

## **DESIGNING A VIRTUAL LABORATORY FOR DEVELOPING ISLAMIC JOURNALISM**

## **PERANCANGAN LABORATORIUM VIRTUAL UNTUK PENGEMBANGAN JURNALIS ISLAM**

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**Abstract**

*Improvement of student skills can be pursued one of them with practicum activities. Journalism practicum can help students acquire the skills needed by the media industry, such as skills as journalists, editors and layouters. However, from its inception the UINSU KPI Study Program never had a laboratory, especially for online journalism courses. Therefore, the aim of this research is to design a virtual laboratory in the form of a news portal and online magazine as a practicum facility for KPI UINSU students. This research method is Research and Development which starts from problem identification to the manufacture of the final product in the form of news portals and online magazines. The results showed that the design of this virtual laboratory was feasible according to experts and received a positive response from students where most of the students stated that this virtual laboratory helped them to practice journalism needed in the media industry.*

**Keywords:** *laboratory, virtual, practicum, news portal, journalism*

**Abstrak**

Peningkatan keterampilan mahasiswa dapat diupayakan salah satunya dengan kegiatan praktikum. Praktikum jurnalistik dapat membantu mahasiswa memperoleh keterampilan yang dibutuhkan oleh industri media, seperti keterampilan sebagai jurnalis, editor, dan layouter. Namun, sejak awal Program Studi KPI UINSU belum memiliki laboratorium khususnya untuk mata kuliah jurnalistik online. Oleh karena itu, tujuan dari penelitian ini adalah untuk merancang laboratorium virtual berupa portal berita dan majalah online sebagai fasilitas praktikum bagi mahasiswa KPI UINSU. Metode penelitian yang digunakan adalah Penelitian dan Pengembangan yang dimulai dari identifikasi masalah hingga pembuatan produk akhir berupa portal berita dan majalah online. Hasil penelitian menunjukkan bahwa desain laboratorium virtual ini layak menurut ahli dan mendapat respons positif dari mahasiswa dimana sebagian besar mahasiswa menyatakan bahwa laboratorium virtual ini membantu mereka dalam berlatih jurnalistik yang dibutuhkan di industri media.

**Kata Kunci:** *laboratorium, virtual, praktikum, portal berita, jurnalistik*

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## **INTRODUCTION**

Learning in the 21st century not only relies on knowledge, but skills also play a role. Skills are an important component needed in various fields of life. Trilling & Fadel (Mardhiyah, R. H., Aldriani, S. N. F., Chitta, F., & Zulfikar, 2021) argue that 21st century skills are (1) life and career skills, (2) learning and innovation skills, and (3) information media and technology skills. Journalism course is one of the courses that can support 21st century skills. (Riadi, 2016) explains that by choosing and taking journalism courses, students can train themselves to express their ideas/thoughts in accurate and correct writing. Students also gain communication skills from their experiences searching for data and facts. Journalism in universities can develop various skills, such as writing, photography, videography, and even public speaking.

Furthermore, it can also sharpen literacy, critical thinking, creativity, and investigative skills through interviews and searching for data and facts, as it trains the skills needed in the workforce. It aligns with the concept of independent learning. Independent learning aims to allow students to be able to use information and knowledge gained in school to develop their critical, creative, and innovative thinking skills

The field of journalism is expanding in Indonesia, as numerous private and public

universities have incorporated journalism programs into their academic offerings. This includes the inclusion of journalism as a concentration within communication, Islamic communication, and broadcasting departments at Islamic universities. In universities with no journalism program or concentration, they frequently provide courses in journalism or online journalism as part of their communication studies curriculum.

Interest in journalism studies increases every year based on research results that showing a significant influence of journalism courses on students' interest in becoming journalists. It aligns with the prospects or careers expected in communication studies programs, where alumni can work in the media industry.

Students need to be equipped with journalistic skills to compete in the workforce. (Blom, R., & Davenport, 2012); explains that the curriculum in journalism programs needs to prepare students for their future jobs. Program designers play a critical role in preparing the needed competencies for students to acquire before they graduate. In addition, (Wao, F., Romano, A., & Hardin, 2020) state that every journalism program must be designed with the clear and strategic consideration of learning outcomes and thinking habits that students will attain from their learning experiences, equipping

graduates to advance to satisfying and sustainable careers.

Meanwhile, university authorities should prepare students to achieve these aspirations earnestly and passionately. The efforts in bridging students' aspirations can be measured by the learning achievements of the journalism course. The primary goals of the journalism course is that students are expected to know, understand, and be able to apply journalism in the processes of delivering news to their audience through various media, especially new media.

Students are also expected to acquire knowledge and skills in the processing of news. Starting from news gathering, news writing news editing, and news presenting. Learning systems and equipment including human resources are needed to support the achievement of these goals, especially for students to acquire the needed skills. However, the journalism course generally faces several obstacles and challenges that must be solved immediately.

Based on the initial observations, there are five main factors hindering the achievement of learning outcomes of the journalism course.

Firstly, the lecturers of the journalism course are generally not practitioners, which is a factor in the lack of ability and competency in teaching, especially in practice.

Lecturers face obstacles when applying journalistic practices that tend to differ from or even contradict the theories in various literature in comparison to the practices in the media industry, especially online media. The rapid and numerous changes make inexperienced lecturers to be overwhelmed by the constant need to adjust and adapt class material.

