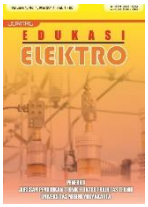
Volume 9, No. 1, May 2025, pages 66 - 76

JEE

Jurnal Edukasi Elektro

https://doi.org/10.21831/jee.v9i1.83799



Guidelines for Occupation, Career and Profession of Vocational School Graduates as a Means of Determining Students' Career Goals

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Abstract— This study aims to develop a work, career, and profession guidebook for Vocational High School students that can be used by teachers as a guide in integrating career guidance into the learning process. The background of the development is based on the challenges faced by teachers in directing students according to their interests and talents, as well as the gap in information about skill needs in the world of work. This study is a research and development (R&D) using the Borg and Gall model and involves teachers and students from the Electronic Engineering expertise program at First State Vocational High School of Yogyakarta. The guidebook was developed through a series of design stages, expert validation, content evaluation, and limited field trials. The feasibility test showed that the guidebook was very feasible to use with a total score of 99.7 (very good category). In addition to teachers, students were also involved in assessing the implementation of the book through their perceptions of how teachers applied the contents of the guide in learning. The results of the trial showed that students gave high appreciation to the implementation of the guide, and teachers considered the guide easy to use and relevant to students' learning and career development needs. In addition to being based on the real needs of classroom learning, the development of this book also accommodates input from the Business World and Industry and alumni to strengthen the relevance of the contents of the guidelines to the demands of the job market. This guidebook is flexible and can be adapted for all expertise programs in vocational schools. This study concludes that the guidebook can be an effective and contextual learning tool in supporting students in determining career directions in a more structured and sustainable manner.

Keywords: occupational, career, vocational graduates, learning design, guidance system.

Article submitted 2025-03-6.
Resubmitted 2025-05-22.
Final acceptance 2025-05-27.
Final version published as submitted by the authors.

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Citation Document:
Aanggraini, Y., Sudira, P., Fajaryati, N., Utami, P., Bayu Rinawan, R., & Irfan Luthfi, M. (2025). Guidelines for Occupation, Career and Profession of Vocational School Graduates as a Means of Determining Students' Career Goals. *Jurnal Edukasi Elektro*, *9*(1), 66–76. https://doi.org/10.21831/jee.v9i1.83799

1. Introduction

Currently, students are faced with a future situation that is full of challenges and changes. The existence of an unstable, uncertain, complex and ambiguous environment or what is called VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) has become a challenge for many people in various aspects [1]. Technological advances in the era of the industrial revolution 4.0 have resulted in social change and given birth to many new jobs and eliminated old jobs. The VUCA era and the industrial revolution 4.0 are closely related, causing changes in the types of jobs and skills needed [2]. The occurrence of VUCA and the industrial revolution 4.0 will certainly increase the complexity of the situation in the future, so that vocational education can more effectively support the development of industrial automation 4.0, significant changes are needed in the curriculum, learning, and management of its programs.

These changes must be carried out comprehensively, covering various fields of science and disciplines, to produce competent graduates who are in accordance with industry needs [3] According to the UN, Indonesia's population projection in 2050 will rank 4th in the world with the largest population. This population growth is dominated by the productive age group of 15-64 years [4]. The productive age group in Indonesia is a golden opportunity to increase capacity and maximize their contribution to the country's economic growth. On the other hand, the challenge faced is how to ensure that this young population has the skills and knowledge needed to compete in an increasingly competitive world of work. Vocational schools are a bridge connecting the world of education and the world of work. This bridge provides an opportunity for vocational school graduates to immediately enter the world of work and gain valuable experience. However, vocational schools need to improve TVET to provide the latest skills and knowledge so that their graduates remain competitive [5].

Careers and the world of work are becoming increasingly dynamic and demanding higher skills, of course this will make it difficult for students and present challenges for students in choosing a career path that suits their potential. Often there are concerns for students about how they will be successful in the future and hope that teachers can help find the answer [6]. This is where teachers play an im-portant role in helping students understand the world and their potential, as well as providing guidance, guidance, support and valuable resources to choose a career and enter the world of work that suits their potential. However, teachers also face challenges in terms of knowledge and skills, because the labor market is always changing.

