TRAINING CRITICAL THINKING SKILLS WITH *SCHOOLOGY* IN NERVOUS SYSTEM SUB-MATERIAL: PROFILE, VALIDITY AND STUDENT RESPONSE

Melatihkan Kemampuan Berpikir Kritis dengan Schoology pada Sub-materi Sistem Saraf : Profil, Validitas dan Respon Siswa

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Abstract

In the 4.0 era, many students have an electronic device related to learning activities. Refer to the open questionnaire, 41.2% of students in SMAN 1 Puri Mojokerto feel that nervous system material is hard to understand due to the lack of learning media to proponent the learning process. Some difficult concepts need media to support teaching nervous system material for students. The development of technology support 4-C competence to apply in a learning activity. One of the competence is critical thinking skills. The purpose of this experiment is to develop learning media e-learning Schoology as valid and practical media. Followed up the reason, a learning media, e-learning Schoology is made using the IDI method (Instructional Development Institute), including three steps: define, design, and develop. In this media, there are some activities to help the students training their critical thinking by doing a pretest-posttest and discussion. The media also contain material of nervous system and some games to give motivation. The result of media validation is 96.67%, lesson plan validation score is 97.40%, pretest-posttest question validation is 95.37%, and the validation of students worksheets is 92.05%, the four components decided to have a perfect category (valid). The result of students responded that including 35 students of SMAN 1 Puri Mojokerto indicates the convenience of the media is 88.61% so e-learning Schoology is categorized as a practical media. After that, the implementation of this media is permitted, but this research does not do that.

Keywords: e-learning, Schoology, nervous systems, critical thinking, validity, student response

Abstrak

Pada era 4.0 sebagian besar siswa telah memiliki perangkat elektronik yang dapat dimanfaatkan untuk kegiatan pembelajaran. Berdasarkan hasil kuisioner didapatkan bahwa 41,2% siswa dari SMAN di Kabupaten Mojokerto merasa bahwa sistem saraf merupakan materi yang sulit, hal tersebut dikarenakan kurangnya media pembelajaran yang dapat mendukung pembelajaran. Adanya materi yang sulit sehingga diperlukan media untuk membantu menyampaikan materi sistem saraf pada siswa. Perkembangan teknologi juga mendukung kompetensi 4-C untuk diterapkan dalam pembelajaran. Salah satu kompetensi tersebut yakni berpikir kritis (critical thinking skills). Tujuan dari penelitian ini yakni mengembangkan media pembelajaran dengan e-learning Schoology yang valid dan praktis. Sehingga dikembangkan media pembelajaran e-learning Schoology dengan menggunakan metode IDI (Instructional Development Institute) dengan tiga tahapan yakni define, design, dan develop. Pada media ini, terdapat beberapa aktivitas yang dapat membantu siswa untuk melatihkan berpikir kritisnya dengan mengerjakan pretest-posttest dan diskusi. Media ini juga memiliki materi sistem saraf dan permainan untuk memberikan motivasi. Hasil validasi media memiliki nilai 96,67%, hasil validasi RPP dengan nilai 97,4%, hasil validasi soal sebesar 95,37%, dan hasil validasi LKS sebesar 92,05%, sehingga keempat komponen dinyatakan memiliki nilai sangat baik (valid). Hasil respon siswa yang dilakukan pada 35 siswa dari SMAN 1 Puri Mojokerto menunjukkan nilai kepraktisan sebesar 88,61%, sehingga media e-learning Schoology dikatakan praktis. Selanjutnya media ini dapat diimplementasikan di dalam kelas, namun dalam penelitian ini hal tersebut tidak dilaksanakan.

Kata Kunci: *e-learning, Schoology, sistem saraf, berpikir kritis, validitas, respon siswa*

INTRODUCTION

In the 4.0 era, almost all students can use technology, so it will be interesting when the subject material is forming in technology to help them reach the aims of learning and building their skills in technological capability. Beyond *Asosiasi Penyelenggara Jasa Internet Indonesia* (APJII) the percentage of handphone user in Indonesia 2018 is 64.8%, and East Java as number 3 the bigger in Java Island with 13.5% from 55.7% total user in Java (APJII, 2018). Moreover, the internet users between 15-19 years old are 91% (APJII, 2018). The development of technology dan information, especially in the young generation, technology is known including in social life and learning, which help with the computer, internet, handphone, and the other device (Nakel &Naval, 2015).

