



Development of Information Literacy Worksheets Based on Guided Inquiry Approach on Acid-Base Material

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Abstract: Development of Literacy Worksheets Based on Guided Inquiry Approach on Acid-Base Material. The ease of accessing information can cause problems for students if the information obtained cannot be accounted for. Students' information literacy can be improved through appropriate learning resources and learning media. The aims of this research is to develop teaching materials in the form of worksheets based on information literacy based on a guided inquiry approach on acid-base materials. This research uses the ADDIE development model which is carried out until the development stage. The data collection technique used a questionnaire to determine the feasibility and practicality of the worksheet. The feasibility of the worksheet was assessed by 3 expert validators. The interest and practicality of worksheet are assessed by the responses of students and teachers. The results of the validation test by experts are 85% in the very feasible category. The results of the response test of students and teachers were categorized as very interested and very practical with percentages of 92% and 91%, respectively. Based on the results of the assessment, information literacy worksheet based on a guided inquiry approach on acid-base material is very suitable to be used as acid-base teaching materials to improve information literacy.

Keywords: Acid Base, Guided Inquiry, Information Literacy, Worksheets

Abstrak: Pengembangan LKPD Berbasis Inkuiri Terbimbing untuk Meningkatkan Literasi Informasi pada Materi Asam Basa. Kemudahan dalam mengakses informasi dapat menyebabkan masalah bagi peserta didik jika informasi yang didapat berupa informasi yang tidak bisa dipertanggungjawabkan. Literasi informasi peserta didik dapat ditingkatkan melalui penelusuran sumber belajar dan penggunaan media pembelajaran yang tepat. Tujuan dari penelitian ini yaitu untuk mengembangkan bahan ajar berupa LKPD berbasis literasi informasi berbasis pendekatan inkuiri terbimbing pada materi asam basa. Penelitian ini menggunakan model pengembangan ADDIE yang dilakukan sampai tahap pengembangan. Teknik pengumpulan data menggunakan angket dan questioner untuk mengetahui kelayakan dan praktikalitas LKPD. Kelayakan LKPD dinilai oleh 3 validator ahli. Ketertarikan dan kepraktisan LKPD dinilai oleh respon peserta didik dan guru. Hasil uji validasi oleh ahli sebesar 85% dengan kategori sangat layak. Hasil uji respon peserta didik dan guru mendapatkan kategori sangat tertarik dan sangat praktis dengan persentase berturut-turut sebesar 92% dan 91%. Berdasarkan hasil penilaian, LKPD berbasis literasi informasi berbasis pendekatan inkuiri terbimbing pada materi asam basa sangat layak digunakan sebagai bahan ajar materi asam basa untuk meningkatkan literasi informasi.

Kaltal Kunci: Asam Basa, Inkuiri Terbimbing, Literasi Informasi, LKPD

• INTRODUCTION

The era of the industrial revolution 4.0 is an era where human life is related to technology and information (Yuliati and Saputra, 2019). The era of the industrial revolution 4.0 is very influential in the world of education, where educators are required to be able to equip students with 21st century skills, including critical thinking skills in solving problems, being creative and innovative as well as skills in finding, managing, and conveying information (Banggur, 2020). The characteristics of education in the industrial revolution 4.0 era lead to several learning criteria, namely student centered and providing opportunities for students to learn according to their interests and learning speed, developing the ability of each student to seek knowledge from various sources of information, and the use of information and technology that provides flexibility for students (Firman, 2019).

The existence of the internet as a learning resource can make it easier for students to access various sources of information. Nowadays, the internet can be an efficient and effective alternative learning resource (Sasmita, 2020). The ease of accessing information can cause problems for recipients of information, namely if the information obtained is in the form of information that cannot be accounted for (Rifqiawati, Hendriyani and Hayati, 2020). Education has an important role to help students analyze correct information (Nuraeni, Feronika and Yunita, 2019). In response to this, students must be good at sorting information to be used as a reference for learning resources. Thus, special abilities are needed that students must have to identify learning resources, access and analyze information (Retnaningsih, 2019; Oktariani, Febliza and Fauziah, 2020).

The ability to analyze learning resources is important for students to master. The selection of literature sources can be useful in terms of autonomous motivation, perceived competence, and perceptions of mental effort during independent study and does not affect different conceptual knowledge from different sources (Wijnia *et al.*, 2015). So that students must have digital literacy skills, information literacy, media literacy and master technology (Wahidayanti, 2019; Putriani and Hudaidah, 2021).