Based on research conducted by the research group last year, it was found that teachers' ability to identify skills needed in the world of work is still very low. However, these skills will be useful to compete in the job market and provide career advancement in their respective fields in the future. In addition, vocational high school teachers face real challenges in implementing career guidance guidelines effectively. First, limited learning time often makes it difficult for teachers to include in depth career exploration activities, because they have to meet the target of completing vocational competency material. Second, most teachers have not undergone special training related to learning-based career guidance, so they do not have the right pedagogical strategies to integrate career planning into the learning process. Third, the absence of practical and contextual guidelines that can be used directly in preparing lesson plans or implementing daily learning, causes teachers to tend to hand over career matters entirely to guidance and counseling teachers. Fourth, teachers have difficulty getting access to the latest information from the world of work, such as industry needs trends, current competency standards, or cross sector job prospects. Finally, cross role collaboration with alumni, counselors, and industry partners is still very minimal due to the absence of a structured cooperation scheme or procedure at the school level [7].

To ensure that career guidance is not only contextual but also genuinely impactful, the active involvement of various stakeholders is essential. The industry plays a pivotal role by providing timely insights into job trends, essential competencies, and realistic employment opportunities[7]. Meanwhile, alumni bring invaluable wisdom from their own journeys of transitioning from academia to the professional world, offering feedback on how well the curriculum and career guidance strategies align with real-world demands [8] Additionally, engaging students as the ultimate beneficiaries is crucial in crafting career guidance services that truly resonate with their ambitions and aspirations [9]. Together, these

contributions create a robust support system, empowering the next generation to navigate their career paths with confidence and clarity.

Therefore, this year's Riset Group research will create guidelines for teachers in determining the occupation, career and profession of Vocational High School graduates in determining students' career goals according to their interests and talents through learning. Although the initial development of this guide is based on the Electronic Engineering expertise program, its structure and content are designed to be modular and flexible. With appropriate adjustments, this guide can be adapted by various other expertise programs in SMK, such as Automotive Engineering, Fashion Design, Office Management, and Accounting, so that it can be used across departments according to the needs of each area of expertise.

2. Literature Review

Talent can be interpreted as the potential that someone must achieve excellence in a particular field. Talent is associated with how well someone can complete tasks related to a particular job, naturally possessed by someone since birth, which can be realized through training and development [10], [11]. Talented individuals have superior potential, both those that are already apparent since birth and those that still need to be developed. While interest is a person's interest in something that can encourage him to act, it can be an interest in people, objects, activities, or effective experiences. Interest makes someone participate in an activity, is conscious and personal, but is influenced by the environment [11].

Adolescence is a time when students start to think about their careers according to their talents, abilities, and interests. By knowing these things, students can choose a suitable career to face challenges and maintain life in the future [12], but the career decision making process for students is often hampered by the lack of information about available jobs [13].

Teachers play an important role in developing students' talents by providing attention, working together with parents, providing learning or training opportunities, maintaining motivational stability, providing reinforcement, and providing extracurricular activities. The career development process is different for each person. Factors such as gender, ethnicity, ability, personality, socioeconomic status, family, geography, and opportunity play varying degrees in shaping a person's career path [14]. In this context, a well-designed career guidance program has been proven to be able to provide support to students in recognizing their potential, understanding the direction of relevant work choices, and forming Self confidence in making career decisions [15].