Secondly, there are no support systems available for lecturers. The support system referred to support in the form of programs and campus policies dedicated to improving the competence of lecturers, including journalism training, benchmarking, field studies in journalistic media, and others.

The third factor is the lack of supporting facilities available to develop student skills, such as the unavailability of laboratories and other learning media needed for practical work. Practical activities are vital for students to gain experience in journalism work.

Fourth, no internships or fieldwork practices are mandated as part of student obligations. Internships and field work practices are only recommended for interested students, so students must pursue opportunities without additional support. Furthermore, internships carried out through the cooperation between study programs and media do not run optimally due to administrative issues and class schedules that conflict with internship schedules. The

department head admits it is difficult to communicate with lecturers who have schedules that conflict with student internships or field work practices. In addition, students tend to be less serious in following internships and field work practices because these programs are not part of student obligations, and these activities do not count towards academic credits.

The fifth factor is the lack of cooperation with the media industry. The Communication and Islamic Broadcasting KPI department itself has established partnerships with various media, such as television and radio. However, for online media, based on KPI researcher observations, they have only worked with one online media, and it only began in 2021. It is certainly a disadvantage, especially for online journalism courses where affiliations with online media are needed to hone student skills in finding, writing, and presenting news.

The rapid development of technology means that journalistic skills are no longer synonymous with print news, but with various media. The latest qualifications that need to be met by students, according to (Nur, 2021), are the ability to write well, concisely, and quickly for more than one type of media, ensuring accurate information from reliable online and offline sources. Students must also have the ability

to edit images, sound, and video using Information and Communications Technology (ICT) software.

Therefore, all stakeholders and academic sphere need to provide solutions to these various challenges. One solution is the practicum activities in journalism and online journalism courses. The practicum is conducted to practice the learned concept or theory. This activity is in line with the cognitive development of students so that they have an interest and passion in carrying out the practicum, which leads to optimal learning outcomes in terms of attitudes, knowledge, and skills.

Practicum activities like the description above are in line with 21st century learning, which is Lecturer-centered turns to student-centered. However, these types of courses have no practicum activities, and all learning is done inside the classroom by lectures, discussions, and media research methods. Yet, practicum has a crucial role in the learning and teaching process that influences the improvement of students' skills.

Practicum is one of the student-centred teaching strategies where the lecturer facilitates more than directly teaches. In student-centred teaching strategies, the teacher deliberately places more attention on student involvement, initiative, and social interaction. Goals that are achieved effectively through student-centred teaching

strategies include developing writing, editing, and news presentation skills as well as problem-solving skills.

The absence of laboratories is one of the main reasons for this. Therefore, this study attempts to design a virtual laboratory. According to (Arnold, 2000), the form of simulation and manipulation in a virtual laboratory is included in the category of Computer Assisted Instruction (CAI). Virtual laboratories aim for high-level learning procedures as a programmed instruction medium using computers to deliver lesson content, provide exercises, and test student learning progress.

This virtual laboratory can be a learning platform where students can directly practice becoming professional workers in the online media industry, such as editors, layouters, administrators, journalists, and news contributors. The form of this virtual laboratory will be an online news portal and online magazine. It is hoped that the product of this research can also be effective learning media for students. Teaching is said to be successful if the teaching aids are prepared as maximally as possible before the lecture takes place. The effectiveness of teaching is contingent upon the thorough preparation of instructional materials prior to the delivery of the lecture. The absence of instructional materials may impede the seamless delivery of a lecture, thereby yielding unsatisfactory outcomes .

(Krisdiana, 2016). In the preparation of teaching aids, new innovations are developed so that the expected learning can produce something meaningful as desired by students and lecturers. Effective learning tools can increase student activity in learning.

According to the Kamus Besar Bahasa Indonesia (Indonesian Dictionary), a laboratory is a room or building used for scientific research, experiments, and tests. A laboratory not only includes the building or room and its equipment, but its definition has evolved to include the need for a place of learning for a particular field of study. In addition to being defined as a place where learning tools are present, a laboratory can also take various forms such as a campus or classroom, nature or the environment, social institutions, and even the community itself. (Riyadi, 2019).

This is in line with Government Regulation No. 33 of 1985, which is similar to Article 43 of Minister of Religious Affairs Decision No. 17 of 1988, stating that the function of a laboratory is to prepare supporting facilities for conducting education and learning in accordance with the relevant field of study (Emha, 2002). Based on this function, the laboratory is emphasized as a supporting facility in learning. The learning is not restricted solely to the empirical disciplines of chemistry and biology (i.e., the natural sciences), but rather encompasses all areas



of scholarship that are typically pursued within the universities.

The most distinctive feature of a virtual laboratory is its highly interactive virtual reality simulations of laboratory activities.

According to Mihaela (2003), a laboratory is defined as an equipped place for experimental studies in science or testing and analysis; a place that provides an opportunity for experimentation, observation, or practice in a field of study, or an academic period allocated for laboratory work. Thus, a virtual laboratory is defined as an interactive environment for creating and conducting simulated experiments: a playground for experimentation. It consists of a domain of free simulation programs, experimental units called objects that include data files, tools that operate on objects, and reference books.

A virtual laboratory is a system that can be used to support a conventional laboratory practice. It is commonly referred to as a virtual laboratory or V-Lab. With the presence of a virtual laboratory, it is hoped that students, in particular, can conduct practical work through a stand-alone system, so that they do not need to attend laboratory classes in person. (Puspita, 2008). This will provide an effective learning experience as students can actively learn on their own without the help of an instructor or assistant, as with a conventional system.