Information and communication technology devices that are connected to the internet make students free to access and search for the information they need. However, the information contained on the internet is not all true (Wiyarsi and Priyambodo, 2007). Students still need training in information retrieval, knowledge of the types of information sources and the use of good information sources in terms of novelty and accuracy. The overflow of information can make students less selective in choosing information to be used as learning resources, this is evident from the results of the distribution of questionnaires that have been given to several MA Amanatul Ummah 02 students. but they do not fully know the validity of the source of the information. Information literacy of students can be improved by searching for learning resources. Thus, media and learning models are needed that are able to guide students to understand the material and improve information literacy. The learning media can be in the form of student worksheets based on guided inquiry.

Worksheet can provide convenience in the learning process. In addition, worksheet can be used as a learning resource because it contains sheets containing tasks that must be done by students during learning activities, and contains instructions or steps in completing assignments (Halifah and Adnan, 2019). Scientific literacy-based worksheets with the MEA (means-ends analysis) strategy are effectively used in learning (Rasmiwetti, Nitasari and Anwar, 2020). The guided inquiry-based learning approach is a learning model that requires students to be actively involved in searching, collecting data, and using various kinds of information (Asni, Wildan and Hadisaputra, 2020; Dewi, 2020). The guided inquiry learning approach has a significant effect on learning outcomes

(Sulistyaningsih and Tengker, 2020). The purpose of this research is to develop guided inquiry-based worksheets to improve students' information literacy skills.

• METHOD

The type of research used in this research is research and development. The research model used is the ADDIE development design. The stages of the ADDIE development model are Analysis, Design, Development, Implementation and Evaluation (Branch, 2009) but in this research, it was only carried out until the development stage. The subjects in this research were 9 students of class XII MA Amanatul Ummah 02. Data collection techniques carried out in this research were in the form of interviews, validation and questionnaires. The instruments used in this study were a validation sheet to measure the feasibility of the developed worksheets, and a questionnaire to measure the interest and practicality of the worksheets.

Data Analysis Techniques

Validation Test

The validation sheet was carried out by quantitative and qualitative methods. The quantitative method of the validation sheet was analyzed from the results of the validator's assessment using the following equation:

$$\text{Skor (\%)} = \frac{\text{total score from validator}}{\text{maximum total score}} \times 100\% \quad (\text{Purwanto, 2012})$$

Then it's converted into the table of eligibility criteria in Table 1.

Table 1. Conversion of Eligibility Criteria

Percentage	Information	Number
81% - 100%	Very Good	5
61% - 80%	Good	4
41% - 60%	Good Enough	3
21% - 40%	Not Good	2
< 20%	Very Not Good	1

Responses of teachers and students

The responses of teachers and students were analyzed using quantitative methods and analyzed through the results of the responses using the following equation:

$$P = \frac{f}{N} \times 100\%$$

where :

P = Percentage number

f = Frequency of respondents' answers

N = amount respondent

(Sugiyono, 2015)

Then converted into tables of attractiveness and practicality criteria in Table 2 and Table 3.

Table 2. Interest Criteria

Percentage	Information	Number
81% ≤ 100 %	Very Interested	5
61% ≤ 80%	Interested	4
41% ≤ 60%	Enough Interested	3
21% ≤ 40%	Not Interested	2
≤ 20%	Very Not Interested	1

Table 3. Practicality Criteria

Percentage	Information	Number
81% ≤ 100 %	Very Practical	5
61% ≤ 80%	Practical	4
41% ≤ 60%	Enough Practical	3
21% ≤ 40%	Not Practical	2
≤ 20%	Very Not Practical	1

• RESULT AND DISCUSSION

The product produced in this development research is a student worksheet based on information literacy through a guided inquiry approach on acid-base material developed using the ADDIE development model.

Analysis

The analysis phase includes 3 things, namely analysis of student needs, curriculum analysis, and analysis of student characteristics. Based on the results of interviews with the chemistry teacher at MA Amanatul Ummah 02, it was stated that the teaching materials used to support learning activities were lacking. Teachers only use textbooks as teaching materials. Meanwhile, students only recorded what was delivered by the teacher during the learning activities. In addition, students utilize the internet as a reference for

learning resources used to complete assignments given by the teacher.

As for the results of interviews with students, there are some lessons that are only given assignments by the teacher without being accompanied by an explanation of the material so that students find learning resources using the internet independently. The use of the internet is less than optimal, because the teacher does not provide clear sources to students so that students look for information related to chemistry learning through the internet without knowing the validity of the information.

Based on the results of the student questionnaires, it shows that 58.8% of students have difficulty in acid-base material. The learning method used during the learning process is the lecture method. As many as 47.1% of students stated that students were not interested in taking chemistry lessons with the lecture method, as a result, students were not active in learning. Most students use the internet as a learning resource. It is known from the results of student questionnaires which show that 76.5% of students use the internet as a learning resource. However, as many as 64.7% of students stated that they could not choose valid and relevant learning sources.