According to Lukman et al., teachers play an important role in developing students' talents by paying attention, working with parents, providing learning or practice opportunities, maintaining stable motivation, providing reinforcement, and providing extracurricular activities [16]. In its implementation, a comprehensive guidance approach in vocational schools needs to involve three types of complementary services, namely educational guidance, vocational guidance, and career guidance. Research by Syartiwidya et al., shows that career guidance services directly contribute to students' readiness to face the world of work and help them design realistic long-term professional goals [17]. Conceptually, educational guidance helps students plan a study path that suits their academic potential. Vocational guidance emphasizes the suitability between the skills they have and the needs of the world of work, while career guidance includes a long-term understanding of the professional role that students want to pursue and strategies that need to be prepared early on. According to xx effective career guidance involves exploring students' personalities, work interests, and appropriate work environments, as explained in the Holland theory approach [18]. Employability skills can provide support for career development for someone in the world of work and can also provide many benefits for the environment [19]. Employability skills include communication, teamwork, problem solving, and technology skills.

The application of work skills in the learning process involves their integration into all subjects in the classroom[20], [21]. Therefore, holistic career guidance services should not only be oriented towards job technicalities, but also help students recognize their identity in the context of their profession and broader life. This is in line with the findings of [22] that Super's theory-based counseling services can help students develop a sustainable life plan between education, work, and personal values.

Referring to the 2020-2024 strategic plan, the development of the national electronics and telematics industry is directed at the following priorities: a. Consumer Electronics and Components Industry consists of: Smart home appliances; Smartphone Components (Screen, Charger, Camera, Batteries); Electronic components (without fabrication components/fabless, semiconductors, compressors, electric motors, smart sensors, smart actuators); IoT; and Batteries (for the needs of the electronics industry) b. Computer and Communication Equipment Industry consists of: Computers/Laptops; Telecommunication equipment (radar and satellite, 5G, switch & hub, fiber optic, smart card); Smart mobile phone; and Telecommunications Infrastructure. c. Software and Content consists of: Animation; Games and Content; IoT Software and Manufacturing Execution System (MES); and Mobile Applica-tion [23]

According to the results of this study, most teachers and principals consider career guidance as an integral part of the vocational school curriculum, but there is often difficulty in distinguishing between educational guidance, vocational guidance and career guidance [24]. Conventionally, vocational guidance focuses on finding harmony between individuals and the work environment, requiring independent research and observation to identify available vocational opportunities. Since the beginning of the last century, this responsibility has been carried out by educational institutions, becoming an integral part of the role of schools [25]Within this framework, the role of teachers also has a role as educators and guides who provide relevant information about careers [26]. However, it seems that there is a need to increase the role of teachers in guiding students to develop career identities and career competencies. Teachers are expected to help students evaluate their qualities and skills, prepare them to face the challenges of a dynamic job market, and train them in making the right career choices [27]. Stagnation in the implementation of career guidance may arise due to the tendency of principals and teachers who tend to prioritize educational and vocational guidance, which in turn influences discussions around career guidance.

3. Methodology

This research group (RG) research is a type of development research using the Borg and Gall development model with the following steps: (1) Research and data collection (research and information collecting), at this stage measuring needs, increasing literature studies, and preliminary research on a small scale; (2) Planning, at this stage the research plan is prepared, the objectives are formulated; (3) Development of a draft product (develop preliminary form of product), at this stage the development of the product being developed, the learning process and evaluation instruments that can be discussed in the FGD is carried out regarding the occupation, career and profession of Vocational High School graduates in determining student career goals according to interests and talents through learning; (4) Initial trial (prelimary field testing), at this stage it will be carried out with several teachers at SMK as subjects to obtain feedback and input regarding the product being developed; (5) Revision of trial results (main product revision) the team revises the product according to the results of the initial trial; (6) Field trial (main field testing) at this stage a field trial is carried out with a greater number of subjects than the initial trial; (7) Improvement of the product from field testing (operational product field revision) at this stage, product revision is carried out with notes on input from the previous stage; (8) Field implementation testing (operational field testing), at this stage, retesting is carried out with a larger number of subjects; (9) Improvement of the final product (final product revision) at this stage, product improvement is carried out; (10) Dissemination and implementation (dissemination and implementation) the final stage by making a written report. The flow diagram of RG research can be seen in the Figure 1.

