



## Development of an integrated vocational interest website for high school students' career interest assessment

Rafli Sodiq Bagaskara<sup>1</sup>, Afifah Ulayya Itsnaini<sup>2</sup>, Syabrul Maula 'Azmi<sup>3</sup>, Novellia Ardhya Dewanti<sup>1</sup>

<sup>1</sup>Department of Psychology, Faculty of Education and Psychology,  
Universitas Negeri Yogyakarta, Jl. Colombo No. 1 Sleman, DI Yogyakarta, 55281

<sup>2</sup>Department of English Literature, Faculty of Languages, Arts, and Culture,  
Universitas Negeri Yogyakarta, Jl. Colombo No. 1 Sleman, DI Yogyakarta, 55281

<sup>3</sup>Department of Informatics Engineering Education, Faculty of Engineering,  
Universitas Negeri Yogyakarta, Jl. Colombo No. 1 Sleman, DI Yogyakarta, 55281

\*[raflisodiq@gmail.com](mailto:raflisodiq@gmail.com), [afifah6166fbs.2020@student.uny.ac.id](mailto:afifah6166fbs.2020@student.uny.ac.id),

[syahrulmaula.2021@student.uny.ac.id](mailto:syahrulmaula.2021@student.uny.ac.id), [novelliaardhya.2021@student.uny.ac.id](mailto:novelliaardhya.2021@student.uny.ac.id),

### Article Info

#### Manuscript Received

November 11<sup>th</sup> 2023

#### Revision Accepted

December 12<sup>th</sup> 2023

#### Accepted for Publication

December 20<sup>th</sup> 2023

#### doi:

<http://dx.doi.org/10.21831/pri.v6i2.67709>

### Abstract

"Wrong major phenomena" are increasingly common these days. One reason is that students do not truly understand their personalities and the activities to which they are naturally inclined. Therefore, assessing career interests is crucial for high school students aspiring to continue their studies at university. Holland's Structure of Interest is one vocational interest construct used for assessment tools that could help solve this problem by identifying interest types that align with job characteristics. Unfortunately, psychological assessment services are limited in Indonesia. Integrated vocational interest website development must be undertaken so that people can access these psychological services more widely and minimize human error. The website development method refers to the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). A prototype version of the Integrated Vocational Interest website could provide job and major recommendations to students based on their interest types. These results indicate that the vocational interest website has great potential to help students avoid the "wrong major" phenomenon.

**Keywords:** *career interest, Holland's structure of interest, psychological assessment, website development*

### Suggested citation

Bagaskara, R. S., Itsnaini, A. U., 'Azmi, S. M., & Dewanti, N. A. (2023). Development of an integrated vocational interest website for high school students' career interest assessment. *Psychological Research and Intervention*, 6(2), 58-68. <http://dx.doi.org/10.21831/pri.v6i2.67709>

## **Introduction**

The wrong major phenomenon among college students is currently a significant problem that needs to be addressed. According to Integrity Development Flexibility (IDF), it is estimated that at least 87% of students in Indonesia experience the wrong major phenomenon (Zulfikar, 2021). They feel that the major they have chosen does not align with their interests and preferences. This leads to a decrease in student motivation, an increase in vulnerability to academic stress, and a study period that tends to be longer than necessary (Wulandari et al., 2022). When students are in majors that do not match their interests, they cannot optimally realize their potential (Ding, 2020). Such students are unable to self-actualize and derive satisfaction from their educational process. If this condition persists, educational institutions will face significant challenges in producing competent and quality human resources.

An article by Ali (2018) identified several reasons why students may experience the wrong major phenomenon. Broadly speaking, the factors contributing to the wrong major phenomenon can be divided into two categories: environmental and personal factors. Environmental factors include external influences, such as peer pressure and family demands. Meanwhile, personal factors encompass a lack of individual understanding of course profiles and a failure to consider the job prospects associated with the chosen major. Additionally, themes related to the incompatibility of students' personality types with their chosen majors also contribute to the occurrence of the wrong major phenomenon. The disregard of individuals and significant others for the personality conditions and interests of students is the root cause of the widespread phenomenon of students majoring in the wrong fields. Therefore, knowledge of career interests is essential.

