# PTS Chemistry Question Points Class X MIPA-1 Difficulty Analysis in Online Learning (2019/2020) in SMA 10 Bengkulu City

## R. Pan[1], Alek Sudarmanto[2], Windy Otaviannissa[3], Ahmad Walid[4]

1234 Fakultas Tarbiyah dan Tadris, Prodi Tadris IPA, IAIN  Bengkulu.
Jalan Raden Patah, Pagar Dewa, Bengkulu 38211, Indonesia
e-mail: rpanmarko@gmail.com[1], alekdarmanto99@gmail.com[2], windyviannisa@gmail.com[3],
Dongawalid19@gmail.com[4]

**Abstract: PTS Chemistry Question Points Class X MIPA-1 Difficulty Analysis in Online Learning (2019/2020) in SMA 10 Bengkulu City.** The purpose of this study is to assess the appropriateness of the level of difficulty of semester assessment questions in Chemistry class X MIPA-1 at SMA 10 Kota Bengkulu. The descriptive method was used in the research, and data was collected in this study through documentation, interviews, and question items. This study analyzes the data collected using the formula $TK = \frac{\sum B}{\sum P}$ to determine the level of difficulty of the question and is based on the results of the analysis of the question given by the teacher of Chemistry class X MIPA-1. The details of the questions given fall into the category of difficult questions when viewed from the level of difficulty. It can be seen that 17 children (53.125 % ) have difficult questions, 7 children (21.875 % ) have moderate questions, and 8 children (25 % ) have easy questions.

**Keywords**: Analysis, Problem Difficulty Level, Chemistry Lessons.

**Abstrak: Analisis Kesukaran Butir Soal PTS Kimia Kelas X MIPA-1 di SMA 10 Kota Bengkulu Pada Pembelajaran daring tahun (2019/2020).** Penelitian ini bertujuan untuk menganalisis kesesuaian tingkat kesukaran soal penilaian tengan semester pada mata pelajaran Kimia  kelas X MIPA-1 di SMA 10 Kota Bengkulu. Dalam penelitian digunakan metode deskriptif, adapun pengumpulan data dalam penelitian ini dilakukan dengan cara dokumentasi, wawancara dan butir-butir soal. Dalam menganalisis data yang dikumpulkan, penelitian ini menggunakan rumus $TK = \frac{\sum B}{\sum P}$ untuk mencari tingkat kesukaran soal dan berdasarkan hasil analisis soal yang diberikan oleh guru mata pelajaran Kimia kelas X MIPA-1. Jika ditinjau dari tingkat kesukarannya, butir-butir soal yang diberikan tergolong dalam  kategori soal sukar. Hal ini dapat diketahui bahwa dari 40 butir soal terdapat 17 anak (53,125%) soal tergolong sukar, 7 anak (21,875%) soal tergolong sedang dan 8 anak (25%) tergolong mudah.

**Kata Kunci**: Analisi, Tingkat Kesukaran Soal, Pelajaran Kimia

▪ **INTRODUCTION**

The 2019 corona virus disease (Covid-19) outbreak, which has affected 215 countries worldwide, poses new challenges for educational institutions, particularly universities. To combat Covid-19, the government has banned crowds, social and physical distance, wearing masks, and always washing hands.

The government has ordered universities to hold lectures or learn online rather than face-to-face (conventional) lectures through the Ministry of Education and Culture (Kemendikbud Dikti Circular No.1 of 2020). Higher education is being directed to be able to hold online or online learning sessions (Rahayu S, 2020).

The obstacle in this case is the one encountered by the teacher while in the midst of the Covid-19 condition; learning is done online and cannot be done face-to-face in class. This condition necessitates teachers innovating in the learning process, particularly online learning (in the network). During the pandemic, the solution was to use network-based learning to find a solution. Teachers must be creative in their use of online learning models. The teacher only facilitates the classroom library, modules, and supporting books, as well as internet access, and provides several computers for students who do not have laptop computers. Tjandra (DS 2020).