The research was conducted at Yogyakarta Vocational High School involving teachers of the Electronic Engineering expertise program. This research is a continuation of the previous year's RG research which concluded that the role of teachers in preparing Vocational High School graduates to get their first job is in the good category but there are shortcomings in the ability of teachers to identify the skills needed by the world of work. Therefore, it is necessary to provide guidelines for teachers to identify this and guide students through learning according to their respective talents and interests. The results of the RG research in 2024 will be integrated with previous research and implemented in the learning process, especially in the field of expertise of SMK Electronic Engineering Education in Yogyakarta. The desired hope is that the results of the RG research can help teachers and education providers prepare students who

are ready to work according to the qualifications needed when they graduate. That way, it can make it easier for workers who need new workers who meet the desired criteria.

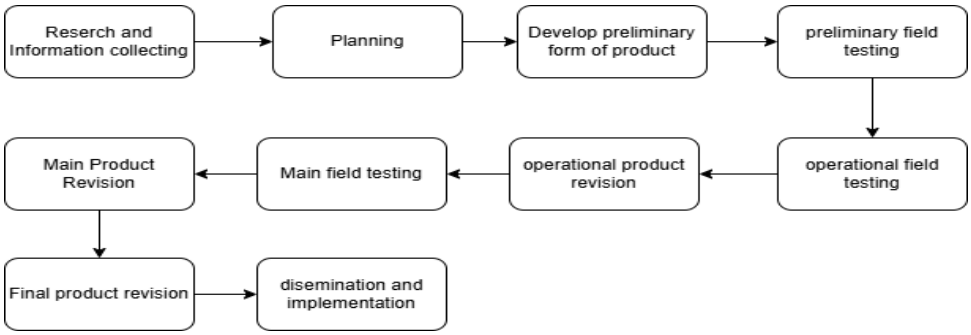

Figure 1. Stages of research

4. Results and Discussion

4.1 Research result

This research produces a guidebook, a series of learning processes, and a flow of guidance that can be used by teachers as a reference in implementing teaching and learning activities to be more focused, systematic, and effective. This guidebook is designed to facilitate teachers in integrating career orientation into learning, so that students not only gain academic knowledge and technical skills but also have a clear career direction from an early age. At the design stage, the researcher created the initial structure and visualization of the guidebook. Figure 2 shows the cover design of the guidebook:

Figure 2. Cover of the Manual

The systematics of writing this guidebook consists of the Objectives of Developing Guidelines, New Guidelines, Concentration of Vocational High School Expertise, Determining students' career goals

according to their talents and interests through the guidebook, Indicators of the Objectives of the Guidebook, Syntax of the Learning Process Plan, and Bibliography.

The Production Stage in this research was carried out for the process of developing the following guidebook and product specifications that have been created:

a. Product Specifications

- Size: A5
- Cover Paper Type: Art Carton
- Type of content paper: HVS
- Number of Pages: 30
- Font: Times New Rowman
- Font size: 12 pt

b. Back Cover Design

The back cover design is shown in Figure 3 which is designed to provide a concise yet informative overview of the purpose of compiling the guidelines, so that readers can understand the context and urgency of their use from the start. Through the narrative provided, it is explained that these guidelines aim to help teachers and counselors in vocational schools in guiding students to determine career directions that are in accordance with their interests and talents through the learning process. The identity of the Vocational Research Group is prominently displayed as a drafting team that has scientific authority in the field of vocational education, while Universitas Negeri Yogyakarta is listed as the institution that oversees and guarantees the credibility of this work. The combination of clean, proportional, and professional design elements strengthens the academic impression and reliability of these guidelines as official teaching materials.

Figure 3. Back cover

c. Conduct a feasibility test of the manual

The feasibility data of this module was obtained from material experts and media experts, namely lecturers of Electronic Engineering and Informatics Education UNY. The assessment data from the content, presentation, language and graphics components were converted into a five-point scale value. The results of the score conversion into a five-point scale value can be seen in Table 1. Based on the data analysis, the suitability of the guidebook for a score of 99.7 is included in the very good category.