The function of virtual laboratories are: 1) to provide guidance on how to conduct laboratory experiments; 2) to demonstrate various types of experiments that can be presented in the form of interactive CDs. Safety measures need to be provided before conducting virtual practices so that students do not feel unprepared when facing real equipment and risky situations can be avoided because there is preparatory information in the virtual laboratory. Similarly, before the virtual practice process, detailed instructions should be given regarding the use, functions, and safety of the equipment. (Miarso, 2007).

Virtual laboratories, as computer-based learning media, provide interaction in the form of simulation, manipulation, discovery, and problem-solving (Suyatna, 2009). According to (Arnold, 2000), the forms of simulation and manipulation interaction in virtual laboratories include Computer Assisted Instruction (CAI). The goal of virtual laboratories is high-level learning procedures, as a media for programmed instruction that uses computers to deliver lesson content, provide exercises, and test student learning progress. However, programmed instruction has a low category when used to convey motor perception.

In addition to emphasizing procedural learning goals, virtual laboratories are designed to introduce scientific methods in science learning procedures from real

laboratories to virtual ones. Therefore, the design strategy for developing virtual laboratories must be goal-oriented, where students are given knowledge and experience in operating in virtual laboratories so that they can improve their experimental skills. (Jian, 2005).

The learning objective of using virtual laboratories is to improve scientific literacy using interactive multimedia that teaches basic concepts of biology while sharing the resources that students have that is available online. One study on virtual laboratories in the field of chemical engineering found that 93% of respondents believed that virtual laboratories had many uses (Domingues L et al, 2010). One of the uses is that all users can accept because it can provide knowledge for students, lecturers, and others who want to develop their knowledge with virtual laboratories (Dobrzanski & Honysz, 2010). The usefulness of virtual laboratories is also conveyed by (Chan, 2009), as they can be used anytime and anywhere and encourages students to have more opportunities to conduct experiments, especially in regarding limited time, complex experiments, and the risk of accidents. It increases student learning enthusiasm through interactivity, improves IT skills, connects and strengthens theories learned in class, is more cost-effective, especially for experiments with a high error rate, and can provide feedback. Stanford University Medical Media and Information Technologies (SUMMIT)

students stated that virtual laboratories are an interesting and fun learning media because they display images, animations, and interactive simulations that can improve understanding of concepts and learning motivation (Huang, 2004).

The virtual environment known as the virtual laboratory varies from static web pages with didactic videos and text, to dynamic pages with advanced environments, collaborative authoring (Emigh & Herring, 2005), video on demand, virtual meetings, and many other features. This virtual laboratory can also allow remote access to measurement instruments, video cameras, microphones, electrical and mechanical circuits, chemical reactions, biological experiments, and so on. The possibility of developing various experiments at different locations and times, remote monitoring and intervention in hazardous experiments, thus helping to prevent accidents, remote access and control of equipment, ability to explain abstract and complex things, and ability to prove theories.

## **RESEARCH METHOD**

The type of research used is research and development (R&D). The research design flow refers to (Sugiyono, 2008) with modifications that are aligned with the numbering.

### **Research Procedures**

The R&D method steps from that have been modified can be explained as follows:

1). Identification of potential and problems.

The journalism course in the Islamic Communication and Broadcasting Study Program, Faculty of Da'wah and Communication, Islamic State University of North Sumatra is still lagging behind in practice, as lecturers tend to teach simple practices such as news writing techniques. It is partly due to the absence of a journalism laboratory, in both broadcasting and online journalism. As a result, students have limited experience and lack the skills that can support them to work and have a career in the media industry, especially in online media. To master the skills of writing, editing, and presenting online news, a laboratory is needed that can be a place for students to simulate becoming professional media practitioners such as editors and layouts of online news portals. Thus, the researcher identified that the absence of this laboratory is a source of problems and is important to seek a solution. A virtual laboratory in the form of an online news portal based on a website and electronic magazine can be a place or facility for students to practice to create learning process becomes more interesting and effective.

2). Data Collection.

Data collection is carried out by the Focus Group Discussion method.

3). Data for development.

All data obtained during data collection is selected and adjusted to be used as material for product planning. The data used are the hardware and software used to develop the product.

4)Product design (Draft I).

Creating the design of an online news portal based on a website and the design of an online magazine using open-source WordPress. The news media design follows professional online news portals in general such as *kompas.com*, and *detik.com*. The news features are also adjusted to these national media, including politics, entertainment, education, da'wah, travel, and others. Meanwhile, the online magazine is designed to follow print magazines where its usage is not to scroll down but flip or swipe.

5). Design validation.

Submitting the initial product to be evaluated and validated by experts using media feasibility assessment instruments. The expert in this study is a practitioner in the professional journalism namely the Chairman of the Indonesian Journalists Association of North Sumatra.

6). Design revision.

The input from experts during design validation is used to improve the shortcomings of learning media, and then data collection related to these inputs is



carried out. Appropriate data is used to improve the product.

7). Draft II.

Draft II is a product that has passed validation by experts and has been improved based on data related to expert input.

8). Trial.

Testing the design results of the virtual laboratory in the form of an online news portal on 209 students who take journalism and online journalism courses.

9). Product revision 1.

Evaluating the initial trial product results in the form of student input and then examining its shortcomings. Data collection is carried out again to obtain development data according to student input that is used to improve the product.