E-learning (electronic-based learning) will continue to exist and develop. Because computer ownership is rapidly increasing around the world, e-learning is becoming more developed and accessible. Internet connection speeds are increasing, and with them, new opportunities for multimedia training methods. The hope in using the online model for learning is to become a solution that can aid learning in the midst of the COVID-19 pandemic.

The learning process in schools is the best public policy tool as an effort to increase knowledge and skills. Furthermore, many students believe that school is a fun activity in which they can interact with one another. Schools can help students improve their social skills and become more aware of their social class.

The school as a whole serves as a medium for interaction between students and teachers in order to improve their integrity, skills, and affection. However, due to the interference of Covid-19, the activity known as school has come to a halt. The extent of the impact on the learning process in schools, particularly in Indonesia, is abundant evidence when schools have a significant impact on productivity and economic growth. 2020 (Maritime).

As a result, the researchers conducted an analysis of the quality of the items in the midterm assessment (PTS) Chemistry class X MIPA-1 at SMA 10 Bengkulu City in the midst of the Covid-19 outbreak, the effort was to find out whether the questions made by the teacher were classified as feasible and good, as well as providing maximum results in measuring and increasing.

Measuring the level of difficulty allows for an analysis of the quality of the questions. If the questions on the midterm exam are proportional, the difficulty level of the questions is good. The difference power of the questions is used to analyze the abilities of each student. The number of correct and incorrect student answers is used to calculate the level of difficulty and difference power. The researchers hope that the findings of this study can be used to provide an early evaluation and correction of the

implementation of online learning at SMA 10 Bengkulu City during the covid-19 outbreak.

▪ **METHOD**

The research variable is the level of difficulty in the midterm assessment (PTS) questions. In this study, it was taken from interviews with high school chemistry teachers, as well as supporting documents in the form of student answer sheets in the mid-semester assessment.

The research method used is descriptive research. The data collection in this study was carried out by means of documentation, interviews and question items, namely in the form of student results from working on students' midterm assessment questions in chemistry subjects to analyze the difficulty level of the problem.

▪ **RESULTS AND DISCUSSION**

The results for the difficulty level of the questions also include the suitability of the cognitive domains of each item with the difficulty level category of each item based on the difficulty level formula calculation.

The level of difficulty is calculated by the formula:
Information :
TK = level of difficulty
$\sum$B = The number of students who answered correctly
$\sum$P = The number of all test takers

The category of difficulty level (TK) includes difficult, medium, and easy. The following is the division of the difficulty level categories into three groups:

**Table 1.** Difficulty Level Index

| level of Difficulty | Category |
|---|---|
| 0,00 - 0,32 | Difficult |
| 0,33 - 0,66 | Moderate |
| 0,67 - 1,25 | Easy |

The difficulty level of the questions will be classified into three categories, namely easy, medium, and difficult. The level of difficulty is measured by identifying the results of the answers to the mid-semester assessment questions, then entering the identification results into the formula. Then the results of the calculation and matching of the difficulty level index are summarized in the following table.

**Table 2.** List of Values Obtained by Students

| No | STUDENT'S NAME | TK | Category | PTS VALUE |
|---|---|---|---|---|
| 1 | Siswa 1 | 0,06 | Difficult | 4 |
| 2 | Siswa 2 | 0,28 | Difficult | 23 |