Based on the result of the open questionnaire spread to senior high school students in Mojokerto District, 41.2% of respondents choose nervous systems as hard material. It is caused by the number of material, difficult names to remember, and less illustration about the material. Learning media is chosen many times in textbooks, PowerPoint, and student workbooks. The material difficulties supported with the data from National Examination (*Ujian Nasional*/ UN) 2018 in nervous system there is 37.77% in retention (Puspendik,2018). So, the nervous system is hard to prove from the small number of students who the answer is appropriately evidenced by the value of its retention. Learning activity in 21 century also emphasized a problem and issue, so learning activity in the class would increase the competence in the future (Maryuningsih *et al*, 2019). Training critical thinking in class by using the ability in analyzing a problem based on the fact and evidence to get a conclusion (Agnafia, 2019).

The nervous system is one of the materials for XI grades senior high school students suitable with basic competencies 3.10 dan 4.10 in Government Regulation of Education and Culture No.37 of 2018. The Nervous system is a topic in biology that included some unfamiliar/new concepts to understand by the students. Besides, the other reason is many unfamiliar terms for the students, and they never knew before (Lestari, 2015). Also, nervous system material is a complex material if learned without any learning media because of the unknown term in that material (Wahyuningsih, 2012). Nervous material is unfamiliar and complicated because of containing physics and chemist mechanisms, so the students will be hard to understand the material (Lestari *et al.*, 2016). The other reason states that nervous material is intricate because the students feel hard to imagine the

object; this complexity will influence the motivation rate and impact the student learning outcomes (Triyanti, 2015). Because of that reason, the nervous systems in biology need learning media. Using learning media based on technology can support learning activities. According to Batutoh *et al* (2020) learning activities using technology can train students critical thinking skills because they can get some additional information; also give a stimulus to do a discussion and analyzing the information so can get an argument to solve the problem.

Nowadays, the 21st-century ability still developing is 4-C competence. The development of technology makes education systems shifting. As a result, the quality of education must be changing with training thinking skills to support their lives (Septikasari & Frasandy, 2018). Under the US-based Partnership for 21st Century Skills (P21), the 4-C thinking skills are creativity, critical thinking, communication, and collaboration. These skills help students solve their problems and be effective communicators; the support systems need to combine knowledge and skill, technology, and teamwork to make learning engaging, relevant, and personalized (Bettelle, 2019). One of the 4-C components is critical thinking. Activities in class must support student center learning and give cases to be resolved (Arnyana, 2019). Nowadays is essential to train the ability to properly understand the information in media and critical thinking to develop the abilities, knowledge, and skills; teacher and validated media can measure the quality pedagogy activities appropriately (Zhang *et al.*, 2020). Learning activities using discussion and critical thinking get a creativity activity, collaboration, and communication. Learning activities associated with daily life can help the student to get an idea for solving the problems in the real-life, also make a cooperative and collaborative learning activities(Lestari *et al*, 2016). Low critical thinking skills bring the students to get difficulties to solve a problem in life, difficulty in making decisions, lazy to study, less self-confidence, also low comprehension (Ndae & Widyaningrum, 2020). Critical thinking has some stages: interpretation, analysis, evaluation, inference, explanation, and self-regulation (Facione, 2016). Every indicator is using in learning activities able to train critical thinking, help with technology media.

Learning media combining with technology will help and support the student learning activities. Learning by using technology and communication tools caused shifted system; before teacher and students meet in a class, they do a virtual meeting to meet each other for learning. This media development makes it easier to

interact between teachers and students, especially when the teacher cannot come to class, so the teacher's information remains (Rochmah & Abdulmajid, 2018). Also, using technology and communication tools makes students search for additional information using their search engine (Chabibie & Hakim, 2016).

One of the learning media used for learning activities is e-learning Schoology accessed by the Schoology website. Schoology is an online learning media, classroom, and learning platform that can improve learning outcomes with communication, collaboration, and upgrading curriculum and additional content (Biswas, 2013). This application enables to learn biology everywhere and anywhere; it can help students to resolve the difficulties in the study because of less learning material. Schoology was chosen according to Sulisworo *et al* (2020) experiment that showed usage Schoology in blended learning has more impact than using google classroom. The other experiment was done by Budhiman *et al* (2021) using an essay test to get a high effect on training critical thinking using Schoology media in science material. Media developed contain some pictures about nervous system with asynchronous learning, features conducted in one e-learning. It is used to make a learning activity with the e-learning model. This media training critical thinking skills using an online learning media Schoology and having an essay test in nervous system.