10). Final Product.

Experts have validated, tested on a large scale, and improved the final product

### **Data Collection and Methods**

The sources of data and data collection methods are as follows:

a). Data on the feasibility of media assessment by media experts and substance material obtained by giving a questionnaire containing assessments of learning media virtual laboratory.

b). Data on the responses of lecturers and students to the virtual laboratory learning

media are obtained from student and lecturer reflection questionnaires at the end of the learning process.

c). Data on the results of student practicum simulation evaluations after using virtual laboratories are obtained from student and lecturer questionnaires at the end of the learning process. Questionnaires are distributed online using Google forms.

### **Data Analysis**

a. Data on the feasibility assessment instrument of virtual laboratory learning media by multimedia and substance material experts are analyzed by entering the answers according to the score as follows:

Range = largest data - smallest data.

$$\text{Range} = 3 - 1 = 2.$$

After obtaining the range, the next step is to determine the length of the class interval (P) (Sudjana 2005).

$$P = \text{Range} / \text{Desired class interval.}$$

$$P = 2/4 = 0.5$$

Based on the interval class results above, the criteria for the feasibility of virtual laboratory learning media by experts can be seen in the table 1. Assessment criteria by experts.

Data on the responses of lecturers and students to the virtual laboratory are

tabulated, and their answers are entered according to the score. The same calculation is also carried out for the lecturer and student response questionnaires, with a score of 4 for the SS answer, 3 for the S answer, 2 for the KS answer, and 1 for the TS answer. The following are the criteria for assessing the responses of lecturers and students to virtual laboratory learning media can be seen in the table 2. Criteria for assessing the response of lecturers and students.

**Table 1.**  
Assessment criteria by experts

No	Range	Criteria
1	2,50 < score ≤ 3,00	Excellent
2	2,00 < score ≤ 2,50	Good
3	1,50 < score ≤ 2,00	Fair not good
4	1,00 < score ≤ 1,50	Not good

Source: primary data.

**Table 2.**  
Criteria for assessing the response of lecturers and students.

No	Range	Criteria
1	3,25 < score ≤ 4,00	Strongly supportive
2	2,50 < score ≤ 3,25	Supportive
3	1,75 < score ≤ 2,50	Less supportive
4	1,00 < score ≤ 1,75	Not supportive

Modified from Yamasari 2010.

Based on the obtained criteria, the percentage of respondent's responses is calculated using the following formula:

$P = n/N \times 100\%$ . where; P= percentage score; n= real score N= total score.

### Feasibility Criteria

The feasibility criteria for Virtual Laboratory as a computer-based learning media on journalism material are measured by: a). The results of the feasibility test analysis by multimedia and subject matter experts showing a score  $\geq 2.01$  with "good" and/or "very good" criteria; b). The responses from lecturers and students showing a score  $\geq 2.51$  with "supportive" and/or "strongly supportive" criteria; c). The results of the simulation practicum evaluation showing that  $\geq 75\%$  of students achieve a score of  $\geq 75$ .

## RESULTS AND DISCUSSION

### Design of Online News Portal Product as a Form of Virtual Laboratory for Islamic Journalism Course.

Tebbe (2006) suggested that virtual laboratories provide pedagogical, cost, and access benefits. Technically, (Jaya, Hendra, 2020) proposed that virtual laboratory components can be developed through materials: objects or things related to the activities to be practiced, student worksheets consisting of activity steps and filling tables and data analysis.

Based on observations and interviews with lecturers who teach journalism and online journalism courses, an online news portal can be used as a form of virtual laboratory for practical exercises for students,

especially for journalism courses with Islamic content for Da'wah. An online news portal is defined as a wide computer network that can be connected with each other with permission to disseminate and share digital files, as well as shorten the distance between countries (Perebinissoff, 2005).

Online news portals have been categorized as new media by experts, where people can obtain information in various forms, including text, photos, and videos. One advantage of online news media is its speed in delivering information and news.

The design of the online news portal as a virtual laboratory refers to several national online news portals, such as Kompas.com, Merdeka.com, and Detik.com. The reason for selecting these portals is because they are familiar to the public, especially to students. The design of the online news portal should resemble actual online news portals in terms of its design and functions.

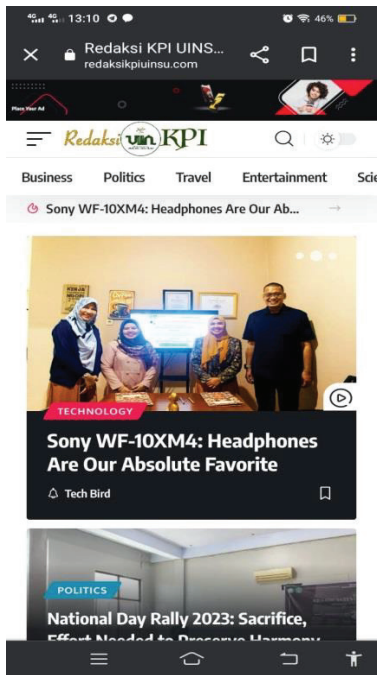
Using an online news portal, students can gain new journalistic experience and skills by acting as professional media professionals, specifically journalists, layout designers, editors, and news editors. By following practical exercises using this laboratory, students will work together to find, collect, process, and present news stories with their own hands.