Table 1. Analysis of the feasibility of the guidelines

Eligibility components	Score	Criteria
Contents	39.4	Very good
Presentation	35	Very good
Language	9.7	Very good
Graphics	15.6	Very good
Total	99.7	Very good

d. Evaluation of the manual

This stage is carried out to evaluate the deficiencies in the manual and the results are improved before being published to the public. Some inputs for improving the evaluation include providing a checklist of learning activity reviews at the end of the learning to be given to teachers as an evaluation of teaching and learning activities.

e. Trial of Implementation of Guidelines in Class

This trial aims to evaluate the applicability of the guidebook in the field. A limited trial was conducted involving 1 teacher and 32 vocational high school students from the Electronic Engineering expertise program. The assessment was carried out using a Likert scale questionnaire instrument of 1–4. A value of 1 indicates "not appropriate", 2 "less appropriate", 3 "appropriate", and 4 "very appropriate". Students were asked to assess how teachers use the guide in the learning process, while teachers assessed the content and appropriateness of the guide from an educator's perspective.

Based on Table 2, students assessed that the teacher successfully implemented the guidebook very well. They felt that there was a connection between the subject matter and the world of work and felt helped in identifying their interests and potential. Table 3 shows that teachers assessed the guidebook as very relevant and functional for learning. Although there was one aspect that was considered "appropriate", namely integration in the lesson plan, in general, teachers felt that this guidebook was very helpful in the career guidance process. This guidebook is not only relevant for the Electronic Engineering expertise program, but can also be applied in various other majors, such as Automotive, Accounting, and Office Management, with the note that there needs to be adjustments to the activities and learning context according to each major.

Table 2. Results of Student Assessment of Teacher Implementation in Using Guidelines

Indicator	Average
The teacher delivers career planning material clearly and coherently	4,4
The teacher uses guidelines to link learning to the world of work	4,5
The teacher provides an active discussion space about career choices	4,3
The teacher guides students to recognize their interests and potential	4,6
The teacher facilitates meaningful career reflection activities	4,2
Average	4,4 (Very Appropriate)

Table 3. Teacher Assessment Results of the Guidebook

Indicator	Average
This guide is relevant to students' needs	4
The guide is easy to integrate into the lesson plan	3
I can easily understand the flow of the guide's contents	4
The visualization and language of the guide are appropriate	4
The guide helps me provide career guidance 4	4
Average	3,8 (Very Appropriate)

4.2 Developing a Guidebook

The purpose of developing this guidebook product is to help Vocational High School students identify their interests and talents, Provide accurate and up-to-date information on various occupations, careers, and professions that suit the interests and talents of Vocational High School students, Help Vocational High School students plan realistic and sustainable career goals, Develop Vocational High School students' skills in managing their careers, including planning, job searching, and self-development, Encourage Vocational High School students to develop a professional attitude in facing the world of work,

Provide guidance for teachers and counselors in supporting Vocational High School students in determining their career goals and Build cooperation with the industrial world to facilitate job placement for Vocational High School graduates according to their interests and talents.

The innovations developed in this guidebook include elements of occupational development, career and profession of graduates in the world of Vocational High Schools, (2) integration in the learning syntax that includes occupation, career and profession of graduates, (3) this guidebook adopts a holistic approach in helping vocational high school students determine career goals and (4) this guidebook emphasizes the importance of developing soft skills such as communication, cooperation, and leadership for vocational high school students. A real example of the expertise and occupation of vocational high school students such as vocational high school students majoring in electronic engineering are trained and taught to become one of them electronics technicians so that integration is given in learning to insert indepth expertise related to how to become an electronics technician, one of which is given honesty, tenacity and responsibility treatment and mastering the field of electronics in order to work properly and accurately. Several things that can be done by educators to provide integration of occupation, career and profession of graduates are identifying talents and interests, selecting expertise programs, project-based learning, providing extracurricular activities that are in accordance with expertise, and internships and field work that are in accordance with expertise.