The aim of developing Schoology in nervous system is to describe the process of creating media, the result of validation and students' responses to e-learning *Schoology*.

METHOD

This experiment takes place in Biology Department, Faculty Mathematics and Natural Science (FMNS), Universitas Negeri Surabaya (UNESA) from November 2020 until March 2021 for developing media and SMAN 1 Puri Mojokerto in March 2021 to get student response. This experiment includes developing an experiment of learning media with the IDI (Instructional Development Institute) method with three stages. First is 'define' or analyzing the necessary by giving a questionnaire to the random student who answers some questions about: exhausting material in biology, learning resources, and learning media that the teacher frequently uses in class, and then analyzing basic competencies, and make the layout of learning goals also planning the media. The second step is 'develop' with make student goals, lesson plans, student worksheets, and organizational structure in e-learning Schoology. The last step is 'evaluate,' with

validation of the media and student response (Maulana, 2017). Some parts of evaluating efforts skipped; they are trial in limited students and implementation by comparing two different teaching methods.

Validation media doing by three validators consist of Biology senior high school teacher, expert material lecturer, expert media lecturer. The result in number will be interpreted as a validity score. The learning set validated is media, the lesson plan is used to make a plan in a learning activity that will facilitate the students to train the critical thinking, pretest-posttest to make sure the enhancement of the students critical thinking skills, and student worksheets will be integrated the students to do a discussion and solve the problem prepared then get a conclusion. Calculation doing refers to 'Rating scale,' bellow:

Table 1. Score and Criteria in 'Rating Scale'

Score	Criteria
4	Very good
3	Good enough
2	Less good
1	Not good

(Sugiyono, 2018)

The data received processed with calculation bellow:

The total score of criteria = maximum score per-item x total items x total respondent

$$\text{Result percentage} = \frac{Total\ score}{Total\ Score\ criteria} \times 100\%$$

Then, the result include in the interval by divided the respondent result into 4, and categorized as follows:

a   b   c   d

Not good   Less good   Good enough   Very good

Therefore the result that media, lesson plans, pretest-posttest question, and student worksheets in the range of good enough (C) and very good (D) can be concluded as valid, whereas if the result in the range of less good (B) and not good (A) include in invalid.

Furthermore, knowing the practice of media need 35 students to fulfill the practicality sheet test. After that, the result will count with the calculation of the Guttman Scale below:

Table 2. Score and Criteria in Guttman Scale

| Score	Criteria
1	Agree
0	Disagree

(Sugiyono, 2018)

The data received will count with the calculation below:
The total score of criteria = maximum score per-item x total items x total respondent

Result percentage $= \dfrac{Total\ score}{Total\ Score\ criteria} \times 100\%$

After getting the percentage of the result, the data will be generated in the interval and divided into two below :

0%   50%   100%

Unpractical   Practical

(Pranatawijaya *et al.*, 2019)
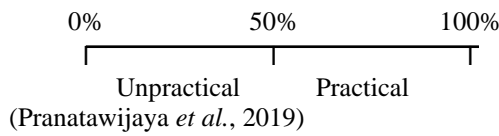
The media category is unpractical, with result percentage in the range 0 – 50%, and media classified as practical media in the range 51 – 100%.

RESULT AND DISCUSSION

This experiment results from media product e-learning Schoology, which can help increase the ability of critical thinking in XI grades high school students in human nervous systems sub-material. Critical thinking trained with doing interpretation, analyzing, intervention, evaluation, explanation, dan self-regulated. Each of the critical thinking skills is achieved by answering the pretest-posttest and doing discussions.

The experiment in developing media using IDI (Instructional Development Institute), the method has three stages: define, develop, and evaluate (Ratumanan & Rosmiati, 2019).

a)   Define

In the 'define' stage, identify the result in the learning activities by randomly sharing an open questionnaire. The result of this questionnaire percentage is 41.2% choose nervous system as a hard material. The media decided to use nervous system as topics in the media e-learning Schoology dan training critical thinking. Then, analyzing the main competencies and basic competencies in 3.10 and 4.10 about coordination systems containing nervous topics. Also, make the planning of the aims of learning so it can be easy to measure the goals of learning and designing the step to take advantage of media in class.

b)   Develop

This section started with forming the aims of learning and collecting sources to make a material, also pretest-posttest, including illustration to obvious material. Choosing the learning method, creating a learning component such as lesson plan, assessment sheets, and student worksheets will be arranged in this section.