It is expected that Students' journalistic abilities and skills will also improve with this "learning by doing" approach. Currently, the

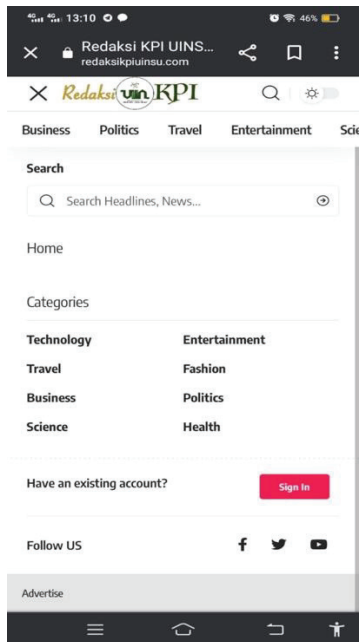
online news portal resulting from this research can be accessed by the public through the website [www.redaksikpiuinsu.com](http://www.redaksikpiuinsu.com), although it does not yet have news content or information like other news portals.

### **Mobile version of online news portal display**

Homepage display On the front page, readers can immediately see the latest news and select news categories using the search button at the top right. Readers can also choose categories from business, politics, travel, entertainment, and science. Menu display can be seen by clicking on the menu button at the top right, more complete news categories will appear, as well as a news search button that can make it easier for readers to find desired information or news. For the body, If the reader scrolls down to the bottom, they will find other news articles complete with the publication date of the news. And then footer page is the end part of the front page of the news portal, which is called the footer. This section, just like any other news portal, provides information about the address and contact. At the bottom of the news content, visitors can directly share the article via WhatsApp, Facebook, and Twitter by clicking on the sharing button at the very bottom.



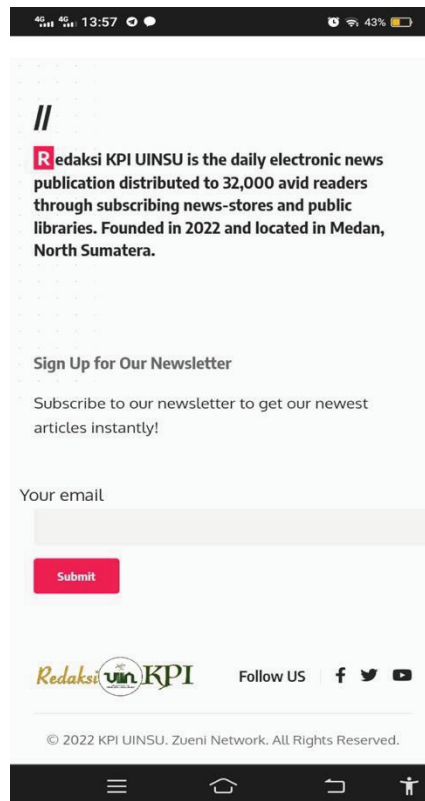
Picture 1. Homepage on mobile version



Picture 2. Menu on mobile version



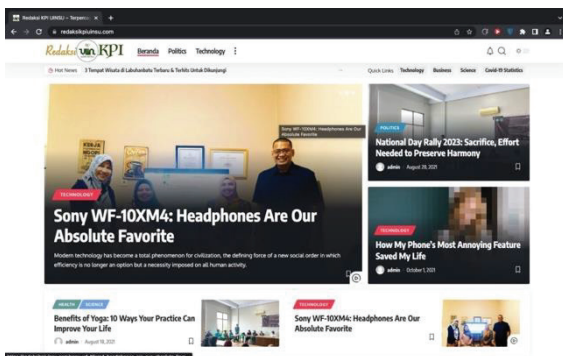
Picture 3. Body news portal on mobile version



Picture 4. Footer on mobile version

## Desktop Version of the Online News Portal

On the front page, readers can immediately find the name and logo of the news portal on the top left. Then, on the top right, a search button is provided where readers can search for information and news within the news portal.



Picture 5. Homepage on desktop version

On this home page, readers can also directly choose the news categories they want, ranging from politics, technology, economy, business, science, and others. In each news article that appears, there is also a news category description provided to make it easier for readers.

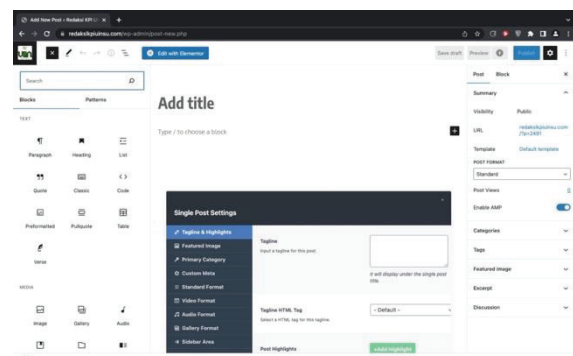


Picture 6. Content on desktop version

This news content is equipped with photos or videos, and readers can immediately share the article by clicking on the sharing button bar on the visitor's social media. On the right side or called the sidebar, there is a display of several social media that the news portal uses to promote to readers or visitors. At the end of the news portal, there is a footer located at the very bottom, which generally contains information about the editorial team.

## Backend of the Online News Portal

The backend is the back part of the website that regulates all the articles, photos, and videos that will be published to the public. The first is backend for Journalists and Contributors. In the fieldwork practice, a contributor or journalist usually writes news on their devices or laptops and then sends the news to the editor.