4.3 Discussion

The development in this study refers to the results of observations related to the employment gap of vocational high school graduates. Teachers have not worked together optimally in optimizing in directing students according to their abilities, both talents and interests or expertise. The activity is still dominated by counseling guidance teachers as those responsible for directing even though in fact it can be done together between all teachers and students in the school. Therefore, a guidebook for occupations, careers and graduate professions was created as a guide for teachers in implementing step by step into the lesson plan so that it can run in the learning process properly and correctly.

Given the importance of mentoring given to teachers to be able to direct and improve students' personalities and collective professional development, agency, motivation, pedagogy and responsive curriculum [13]. Mentoring for teachers is very important in its benefits, namely involving increasing teacher autonomy to develop themselves, increasing their abilities and willingness to control their own learning [20]. The expected result is that teachers can insert activities that include career occupations and graduate professions into the learning process through lesson plan and are also supported by the role of counseling guidance teachers in directing students' talents and interests so that they are mutually sustainable

Occupations for vocational high school graduates, especially informatics and electronics graduates, include a variety of career opportunities related to information technology and electricity. Even as vocational graduates, they gain various experiences regarding occupations through practice-oriented learning [27]. With the skills they have gained, it will have an impact on attracting interest from employers [28] According to the study by [21] it was stated that having expertise will also increase the level of wages that will be received. So, with a strong understanding in their field, they can meet various needs from the business or industrial world.

Career refers to a series of jobs, positions, or positions that a person holds over a certain period in his/her life. This career includes various occupations that a person has undertaken over time and usually shows development or progress in a particular field. According to [21] a career can be defined as a series of jobs carried out by an individual during his/her life, which includes various stages of career development such as exploration, formation, recovery, and termination. A career for graduates of informatics and electronics vocational schools promises various opportunities in various sectors. More attention to careers is trying to improve and advance more professional skills. This can be done by arranging several long-term plans to develop a career for the better [26] Over time, careers will transition from bottom to top, such as from school to the world of work, employees to managerial positions and so on.

The lesson plan learning device developed here is in the preliminary activity, namely the teacher provides an overview of future jobs in the subjects taught by providing a video display of vocational school job opportunities in the business and industrial world and providing motivation to students. In the core

activity section, the teacher provides problems related to the scope of industry, providing insight and learning evaluation. After the learning process, students are given reflection by providing a questionnaire and giving the teacher a questionnaire as a teacher's reflection regarding the learning that has taken place.

5. Conclusion

The conclusion of this study is to produce a guidebook that can help vocational high school teachers integrate career guidance into the learning process. This guide is systematically compiled, based on real needs in the field, and equipped with learning syntax that supports students' career exploration in stages. The results of the feasibility test show that this guidebook is very feasible to use, with a feasibility score of 99.7 in the "very good" category. The trial implementation in the classroom also received positive responses, both from teachers and students. Students felt helped in understanding their potential and designing future careers, while teachers stated that this guide was easy to use and could be integrated into the lesson plan. In addition to being relevant for the Electronic Engineering expertise program, this guidebook is also flexible and can be adapted for various other majors in vocational high schools, such as Automotive, Accounting, and Office Management, by adjusting the learning context and competency profile of each major.

6. Future Suggestions

In the development of this guidebook, there are several limitations only for subjects in the field of electronics. The suggestions for further research are: (1) it is necessary to develop an adaptive version of this guidebook for each field of expertise, so that the content is more contextual and in accordance with the characteristics of the field of competence. (2) Special training is needed for teachers and counselors to understand and implement this guide optimally, including how to insert it into the lesson plan and manage student career reflections. (3) In subsequent implementations, it is necessary to involve more input from industry and alumni to strengthen the validity of the content and ensure suitability with the needs of the dynamic world of work. (4) It is recommended that periodic evaluations be carried out on the use of the guidebook in various schools and departments to identify effectiveness and areas that still need improvement.

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