Figure 1. Developed lesson plan

After that, arranged material and student activities in media e-learning Schoology, the arrange customized with the steps of learning design in the lesson plan, make the learning activities easy. The scheme started with apperception, after that in order pretest, answering some question in the discussion section and looking for a word that connects with nervous system, material there are: parts of the neuron, impulse, kind of nervous, also the last material is disorders and diseases in nervous systems; discussion in a group, posttest, and the previous is closing. The appearance of the media can be seen in the table below:

Table 3. The Appearance of E-learning Schoology Media

No	The Figure of the media
1.	The appearance of log in page in e-learning Schoology
2.	Nervous system class appearance with some features
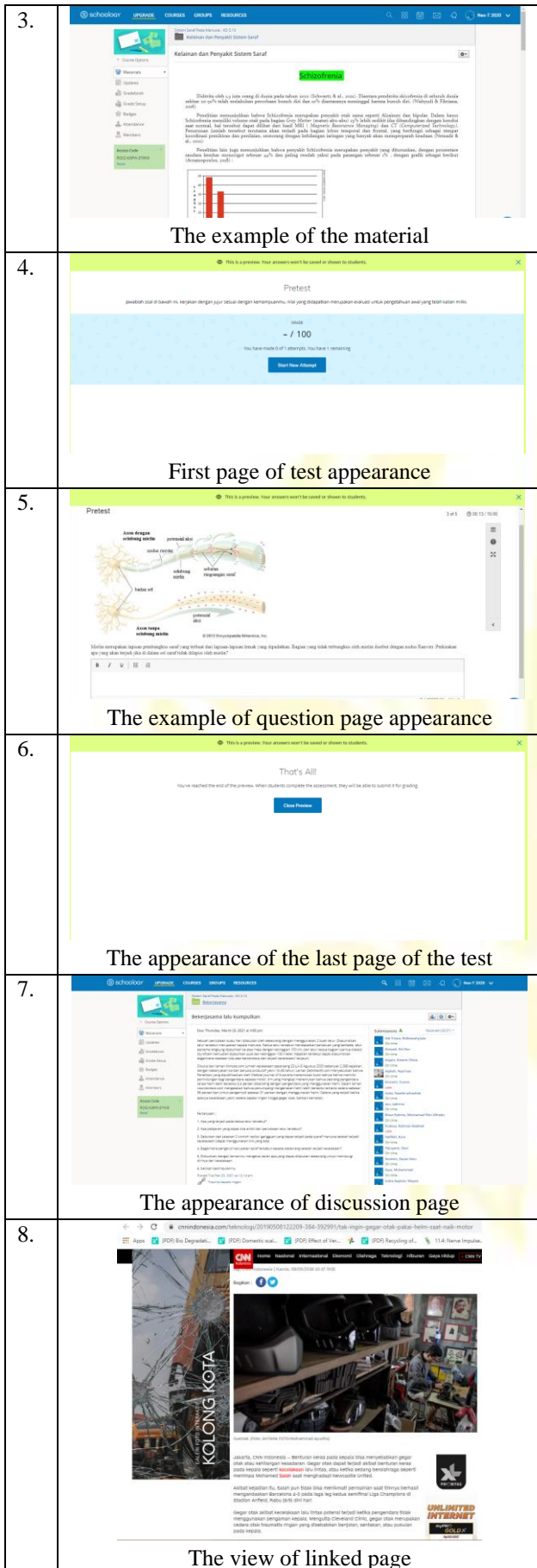
3.	
	The example of the material
4.	
	First page of test appearance
5.	
	The example of question page appearance
6.	
	The appearance of the last page of the test
7.	
	The appearance of discussion page
8.	
	The view of linked page