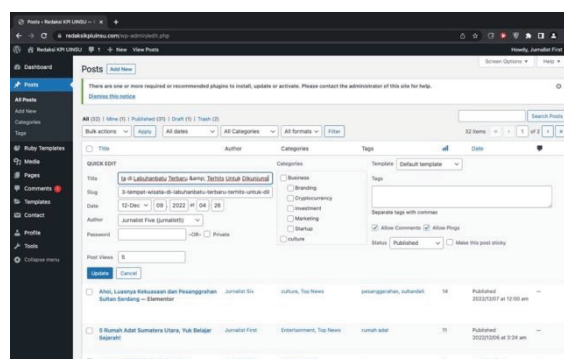
Picture 7. Backend for contributor or journalist



However, in this online news portal, students who play a role can directly write their news on the backend, Students can directly write, create titles, and insert photos into their news articles. They can also categorize news based on their fields. But, just like in journalism practices in online news media, news articles written by journalists or contributors must go through the editing process or editing by the editor, or specifically called the editor-in-chief in the world of journalism. Therefore, journalists or contributors do not have a button function to upload news articles on the backend. In the backend, students who play the role of journalists can only arrange their articles in draft form. In practice, journalists tend to write news articles on their laptops first using Microsoft Word, then send the article to the editor via email or WhatsApp. However, in this virtual laboratory practice, students can write their news directly on the backend or copy and paste news articles that they have written into this backend section.

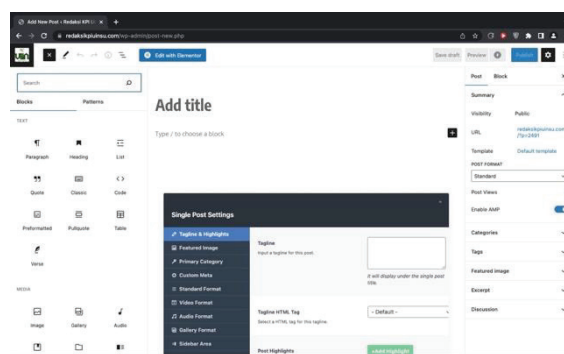
The second is backend for Editors and redactor. The backend function that differentiates between journalists and

editors is access to update news that has been edited and checked beforehand by the editor. So, the editor can directly update/upload news that has been fixed.



Picture 8. Backend for editor with redactors

The third is backend for editor. After the news contributor or journalist writes and saves the news in draft form, the editor can directly open the draft file to edit the news article. Editing the manuscript is carried out like an editor's task in professional media, starting from correcting grammar, writing style and techniques to correct spelling.

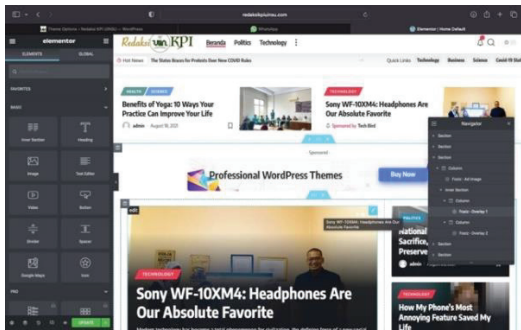


Picture 9. Backend for editors

The fourth is backend on the layouter, the function on this backend is very complex where the layouter can adjust

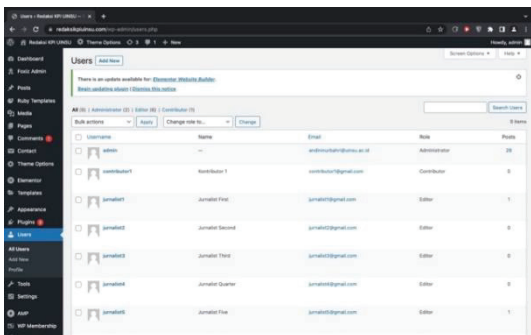


the theme, color and size of the news. Besides, of course, to arrange its layout. Layouter can adjust where the information or news is placed on the homepage and placed on the right or left side of the website or what is called a widget.



Picture 10. Backend for layouters

The fifth is user menu on the editor-in-chief. The function on the editor-in-chief's backend is that the editor-in-chief can have access to select which news is posted and which is not, and can also manage layout and editing.



Picture 11. Backend for editor in chief

### Feasibility Assessment Results of Virtual Laboratory Design by Online Media Experts

Based on the table 3, the average score of the online media expert's feasibility test is 2.83, which indicates a very good assessment. The table shows that the expert gave the highest or maximum score in many aspects, including the media/software aspect, such as effectiveness, maintainability, usability, compatibility, and reusability. Similarly, for the visual communication aspect, such as communicative, audio, visual, animation, and navigation layout, the expert gave a maximum score of 3. Meanwhile, for creativity and simplicity, the expert gave a score of two. Therefore, it can be concluded that the virtual laboratory in the form of an online news and magazine portal is suitable for use as a practicum facility for KPI UINSU students.