One way to determine individual career interests is through psychological assessment using Holland's Structure of Interest, such as the Self-Directed Search (SDS) Test. This interest test has been trusted since the 1970s as a valid and reliable psychological instrument to determine individual majors and careers in the future (Chu et al., 2022; Ding et al., 2020; Poitras, Guay & Ratelle, 2011). The instrument assesses personality based on interests, activity preferences, beliefs, abilities, values, and individual characteristics, which are then matched with the type of work environment. Based on these assessments, Holland (1997) categorized human personality into a personality constellation called RIASEC.

The RIASEC personality model comprises six domains, including the Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C) personality types (Chu, 2022; Bolles, 2012; Miller, 2002). The Realistic (R) personality type is interested in occupations involving physical activity, hand skills, and specific tools (e.g., woodworkers, mechanics). The Investigative (I) personality type enjoys investigating things and is therefore suited to academic and scientific occupations (e.g., physicists and psychologists). The artistic (A) personality type is interested in occupations that encourage creativity and the expression of ideas (e.g., painters and dancers). The Social (S) type is interested in activities and jobs that allow them to help others (e.g., nurse, elementary school teacher). The Enterprising (E) type is interested in occupations related to business activities (e.g., entrepreneur, factory manager). Finally, the Conventional (C) personality type is interested in working under organized and systematic conditions (e.g., financial experts, accountants).

Holland's Structure of Interest measures all six RIASEC domains in an individual and then determines the top three personality domains. These three highest domains are matched with college majors and career fields of interest. Counselors and educational practitioners typically match the three highest domains of RIASEC through a list of occupational guidelines (Standard Classification of Occupation) (Chu et al., 2022). The effectiveness of Holland's Structure of Interest as an instrument that helps in career determination and avoids choosing the wrong major has been widely proven by previous studies (Behrens, 2014; Dozier, 2013; Stinson, 2011). However, there are two shortcomings in the current implementation of SDS-Holland. First, the availability of the Holland interest test is still dominated by offline assessment. This makes it

difficult for individuals far from the psychology service bureau to access career assessment services. Second, related to the scoring process, interpretation, and matching of test results with the work guide list are still done manually and are not integrated. This causes the assessment service process to be less effective and allows for human error.

Based on the problems described above, the integrated vocational interest website needs to be developed. The integrated vocational interest website will be able to provide massive career interest assessment services and be integrated with the Standard Classification of Occupation. Thus, the range of services provided can be wider and minimize human error. The purpose of developing the integrated vocational interest website is in accordance with SDGs point 4 related to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." This website will benefit students, teachers, educational counselors, and practitioners.

## Method

The research methodology used for this study is research and development (R&D). According to Borg and Gall (1989), educational research and development is a process used to develop and validate educational products. The R & D study aims to float a new product or perfect the implementation of vocational interest website. The author developed an innovative media based on Holland's Structure of Interest. In addition, the research and development will use the ADDIE model, which consists of analysis, design, development, implementation, and evaluation.

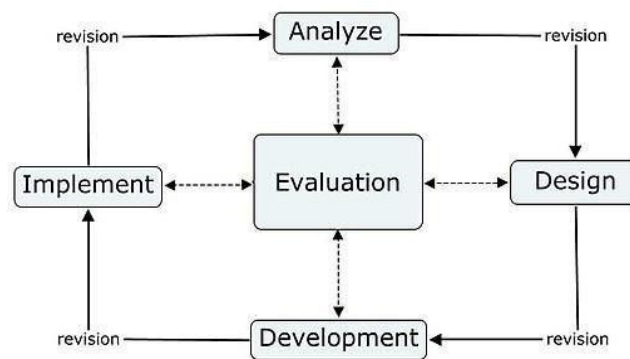


Figure 1. ADDIE Model for Research and Development

### 1. Analysis

This stage is technically carried out by utilizing various sources of news and literature and then to be analyzed. The analysis results from various sources of news and literature found various problems, one of which was the phenomenon of students taking the wrong major. The researcher also found that the phenomenon of the wrong direction can be overcome, one of which is by implementing SDS Holland. However, the assessment service must still be more effective and error-free. Thus, researchers are trying to develop alternative measurements based on RIASEC that are more accessible and practical through the website.

### 2. Design

At this stage, the researcher designed the integrated vocational interest website. The design has an attractive and straightforward appearance so that users can easily understand and access it.