After that, arranged material and student activities in media e-learning. The activities will do by the students created in student worksheets makes the students feel easy to understand the stage of learning in media. Arrangement in student worksheets starts with a cover containing the learning topics, the inside cover (has self-identity, the aims of learning, and the goals of student worksheets), material resume, activity steps, and how to join with e-learning Schoology, the last about a discussion question.
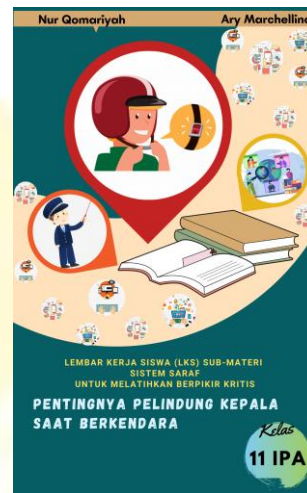

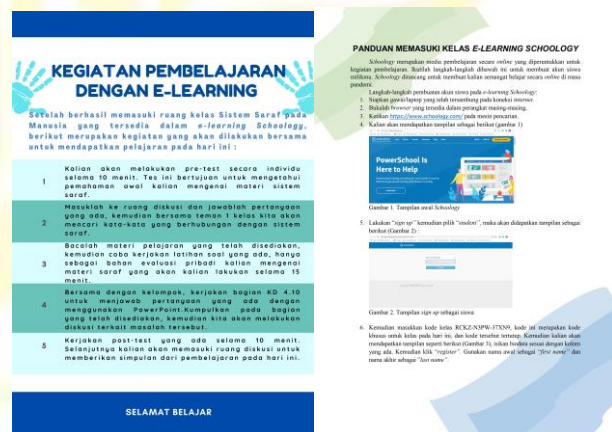Figure 2. The appearance of Student worksheets

Figure 3. The view of steps to join e-learning Schoology in Student worksheets
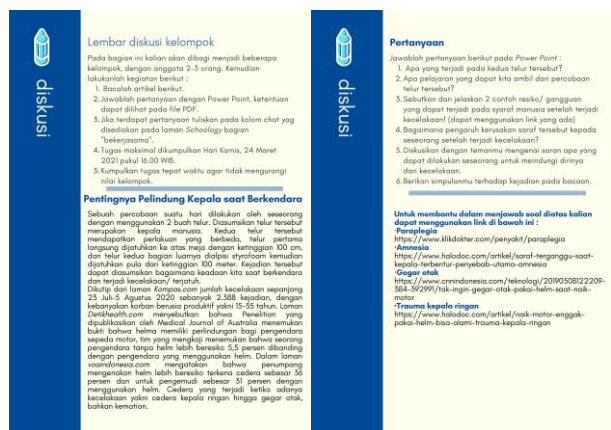
Figure 4. The appearance of the discussion section

The last step of developing media is rechecking and giving a deadline for the task and test, fitted to the nervous system lesson times at SMAN 1 Puri Mojokerto.

Developing learning media by e-learning Schoology appears to sustain learning. Argubhy & Sumbawati's (2017) experiment uses e-learning effectively to help the students do self-learning. In accord with Hanum (2013), using e-learning in class makes the class more effective. Using e-learning gives more impact for increasing understanding, expanding more material, efficiency, and giving more learning activities.

An experiment about e-learning Schoology already recorded by Putri *et al*(2014), using e-learning Schoology make more effective learning by using a valuable feature to support more activities in class, the facilities such as material, quiz, tasks, given immediate feedback, and the excellent class organization; provide a good impact in learning motivation. Based on Zain & Jumadi (2018) research, using e-learning for learning media in a blended learning model is more effective in training critical thinking than using a standard learning method.

c) Evaluate

This stage started with a validation test for media that have developed. Three persons did the validity test: expert media lecturer, expert material lecturer, and biology senior high school teacher. The validation process by giving some files includes learning plan, material, pretest-posttest question, and access to Schoology as account owner (admin). The validator will read, assess, and give feedback about the media that has developed to be easy and proper with nervous system material for XI grade students. The result of the validation provided by the validator shown below:

a. Media improvement by the validator suggestion

Before validating, the validator gives some critical suggestions to make the media proper with the learning process in class—the critical include:

Table 4. Transformation of the Learning Activities

Aspect	Before Getting A Critical	After Getting A Critical
Changing the stages of opening activities.	Present, apperception, motivation, doing pretest, and giving material.	Presence, asking the day, doing pretest, apperception, and material..