Tabel. 3. Feasibility Assessment Results of Virtual Laboratory Design by Online Media Experts

No.	Assessed Aspect	Score
<b>A. Media/Software</b>		
1.	Effective and efficient in developing and using learning media	3
2.	Maintainable (easily maintainable/managed)	3
3.	Usability (easy to use, simple operation)	3
4.	Compatibility (learning media can be run on various hardware and software)	3
5.	Reusable (part/all of the learning media program)	3

	can be reused to develop other learning media)	
<b>B. Visual Communication</b>		
6.	Communicative (suitable for the target and acceptable to the target's wishes)	3
7.	Creative in ideas and pouring ideas	2
8.	Simple and attractive	2
9.	Audio (narration, sound effects, background music)	3
10.	Visual (layout design, typography, color)	3
11.	Moving media (animation)	3
12.	Interactive layout (navigation icons)	3
	Total	34
	Mean	2,83
	Criteria	Very good

### **Product Revision**

After conducting a Focus Group Discussion on the news portal, it was revised based on feedback from online media experts and journalism experts or specialists. Three displays on this online news portal need to be changed and improved. Need to be changed and improved. The descriptions and explanations are as follows:

First is Login page in the editor after revision. The appearance of this login page is changed with an Islamic image. The second is menu display before revision. The revised menu display on the news portal assessment using virtual laboratory design by KPI UINSU students.

To assess the students, a practical simulation was conducted consisting of two sessions divided into 4 sessions for a total of 209 KPI UINSU students who took journalism and online journalism courses. In the first practical session, the students learned to become journalists or news contributors. The first thing practiced was to learn how to create an account as a contributor and get to know the menu available in the contributor session, as well as how to use the account to create news articles directly into the redaksikpiuinsu.com news portal system. The details of the steps are as follows:

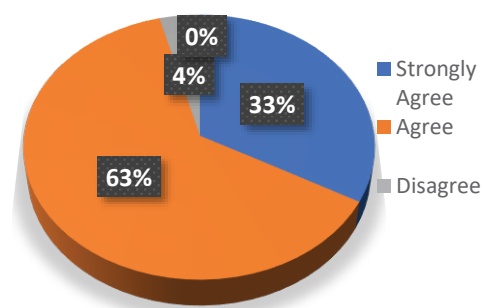
First step is to visit the redaksikpiuinsu.com page and click the red "Sign In" button in the menu section as seen in the picture below. Next, on the Log In page, at the bottom of the Log In button, there is a "Register" menu. Click Register to create a new account. After the register menu is clicked, a registration form will appear, requesting students to fill in data such as the "username" that will be used later, as well as an active "email" to activate the account by creating an account where the notification will be sent by the redaksikpiuinsu.com news portal system

to the email entered the registration form. Click the blue "Register" button.

After successfully filling out the registration form, the student will be taken to a notification page explaining that the registration has been completed and the student is asked to check the email entered in the registration form to activate and create a password to log in to the redaksikpiinsu.com news portal system. First check email notification, if not found in the inbox, then look in the spam folder. This is very possible as the message may be received in the spam folder since the student's email has not yet interacted with the redaksikpiinsu.com portal system. The next step is to open the Redaksi KPI UINSU email and click the link sent to activate the account and create a password. Then the student will be taken to the password account creation page as a contributor and use the newly created password to log in to the redaksikpiinsu.com news portal system. After the student successfully logs in to the admin dashboard as a redaksikpiinsu.com contributor, click on the profile, fill in the personal data correctly, then click the "update profile" button at the bottom. Next, the student is directed to the "Post" menu to create a

news article. Click "add new", and the student will be taken to the news article canvas page where the canvas is used as a place to write the article. Then click "save draft" while waiting for review and publication from the editor. The articles created by the contributors will be displayed in the Post → "All Post" menu.

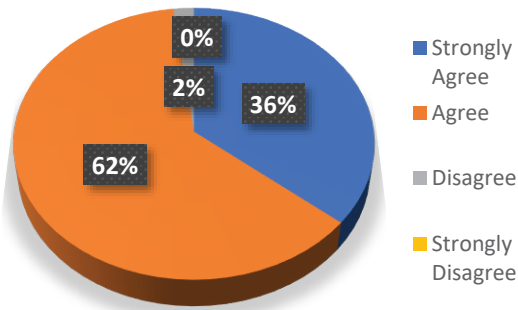
After the product is tested by experts and revised, the research continues with student evaluation of the online news portal and online magazine. There was a total of 209 students consisting of 7th-semester students taking online journalism courses and 3rd-semester students taking journalism courses. The practicum simulation was held twice with the first material being a journalist or contributor, and the second material being an editor or editor-in-chief.



**Picture 12.** Student interest in the virtual laboratory

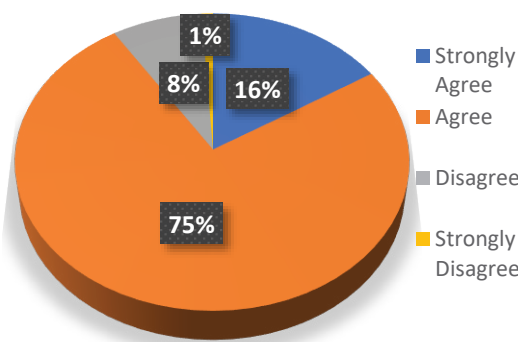
Based on the picture 12 data, there is a great interest among students in the online journalism course practicum using the online news portal as a form of

virtual laboratory, namely 33 percent strongly agree and 63 percent agree. Very few students showed less interest, only 4 percent. Media used in accordance with the learning materials.



