability to take physics subjects, even though the first score are categorized as high. This is interesting to study further. From the follow-up interviews, expressed some student recognition caused the students' low self-confidence. The first scores of high Physics lessons obtained by students didn’t reflect the actual state of matter of Physics. This is due to (1) the help of friends obtained when working on assignments and examinations, (2) the teacher adds value to the student report card (3) most students are not interested in physics.

The last factor that becomes the reason for students didn’t choose physics subjects at the national examination is the influence of ideals. Students who have aspirations to study in majors that aren’t dominant need material physics, such as Biology, Medicine, Agriculture, Economics and others, tend didn’t choose Physics at the time of the NE. Their perception of Physics lessons won’t influential in campus activities and their subsequent career [5].

4. Conclusion
The factors that affect students didn’t physics subjects in the NE are dominated by external factors, respectively are as follows: (a) family of 78.5%, (b) teacher of 61.75%, (c) peers of 54.12%. The influence of internal factors is relatively lower, namely (a) self-ability of 53.72% and (b) influence of
ideals of 44.75%. Family factors have a strong influence students did not choose Physics subjects in the national examination 2018.

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