In the validation steps, the validator gave advice, so the media get more beneficial and appropriate with learning activity in class. The suggestions are:

Table 5. Advice from Validator

Before getting an advice	After getting an advice
Need more explanation about autonomy and somatic nervous system material	adding more autonomy and somatic nervous system material.
The test grid column has basic competencies.	some columns in the test grid.
The test has an ambiguous meaning.	changing the question test to make a more accessible test to understand and suitable with the concept.
Student worksheets have a less part, so they cannot be systematic.	giving some modification in any part of student worksheets; so it can be relevant and systematics with the class.

Next, the media revised and got a score from the validator. Then it will inform the level of validity media.

b. The result of media validation

Learning media e-learning Schoology gets validity from validator, this matter according to Sugiyono (2018) which mentioned that a product must validate with some expert experienced, accordingly can know the weakness and the strength of the product. The media contains some activities in learning arrange in order, and completed with pretest-posttest quiz also discussion section, so it can facilitate the students to obtain the critical thinking skills. Every test and discussion section has a limited time, so it makes the students more discipline in the learning activity. The materials arranged in order, also have a single section for collecting the task. So, the learning activities will be practical and systematic. Material arranged as: parts of the neuron, impulse, kind of nervous, also the last material is disorders and diseases in nervous systems, also in the end of the study activitiesis discussion completed with a section for collecting the

result and solve the problem. The score of validation in the table below.

Table 6. The result of media e-learning Schoology validation

No.	Aspect	Total score		
		V1	V2	V3
1.	Media qualification (easier to access, appropriate with the learning activities, can help to train thinking skills, giving new information, and giving a new experience in technology media)	32	32	29
2.	Media appearance (the appearance of the media, the font of the text, and the feature of media to help the learning activities)	36	35	32
3.	Format qualification (the appropriate between Schoology and the aims of learning, the material, also the abilities of training in critial thinking)	12	12	12
	Total score of validation			232

After collecting the data, counting the result with the Rating scale by counting the criteria score and percentage of the outcome, next put the calculation of the result in the interval line below (Sugiyono, 2018) :

	Good		
Not good	Less good	enough	Very good

60   120   180   232 240
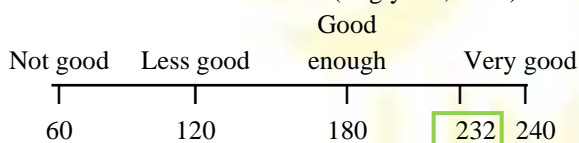
Based on the result, the validity of media e-learning categorized as very good (valid) based on three validators is 96.67% in all aspects.

c.   The result of validating lesson plan

After making the lesson plan, the next step is validating to find the compatibility between the lesson plan and learning nervous systems in class, also between the components. In accord with Permendikbud no.103 in the 2014 clause 3, learning activity will be held suitable with a lesson plan that contains: school identity, subject material, class/semester, time allocation, main competencies, basic competencies, and indicators to

achieve the competencies, material, learning activity, assessment, media, tools, stuff, and learning resource (Permendikbud, 2014). The lesson plan was developed containing the learning steps in the learning activity, question, test, and the other equipment as an activity view in class. The lesson plan also facilitates the students to do asking-answer activities in every material section. Also, there is some evaluation at the end of the material section. In the lesson plan, also have the question for pretest-posttest and discussion that will train the critical thinking skills. The result of validation will present in the table here.

Table 7. The result of lesson plan validating for e-learning Schoology

No.	Aspect	Total score		
		V1	V2	V3
1.	Identity of student plan (subject name, class/semester, the name of material, and time allocation)	16	16	16
2.	Competencies, aims, and indicators are used	12	12	12
3.	The material is appropriate in neuron system, clear sentences, and support the students understanding	24	24	24
4.	Media support has a good picture, easy to access, and support the learning	16	16	14
5.	Learning method is appropriate with the aims of learning and the material	8	8	5
6.	Learning activity has a correct steps and appropriate time allocation	16	16	14
7.	The assessment is appropriate with indicators and learning activities	8	8	8
8.	Evaluation test can measure the critical thinking and use clear sentences	8	8	7
9.	Contain critical thinking category in analysis and inferention steps	12	12	12
10.	Language is easy to	8	8	6

No.	Aspect	Total score		
		V1	V2	V3
	understand and clear			
	Total score of validation			374

After the data collected, will be counted using the Rating scale by counting the criteria score and percentage of the result, that put the calculation result in the interval line below (Sugiyono, 2018):

Not good   Less good   Good enough   Very good

96   192   288   374 384

Based on validation, the lesson plan in e-learning Schoology categorized as very good (valid) based on three validators is 97.4% in all aspects.