### 3. Development

The development stage involves creating and developing the booklet of the vocational interest assessment into a website. This stage also determines the researcher's design. At this stage, the researcher transfers the design into system command.

### 4. Implementation

At the integrated vocational interest website's implementation stage, the researcher implies the whole previous design and development process. This stage results in the vocational interest assessment of digitality. The prototype of the assessment then implements a direct trial phase to measure the appropriate interests, talents, and jobs.

### 5. Evaluation

The evaluation stage is conducted through formative evaluation, employing face validity. The objective of formative evaluation is to assess, revise, and enhance the integrated vocational interest website to ensure its feasibility. Expert judges evaluate the website, focusing on user interface (UI) and user experience (UX).

#### a. User Interface

The user interface instrument comprises six aspects, each represented by three items. These aspects evaluate color composition, image/illustration display, font, attractiveness, and the presentation of assessment results. The response format for this instrument is a Likert scale with a range of 1-4 points. The interpretation of the instrument is based on percentile calculation. If the evaluation results indicate that more than 75% of the criteria are met, the media can proceed to the field trial. However, if the evaluation results show that less than 75% of the criteria are met, revisions are necessary before proceeding with the field trial.

#### b. User Experience

User experience was assessed using the Standardized User Experience Percentile Rank Questionnaire (SUPR-Q), which incorporates four key aspects: usability, trust, loyalty, and appearance (Sauro & Lewis, 2016). Each item is represented by 2 elements utilizing a Likert scale response format, ranging from 1 to 5 points. The SUPR-Q items can also be aggregated to derive a total score, providing a comprehensive evaluation of the overall user experience. Interpretation involves examining the percentile score for each aspect. If the evaluation results demonstrate that more than 75% of the criteria are met, the media can proceed to the field trial. However, if the evaluation results indicate that less than 75% of the criteria are met, revisions are necessary before the media can advance to the field trial stage.

## **Result and Discussion**

### Result

This research uses the ADDIE model as a website development technique. The following are the outcomes of the various stages of the development of integrated vocational interest website:

#### 1. Stage of Analysis

The website development process initiates with the analysis phase. During this stage, an analysis is conducted to explore alternative solutions related to a student's incorrect major. Subsequently, phenomenon analysis is developed to identify the needs of website development.

The website analysis process involves analyzing the data necessary to comprehend and define the information required for building a database. This analytical component is linked to the entity as an object identified by the information system, elucidating the characteristics of that entity. The table below comprises the entities and attributes associated with them:

Table 1. SDS-Holland Website's Entities and Attributes

Entity	Attribute
user	<u>id_user</u> , username, password
identitas	<u>id_identitas</u> , <u>id_user</u> , nama, umur, jenis_kelamin, tgl_tes
soal	<u>id_soal</u> , <u>id_user</u> , <u>id_riasec</u> , soal
jenis_tes	<u>id_jenis_tes</u> , <u>id_soal</u> , kompetensi, aktivitas, pekerjaan, kerja_dambaan, nilai_diri
riasec	<u>id_riasec</u> , <u>id_soal</u> , <u>id_jenis_tes</u> , realistic, investigative, artistic, social, enterprising, conventional
jawaban	<u>id_jawaban</u> , <u>id_soal</u> , <u>id_user</u> , jawab

## 2. Stage of Design

The second stage in this study is designing. This stage includes preparing a website display based on the Holland method and formulating the ERD Entity Relationship Diagram (ERD). Researchers design websites with an adaptation process in digital form based on existing assessment booklets. The website section design will include the main page, personal identity column, test work page, test result page, career list page, to company profile page. Furthermore, the Entity Relationship Diagram (ERD) visualizes relationships between entities in a database system. ERD assists in designing a database by providing a graphical view of the relationships between entities, attributes, and dependencies between entities.