| No | STUDENT'S NAME | TK | Category | PTS VALUE |
|----|----------------|-----|----------|-----------|
| 3 | Siswa 3 | 0,31 | Difficult | 27 |
| 4 | Siswa 4 | 0,18 | Difficult | 15 |
| 5 | Siswa 5 | 0,37 | Moderate | 32 |
| 6 | Siswa 6 | 1,22 | Easy | 97 |
| 7 | Siswa 7 | 0,26 | Difficult | 22 |
| 8 | Siswa 8 | 0 | Difficult | 0 |
| 9 | Siswa 9 | 0,5 | Difficult | 40 |
| 10 | Siswa 10 | 0,68 | Easy | 56 |
| 11 | Siswa 11 | 1,13 | Easy | 92 |
| 12 | Siswa 12 | 0,31 | Difficult | 27 |
| 13 | Siswa 13 | 0,09 | Difficult | 7 |
| 14 | Siswa 14 | 0,06 | Difficult | 5 |
| 15 | Siswa 15 | 0,40 | Moderate | 34 |
| 16 | Siswa 16 | 0,07 | Difficult | 6 |
| 17 | Siswa 17 | 0,31 | Difficult | 27 |
| 18 | Siswa 18 | 0,41 | Difficult | 35 |
| 19 | Siswa 19 | 1,09 | Difficult | 90 |
| 20 | Siswa 20 | 0,37 | Difficult | 30 |
| 21 | Siswa 21 | 1,25 | Easy | 100 |
| 22 | Siswa 22 | 0,05 | Difficult | 4 |
| 23 | Siswa 23 | 1,25 | Easy | 100 |
| 24 | Siswa 24 | 1 | Easy | 80 |
| 25 | Siswa 25 | 0,40 | Moderate | 34 |
| 26 | Siswa 26 | 0,5 | Difficult | 40 |
| 27 | Siswa 27 | 0,55 | Moderate | 41 |

| No | STUDENT'S NAME | TK | Category | PTS VALUE |
|----|----------------|------|-----------|-----------|
| 28 | Siswa 28 | 0,41 | Moderate | 35 |
| 29 | Siswa 29 | 1,25 | Easy | 100 |
| 30 | Siswa 30 | 0,93 | Easy | 75 |
| 31 | Siswa 31 | 0 | Difficult | 0 |
| 32 | Siswa 32 | 0 | Difficult | 0 |

Based on table 2. It can be determined the percentage of the results of the difficulty level analysis which is presented in the following figure:
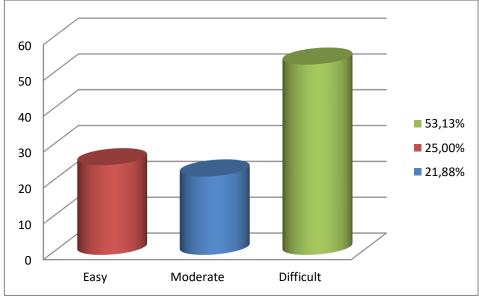


**Figure 1:** Bar graph of percentage yield

Shows the results of 25% of the PTS Chemistry questions for class X MIPA-1 in the easy category, 21.875% of the questions in the medium category and 53.125% of the questions in the difficult category.

According to Marita Afrianti S.Pd, a chemistry teacher, during the Covid-19 pandemic, online learning in Chemistry subjects, mostly using the Zoom application, Youtube, video lessons, and Voice Notes. Because offline learning is available, a teacher can request previous notes to ensure the completeness of the notes, allowing for an evaluation of learning with post tests both offline and online.

However, it can be seen from the results above that the success of students in absorbing knowledge and understanding online learning is dependent on the input of the student itself, which means that if students have the intention to learn and try to understand the learning that is given online or offline properly, the results will be good and satisfactory; if the opposite is true, the results will be poor.

▪ **CONCLUSION**

Based on the analysis of 40 items for the mid-semester assessment of Chemistry class X MIPA-1 for the 2019-2020 school year at SMA 10 Bengkulu City, it can be seen that the difficulty level of Chemistry questions is the acquisition of 17 children (difficult) with a percentage (53.125 %), 7 children (moderate) with a percentage (21.875 % ), and 8 children (easy) with a percentage  (25 % ).

According to the data above, the questions in the Chemistry subject are classified as difficult, so it is necessary to review the quality of the questions given so that they can be adjusted to students'understanding during the online learning period, so that the percentage of students' ability to answer questions correctly will increase. This could be due to a lack of attention during the online learning period to correct and correct questions or methods.