A valid lesson plan can apply for learning activities. Based on Wiyana *et al* (2015), student lessons will know the illustration of learning activities that will be held, arranged complete and systematic to make learning activities carried ideal and support the students' development.

d. The result of pretest-posttest validation

The next step is validating the test to know the test can be the proper measurement instrument for success in the learning activities. Arikunto (1997) in Rahmat (2019) stated that a test must be valid so it can be true to assess what should be evaluated. The test has validated have five question in essay. The test is completing with stimulus in text or illustration in every number. Every question will measure the critical thinking skills ability in the analysis and inference stage. The five question contains: estimating the impact of losing a part of a neuron, the working of the central nervous system are affected by a condition, kind of motion as an impact of an event, predict a motion from a daily occasion, and the last question is the impact of an occurrence to impulse. The result of validation shown in the table below.

Table 8. The result of validation pretest-posttest for e-learning Schoology

No.	Aspect	Total score		
		V1	V2	V3
1.	Question qualification (the test is appropriate with indicators and the aims of learning)	8	8	8
2.	Construct (the steps to answere the test, contain critical thinking indicators, and has a stimulus)	16	16	14
3.	Language qualification (the senteces is easy to	12	12	9

No.	Aspect	Total score		
		V1	V2	V3
	understand, correct writing, and clear sentences)			
	Total score of validation			103

The data from validating test will be counted using Rating scale by counting the criteria score and percentage the result, then put the calculation result in the interval line below (Sugiyono, 2018) :

Not good   Less good   Good enough   Very good

27   54   81   103 108

Based on the result of the validity score, the test will use in pretest and posttest in media e-learning. Schoology categorized as very good (valid) based on three validators is 95.37% in all aspects.

Validity of the test will use in pretest-posttest in media e-learning Schoology to train critical thinking skills categorized as valid. Based on Barlow (1985) in Rahmat (2019), a good evaluation instrument in education psychology must complete two categories: valid and reliable.

e. The result of student worksheets validation

After developing the student worksheets, the next stage is validating student worksheets to know the quality and appropriate the student worksheets in learning activities. According to Depdiknas (2008), some student worksheets components are title, learning instruction, competencies that achieved, material, additional information, task and procedure, and assessment. Student worksheets have developed containing the order of discussion activity, the steps to access e-learning, the case for discussion, and scoring criteria. The discussion activity does in pairs (two students per group), and they will answer six questions in pairs. The answer will be collected in a special section in e-learning Schoology with limited time, so the group which is late in collecting the result will get a late sign. The discussion question will train the students' ability with six critical thinking stages, there are: interpretation, analysis, inference, evaluation, explanation, and self-regulation. The discussion case is the importance of a helmet in driving a motorcycle to reduce the injury of an accident. The result of the validation process is shown in the table below.

Table 9. The result of student worksheets in e-learning Schoology

No.	Aspect	Total score		
		V1	V2	V3
1.	Equipment of student	12	12	7

No.	Aspect	Total score		
		V1	V2	V3
	worksheets (cover, inside cover, and the rules of the students worksheets)			
2.	Content (appropriate with the aims of learning, has a summary of material, and the content help to train critical thinking skills)	20	20	12
3.	Language (easy to understand, correct in writing rules, easy to read, and clear sentences)	16	16	12
4.	Student worksheets appearance (the tittle is appropriate with the topic, good design, and easy to read)	16	16	12
5.	Picture appearance (clear, suitable, and coherent picture to access the e-learning Schoology)	12	12	12
6.	The order of steps to join the media (the steps is coherent and clear sentences)	12	12	12
	Total Skor of validation			243

The data will count with the Rating scale by counting the criteria score and percentage of the result. After all, put the calculation result in the interval line below. (Sugiyono, 2018):

Based on the result of student worksheets, validity will use for helping to measure the achievement of based competencies 4.10, and the method to access e-learning Schoology categorized as very good (valid) based on three validators is 92.05% in all aspects. Student worksheets that fulfill all components in Depdiknas 2018 categorized as good quality student worksheets (Shobirin *et al,* 2013).