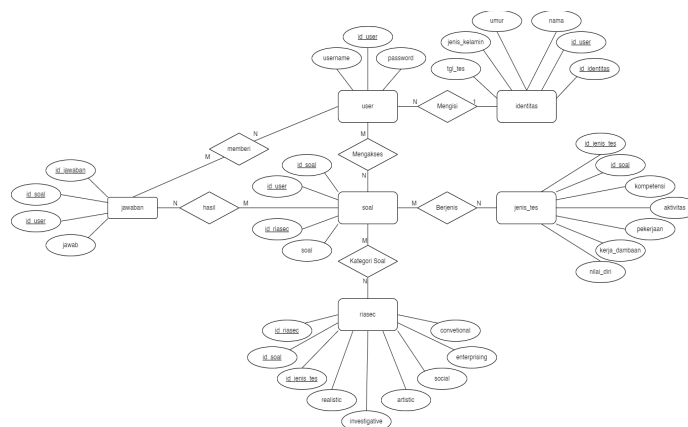


Figure 2. Entity Relationship Diagram of Vocational Interest Website

3. Stage of Development

The development stage involves transforming the Holland assessment into digital media in the form of a website. The Holland's Structure of Interest paper-based assessment comprises five stages: exploring one's occupational daydreams, investigating likes and dislikes related to occupation, examining preferred and disliked activities, evaluating competencies in likes and dislikes, and assessing self-skills. These five components are then translated into the SDS-Holland website assessment. Additionally, the researcher has conceptualized a website flow mechanism that guides users from signing up to completing the assessment process.

4. Stage of Implementation

The researcher implements the design and development process into a website prototype. The resulting website consists of several pages, namely: the dashboard, identity page, occupation daydreams page, assessment page, result page, and list of occupation page.

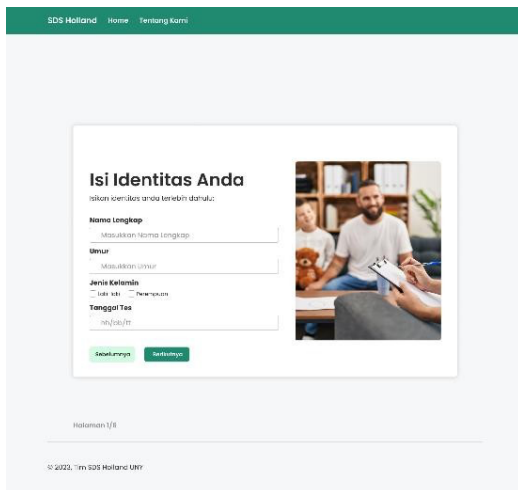


Figure 3. Identity Page



Figure 4. Dashboard Page



Figure 5. Occupation Daydreams Page

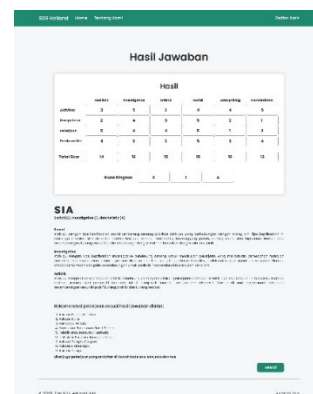


Figure 6. Results Page

The description of the SDS-Holland website's prototype is as follows:

a. Dashboard page

Containing a brief introduction about SDS-Holland, RIASEC personality types information, and the start (=mulai) button.

b. Identity page

The user asks to fill up an identity form consisting of full name, age, gender, and date of the test.

c. Occupation daydreams page

Teste fills several jobs that are considered for the future, which need to be sorted, starting with the most wanted job to those that do not want but are still considerate.

d. SDS-Holland assessment page

This section consists of 17 pages total for four assessment categories of SDS-Holland. The first six pages is an assessment sheet to investigate the like and dislike activities. The second six pages is an assessment sheet considering the like and dislike competence. The next is three pages to investigate the like and dislike occupation. The last assessment section measures the self-skill, consisting of two pages.

e. Result page

Based on the previous assessment sheet filled by the teste, the system automatically sums the point of each category to result in the three highest RIASEC personality types. On the result page, a description is also provided about each personality type. Then, below the description, there would be a list of recommended occupations based on the SDS-Holland result test.

f. List of occupation page

The occupation page menu provides more occupation lists categorized by RIASEC personality types. Also, the list includes 1184 of the most common occupations and specializations. Teste was then able to widen their knowledge about wider job opportunities that they might have yet known before.