Based on the results of the analysis, the researcher provides a solution by developing teaching materials in the form of worksheets based on information literacy through a guided inquiry approach on acid-base materials that can support the chemistry learning process. Learning with a guided inquiry approach can increase the activity of students during the learning process by solving a problem given by the teacher either from books or worksheets (Hasanah and Nurita, 2021). Then the curriculum applied to MA Amantul Ummah 02 is the 2013 curriculum.

Design

This stage is the design stage of worksheets based on information literacy through a guided inquiry approach on acid-base materials. The worksheets design developed based on guided inquiry learning syntax, namely observing, formulating problems, formulating hypotheses, collecting data, testing hypotheses, and concluding as well as information literacy-based activities, namely by providing links to articles that will be selected by students as a reference. information to complete the task. Some part of the worksheet can be seen in the Figure below.



1. <http://estianayesie.blogspot.com/2011/08/pengaruh-suhu-terhadap-laju-reaksi.html>
 2. <https://www.avkimia.com/2016/10/pengaruh-suhu-terhadap-laju-reaksi.html>

- Sebelum memilih artikel yang akan dijadikan sebagai acuan, mari kita mencari tahu kriteria sumber informasi seperti apa sih yang dapat dikutip

Tips mencari sumber belajar online

Mencari sumber belajar melalui internet untuk menambah referensi belajar bukanlah hal yang mudah. Pada era revolusi industri 4.0, informasi berkembang begitu cepat, luas, bebas dan tanpa batas sehingga menyebabkan masalah bagi penerima informasi, yaitu jika informasi yang didapat berupa informasi yang tidak valid atau tidak bisa dipertanggungjawabkan. Oleh karena itu, penting bagi pelajar untuk mengetahui sumber belajar online yang valid untuk menunjang proses pembelajaran.

Tips mencari sumber belajar online menurut Ima Dyah Savitri, S.S., M.A. yang dikutip dari <https://www.uil.ac.id/tips-mencari-sumber-online-terbaik-untuk-belajar/> adalah :

1. *Authority*, yaitu mengetahui informasi seputar penulis yang bisa didapat dengan melihat latar belakangnya.
2. *Accuracy*, yaitu memastikan keakuratan dari sumber data. *Accuracy* dapat dilihat dengan mengukur apakah tulisan tersebut menyimpang atau tidak.
3. *Objectivity*, yaitu melihat pembaca yang menjadi sasaran dari tulisan tersebut. Apakah tulisan tersebut memang ditujukan untuk kita atau bukan.
4. *Currency*, yaitu kebaruan sumber data. Untuk membuat suatu tulisan ilmiah, sebaiknya selalu memperhatikan kebaruan sumber data agar tetap relevan.

Sudah tahu kan kriteria sumber belajar yang dapat dikutip? Dari link yang sudah disediakan sebelumnya, manakah yang kalian jadikan sebagai acuan? Berikan alasannya!

The results of worksheets interest are described in the percentage table for each aspect in Table 5.

Table 5. Student Response Results

Assessment Aspect	Percentage	Category
Theory	93%	Very Good
Presentation	92%	Very Good
Average	92%	Very Good

Based on the results of the average student response, the level of interest in worksheets based on information literacy on acid-base material shows a percentage of 92% with a very interested category. Meaning, students are very interested in using worksheets based on information literacy through a guided inquiry approach on acid-base materials as teaching materials. While the results of the teacher's response, it is known that the level of practicality of the worksheets based on information literacy on acid-base material is described in the percentage table for each aspect in Table 6.

Table 6. Teacher Response Results

Assessment Aspect	Percentage	Category
Theory	9%	Very Good
Presentation	89%	Very Good
Average	91%	Very Good

Based on the results of the average teacher response, the level of practicality of worksheets based on information literacy on acid-base material shows a percentage of 91% with a very practical category. This shows that the developed worksheets are very practical to use as teaching materials. Worksheet that get positive response from user can be used in chemistry learning process (Sari, 2018).

• CONCLUSION

Based on the results of research regarding the development of information literacy worksheets based a guided inquiry approach on acid-base material, it can be concluded that worksheets containing acid-base material and activities contained in the worksheets are presented by doing internet search through the article links have been provided. The results of the validator's assessment of 85% which include 87% of media aspects, 78% of material aspects and 90% of language aspects can be declared very suitable to be used as teaching materials in chemistry learning. The student response questionnaire obtained a percentage of 92%. Based on this, it is stated that students are very interested in the developed worksheets. Furthermore, based on the teacher's response questionnaire to the worksheets based on information literacy through a guided inquiry approach on acid-base material, the percentage is 91%. Thus, the worksheets that has been developed is stated to be very practical.

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