The four learning components are categorized as valid so that the learning media e-learning Schoology can apply in class. According to Lailiyah *et al*(2021), valid learning media is suitable in learning activities; the appropriate validation of content, constructive, and language criteria.

The last step of developing media is giving a questionnaire to students in XI grades of SMAN 1 Puri Mojokerto to know the practicality of media. Students provide their answers in the questionnaire that was prepared. The questionnaire contains ten questions that engage with learning activities using e-learning Schoology. The question is about appearance, language, content, and easiness to access. Based on the question, get a result that the response for media e-learning

Schoology is positive. Even though students feel some obstacles related to the media, such as confusion when using the e-learning, get difficulties in access the page, and feeling unfamiliar with the appearance and features in media e-learning Schoology.

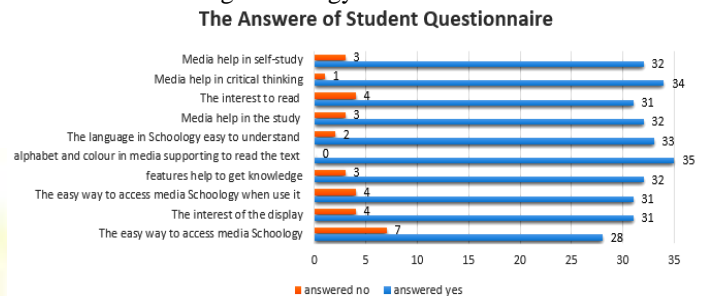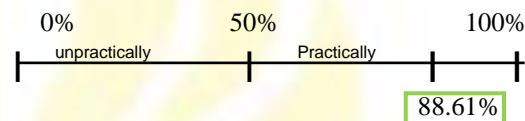**The Answere of Student Questionnaire**

Figure 5. The result of student questionnaire about media e-learning Schoology

The result of the questionnaire for students will be counted with the calculation below (Pranatawijaya *et al.*, 2019):

The total score is the number of respondents answered "yes" in all question in the questionnaire, that have given. Based on the response, the learning media e-learning Schoology is a practical media with a reasonable degree is 88.61%.

This questionnaire result indicates that learning media e-learning Schoology is practically used by students in XI IPA 2 SMAN 1 Puri Mojokerto. The positive response from students to use the learning media can indicate student motivation to get involved in learning activities and make them easy to assemble information. Under Yudasmara & Purnami (2015), which mentioned that practically media caused the students to feel easy to get advantages of the media, the learning media proper with the condition and the existing supporting component.

The result of that questionnaire giving some suggestion from the students to make a better media e-learning Schoology, some of the advice is: giving more time to do the test, providing more games in media, changing the font of the material that makes the reader not getting bored, and giving the video to help the students understand the material. There is some positive comment about the media e-learning Schoology, such as: learning easy to understand, learning is effective, the folder makes learning more coherent, easy to access, easy to use, help for self-learning, appearance and features for the test more engaging, accessible in laptop or handphone, make the content simpler, more direct, existence link give more information about the material,

and students feel more active because in every part of the material students required to provide some comments or question-related with the topics.

Using a learning media like e-learning Schoology with the material is nervous system for XI SMA that has developed and valid, can make the learning more student-centered, effective, more understanding, and help the students more active in class. The growth of technology obliges the learning activities to implement the media as a supplementary tool in learning activities so that it would pursue more goals (Backes *et al.*, 2021).

CONCLUSION

Developing media e-learning, Schoology used IDI (Instructional Development Institute), get the result as the validity of the e-learning component. Beyond that, the four learning components (media, lesson plan, pretest-posttest question, and student worksheets) are categorized as valid to apply in the learning process with the percentage are of media validation is 96.67%, lesson plan validation score is 97.40%, pretest-posttest question validation is 95.37%, and the validation of students worksheets is 92.05%. Practically media from student responses get 88.61% and the media is classified as practical. The outcome of this questionnaire also gives a positive response from the students for new supporting media.

SUGGESTION

Developing media of e-learning Schoology categorized as valid and practically, these media need to try to some students, to such an extent that can identify the effect of media in an experimental class. Also, to complete the media in school, applying pretest-postest control group design will be used, control class and experiment class. This implementation presents the influence of media as insignificant.

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