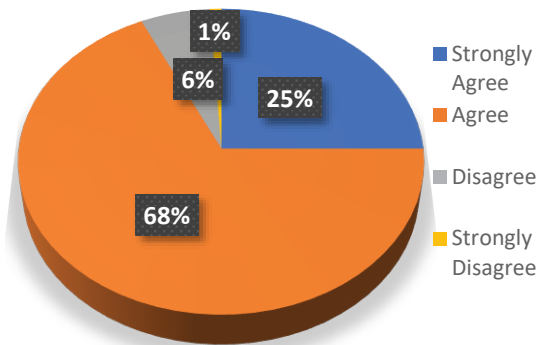
**Picture 13.** Suitability with learning materials

In the diagram in picture 13, most students stated that the laboratory in the form of an online news portal and online magazine is suitable for the journalism course material. 36 percent of students strongly agree and 62 percent agree, while only two percent disagree and 0 percent strongly disagree.



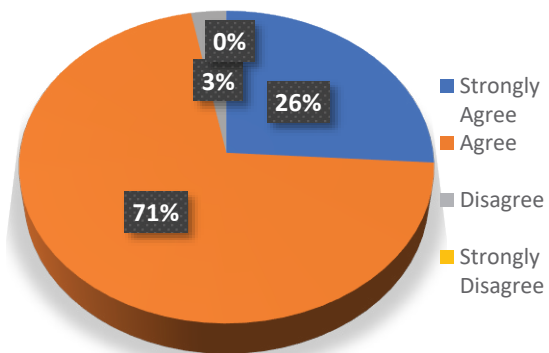
**Picture 14.** Ease of operating the virtual laboratory

The picture 14 data's, shows that 75 percent of students agree that the virtual laboratory is easy to use, 16 percent strongly agree, 8 percent disagree and only one percent strongly disagree. The virtual laboratory helps understand the material in the online journalism course.



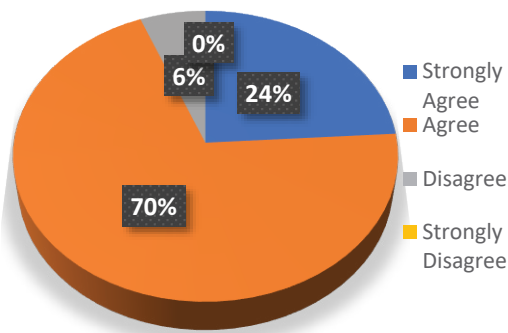
**Picture 15.** Helps understand journalism material

Based on the Picture. 15 data, most students showed that the virtual laboratory helped them understand the material in the journalism course, which is 68 percent of student agree, 25 percent of students strongly agree and only 6 percent disagree, while one percent of others disagree.



**Picture 16.** Design on the online news portal and online magazine is attractive.

picture 16 show data for Design on the online news portal and online magazine is attractive that none of the students stated that the design of the online news portal and magazine is unattractive, namely 0 percent. Most students, 71 percent, stated that the virtual laboratory design is attractive, 26 percent strongly agree, and only 3 percent disagree.

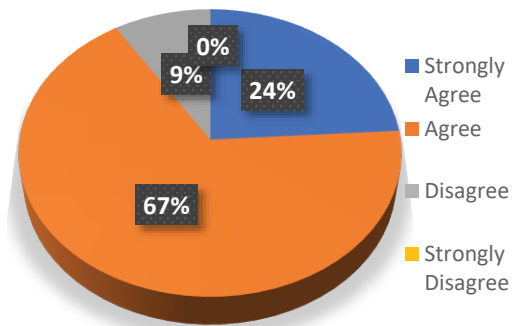


**Picture 17.** Similarity of virtual laboratory design and professional online media.

Picture 17 show data 70 percent of students stated that the design of the news portal and online magazine as a form of the virtual laboratory has similarities with the design of professional online media. 24 percent of students strongly agree that the virtual laboratory's design is similar to professional online media professional online media, only 6 percent disagree and None of the students stated that the

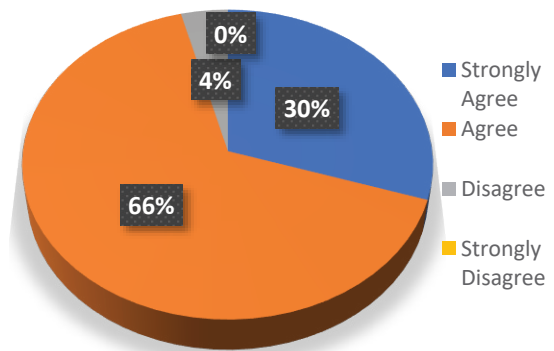
virtual laboratory design has no similarity to online media.

The virtual laboratory gives the students motivation to be more diligent in following online journalism lectures.



**Figure 17.** Getting motivation to be more diligent in following lectures.

Then, based on the picture 17, most students agree that they get motivated to learn and follow lectures after using the virtual laboratory, namely 67 percent agree, and 24 percent strongly agree. Only 9 percent of students disagree, and 0 percent indicate that they are not motivated learn after using the virtual laboratory.



**Picture 18.** Helps with the practice required by the media industry

Picture 18 shows data that most students agree that the virtual laboratory helps them to practice the journalistic work system required by the media industry, at a rate of 66 percent agree, 30 percent strongly agree, and only 4 percent disagree. There were no respondents who disagreed.

### **CONCLUSION**

Based on the results of the Research and Development method, the design of the virtual laboratory in the form of an online news and magazine portal is suitable for use as a practicum facility for Communication and Broadcasting students at the State Islamic University of North Sumatra, especially in the journalism course. The design of the virtual laboratory, which is the final product of this research, should be utilized further by students of Communication and Broadcasting at UINSU. Therefore, we hope that campus officials will pay attention to and monitor the utilization of this virtual laboratory to improve the journalistic skills of students.

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