5. Stage of Evaluation

After completing the needs analysis step, the researcher designed the user interface, developed the website, and conducted testing (implementation), which involved the participation of five beta testers. These beta testers, also referred to as expert judges, assessed the face validity of the integrated vocational interest website based on its UI and UX. The following presents the results of the UI and UX evaluation of the integrated vocational interest website:

a. User Interface evaluation

User interface (UI) is the visual appearance of a website. UI evaluation is important, not only for an aesthetic aspect, but also to comfort the user while using the integrated vocational interest website. The following are the results of the UI evaluation by expert judgment:

Table 2. Evaluation Result of User Interface

Aspect	Total Score	Description
Color Composition	10,4	86.6% criteria met
Image/illustration Display	10,2	85.0% criteria met
Font Display	10,8	90.0% criteria met
Attractiveness	10,8	90.0% criteria met
Results Presentation	11,0	91.7% criteria met

The evaluation results above show that, in general, the user interface of the integrated vocational interest website is good (> 75% of the criteria are met). This website has a good combination of color composition, clear illustrations, proportional font display, and attractive media design. The expert judgment also agreed that the integrated vocational interest website is able to provide career interest assessment results that were useful for determining high school students' college majors.

b. User Experience evaluation

User Experience (UX) is an evaluation of user experience in using the website. Unlike the UI which is more focused on design, UX emphasizes user comfort in surfing the vocational interest website. The following is the result of the UX assessment by expert judgment:

Table 3. Evaluation Result of User Experience

Aspect	Total Score	Description
Usability	9,2	92% of criteria met
Trust	9,2	92% criteria met
Loyalty	7,8	78% criteria met
Appearance	8,4	84% criteria met
Global Experience	34,6	86.5% criteria met

The evaluation results show that the global experience evaluation is considered as good by expert judgment (>75%). The website has a high value of usefulness, can be trusted, has a comfortable appearance to use and is able to generate loyalty for users. Although the loyalty aspect has the least criteria (78%) met compared to other aspects, it's still in good cut-off.

Discussion



SDS-Holland is one of the career interest assessment tools that has a broad range of benefits (Chu et al., 2022). One of SDS-Holland's benefits is to help high school students determine majors that are a good fit for their personality (Behrens, 2014). The development of the integrated vocational interest website aims to provide the widest possible career interest assessment service. The development of this website algorithm also aims to provide error-free assessment to users. In addition, this website also aims to provide job recommendations in accordance with the Holland Occupations Finder Guide (Standard Classification of Occupation). To improve user convenience in accessing the integrated vocational interest website, an evaluation of the UI and UX of the website was conducted.

The UI and UX of the integrated vocational interest website meet satisfactory criteria so that users can use this website comfortably. Expert judgment provides several suggestions for consideration related to the development of the UI and UX of the integrated vocational interest website in the future. Some of these suggestions include the UI design of the integrated vocational interest website, which still has a lot of empty space. The empty space can be filled with ornaments to increase its aesthetic value. Moreover, the choice of dark green as the base color for this website may also need consideration. Because the dark green color seems too monotonous and does not match with Generation Z, who are more dynamic and modern. Expert judgment suggests that using pastel green instead of solid dark green can be a solution. Furthermore, for the image aspect, it is recommended to attach a clear RIASEC image along with a description of each personality description on the homepage of the website.

User experience also needs to be considered in evaluating the development of the integrated vocational interest website. In general, the experience of using this website has given a positive feel to the expert judgment. However, there are several things that can be considered for this website. One of them is that the results of the career interest assessment can be adjusted according to the characteristics of the target users, where high school students are more familiar with the word "Kamu" (you) than "Anda" (a polite way to say 'you').

The loyalty aspect of the vocational interest website also needs the attention of researchers. The loyalty aspect has the smallest percentile value compared to other aspects. Based on the qualitative expert judgment review, the fifth item of the SUPR-Q, which is included in the loyalty aspect, is considered not relevant for the vocational interest integrated website. The reason is that the fifth item says, "*Saya tertarik untuk kembali lagi ke website ini di masa mendatang*," ("I am interested in returning to this website in the future"), while the implementation of this website is usually only given once to students. Thus, the item is not relevant anymore. Therefore, this item is considered to score lower than others.

## Conclusion

Holland's Structure of Interest is a measurement based on RIASEC personality types (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) to help determine relevant careers based on the dominance of one's personal type. However, there are drawbacks, such as the unavailability of the vocational interest assessment for individuals who are geographically distant from the psychology service bureau, limiting access to the career assessment service. Additionally, there is a lack of integration of the work guide list, requiring test takers to interpret and manually match the test results. Therefore, adjustments to vocational interest assessment in the form of a website are necessary to provide widespread career interest assessment services and integrate it with the Standard Classification of Occupation.