▪ **REFERENCES**

Anggrawan, A. (2019). *Analisis Deskriptif Hasil Belajar Pembelajaran Tatap Muka dan Pembelajaran Online Menurut Gaya Belajar Mahasiswa*. MATRIK: Jurnal Manajemen, Teknik Informatika Dan Rekayasa Komputer, 18(2), 339-346.

Arzayeva, M., Rakhimzhanov, K., Abdrahmanova, A., & Umitkaliev, U. (2015). Special aspects of distance learning in educational system. Anthropologist, 22 (3), 449-454. Dewi, W. A. F. (2020). *Dampak Covid-19 terhadap implementasi pembelajaran daring di Sekolah Dasar.* Edukatif: Jurnal Ilmu Pendidikan, 2 (1), 55-61.

Baharin, R., Halal, R., Aji, S., Yussof, I., & Saukani, N. M. (2020). *Impact of Human Resource Investment on Labor Productivity in Indonesia.* Iranian Journal of Management Studies, 13 (1), 139–164.

Firman, F., & Rahayu, S. (2020). *Pembelajaran Online di Tengah Pandemi Covid19*. Indonesian Journal of Educational Science (IJES), 2 (2), 81-89.

Hanum, N.S. (2013). *Keefektifan e-learning sebagai media pembelajaran (studi evaluasi model pembelajaran e-learning SMK Telkom Sandhy Putra Purwokerto*. Yogyakarta: Universitas Negeri Yogyakarta. Jurnal pendidikan vokasi, vol.3, no.1 (2013) diunduh pada journal.uny.ac.id/index.php/jpu/article/view/1584/1314.

Kadir, A. (2015). *Menyusun dan Menganalisis Hasil Belajar*. Jurnal Al-Ta'dib Vol. 8, No. 2, Juli-Desember, 72.

Purwanto. (2010). *Evaluasi Hasil Belajar*. Yogyakarta: Pustaka Pelajar.

Ratcliffe, Rebecca (2 Maret 2020). *"First coronavirus cases confirmed in Indonesia amid fearsnation is ill-prepared for an outbreak". The Guardian (dalam bahasa Inggris).* Diakses tanggal 2 Maret 2020.

Sadikin, A., & Hamidah, A. 2020. *Pembelajaran Daring di Tengah Wabah Covid-19.* BIODIK, 6(2), 109-119.

Sugiyono. 2012. *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D.* Bandung: Alfabeta.

Sudjana, N. (2012). *Penilaian Hasil Proses Belajar Mengajar.* Bandung: Remaja Rosdakarya Offset.

Sutrisno, S. 2020. *INCREASED LEARNING ACTIVITIES AND OUTCOMES THROUGH ONLINE LEARNING WITH GOOGLE CLASSROOM IN THE COVID-19 PANDEMIC PERIOD.* Ideguru: Jurnal Karya Ilmiah Guru, 5(1), 95-106.

Syamsudin. (2012). *Pegukuran Daya Pembeda, Taraf Kesukaran, dan Pola Jawaban Tes (Analisis Butir Soal)*. Jurnal Ilmu Tarbiyah "At-Tajid" vol. 1, No. 2, 189- 190.

Waryanto, N.H. (2006). *Online learning sebagai salah satu inovasi pembelajaran. Yogyakarta: Universitas Negeri Yogyakarta*. Jurnal Matematika, Vol. 2, No.1, Desember 2006: 10-23 diunduh.

Wulandari, M.S. & Rahayu, N. (2010). *Pemanfaatan media pembelajaran secara online (e-learning) bagi wanita karir dalam upaya meningkatkan efektivitas dan fleksibilitas.*

Zhafira, N. H., Ertika, Y., & Chairiyaton, C. (2020). *Persepsi Mahasiswa Terhadap Perkuliahan Daring Sebagai Sarana Pembelajaran.* Jurnal Bisnis Dan Kajian Strategi Manajemen, 4(1).