Through development processes based on ADDIE, researchers have successfully integrated Holland's Structure of Interest Test using the website as a medium. This development has undergone evaluation by experts. Ultimately, the concept of Integrated Vocational Interest Website aims to alleviate students' uncertainties about the compatibility of their preferred profession with their interests, thus mitigating the phenomenon of students choosing the wrong major.

## Suggestion

The suggestions for the future implementation of integrated vocational interest website are as follows:

1. Educational institutions could support the further implementation of vocational interest websites. At the high school level, vocational interest websites could be facilitated to help students understand the suitability of majors and career paths. Similarly, universities should collaborate with employment providers to prevent unemployment among educated workers.
2. The adaptation of the list of professions should consider various possibilities, including those that are no longer needed or professions that will be crucial in the digital era but are not yet available on the list. Additionally, some professions may become obsolete due to automation or technological advancements. Updating the list of professions will enhance the quality of the assessment results.

## References

- Ali, R. (2018). "Wrong Majors Phenomenon": a Challenge for Indonesia in Molding Globally Competent Human Resources to Encounter Demographic Dividend. *JKAP (Jurnal Kebijakan Dan Administrasi Publik)*, 22(1), 52. <https://doi.org/10.22146/jkap.30242>
- Behrens, E. L., & Nauta, M. M. (2014). The self-directed search as a stand-alone intervention with college students. *The Career Development Quarterly*, 62(3), 224-238. <https://doi.org/10.1002/j.2161-0045.2014.00081.x>
- Bolles, R.N. (2012). *What Color Is Your Parachute? 2012: A practical manual for job-hunters and career-changers*. New York: Ten Speed Press.
- Chu, C., Russell, M. T., Hoff, K. A., Jonathan Phan, W. M., & Rounds, J. (2022). What Do Interest Inventories Measure? The Convergence and Content Validity of Four RIASEC Inventories. *Journal of Career Assessment*, 30(4), 776-801. <https://doi.org/10.1177/10690727221081554>
- Ding, Y., Wang, Q., Hourieh, N., & Yu, Q. (2020). Vocational Personality Types in College Engineering Students in Relation to Academic Achievement. *Journal of Employment Counseling*, 57(1), 27-47. <https://doi.org/10.1002/joec.12136>
- Dozier, V. C., Sampson, J. P., & Reardon, R. C. (2013). Using Two Different Self-Directed Search (SDS) Interpretive Materials: Implications for Career Assessment. *Professional Counselor*, 3(2), 67-72. Retrieved from <https://eric.ed.gov/?id=EJ1063164>
- Gall, M. D., & Borg, W. R. (1989). *Educational research. A guide for preparing a thesis or dissertation proposal in education*. Longman, Inc.
- Holland, J.L. (1997). *Making Vocational Choices: A theory of vocational personalities and work environments* (Third edition). Odessa, FL: Psychological Assessment Resources.
- Stinson, R. (2011). *What Jobs Pay 2011-2012*. Sydney: Yorkcross.
- Miller, M. J. (2002). Longitudinal examination of a three-letter holland code. *Journal of Employment Counseling*, 39(1), 43-48. <https://doi.org/10.1002/j.2161-1920.2002.tb00507.x>

- Poitras, S. C., Guay, F., & Ratelle, C. F. (2011). Using the Self-Directed Search in Research. *Journal of Career Development, 39*(2), 186–207. <https://doi.org/10.1177/0894845310384593>
- Sauro, J., & Lewis, J. R. (2016). *Quantifying the user experience: Practical statistics for user research*. Morgan Kaufmann.
- Wulandari, P. W., Stella, S., & Sarwilly, I. (2022). Hubungan Ketidakesesuaian Jurusan dengan Stres Mahasiswa Dalam Menjalankan Kegiatan Perkuliahan. *Jurnal Interprofesi Kesehatan Indonesia, 1*(2), 1–7. <https://doi.org/10.53801/jipki.v1i02.9>
- Zulfikar, F. (2021). *87 Persen Mahasiswa RI Merasa Salah Jurusan, Apa Sebabnya?* Retrieved from <https://www.detik.com/edu/detikpedia/d-5828770/87-persen-mahasiswa-ri-merasa-salah-jurusan-apa-sebabnya>