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Aligning Maritime Education: Enhancing Industry Relevance Through Lecturer Internship Programs

Abstract: Higher education institutions play a central role in developing human resources in the maritime field. Less skilled employment was induced by a gap between university graduates and industry needs, leading to unemployment. This research examines the efforts of higher education institutions to develop curricula in line with maritime industry needs through the implementation of internship programs for lecturers. The research method used is qualitative descriptive, with research subjects being associations in the shipping field, port authorities, and several shipping companies. The results showed that universities under the Ministry of Transportation implemented the lecturer industry internship program. Then, the follow-up of the internship results obtained the sustainability of universities in producing the human resources needed by the business world and the shipping industry. From the evaluation of the internship program for lecturers, several factors hindering its implementation are identified, including internal academic institution issues, the industry not having the same view as the Academic objectives of the institution, and the strategic research plans of universities not aligning with the goals and needs of the shipping industry.

Keywords: industrial internship, lecturer, shipping, implementation

INTRODUCTION

The activities of a higher education institution, as the highest educational institution, play a central and vital role in the development of human resources (HR), especially in the maritime education area, and the enhancement of the Nation's competitiveness (Boonadir et al., 2020). For this central and vital role to be carried out effectively, the HR of Higher Education Institutions must possess excellent qualities characterized, among others, by creativity, innovation, and productivity (Forster et al., 2017).

The World Bank conducted an analysis to investigate the reasons behind the gap between higher education and the business and industrial sectors (The World Bank, 2014). The primary reason for this gap is that higher education institutions prioritize catering to their primary demographic, which comprises prospective and current students (Manuel, 2017). In instances where students express interest in courses that the university doesn't provide, the institution might develop new study programs to accommodate these students. However, in doing so, they may overlook the needs and perspectives of the business and

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industrial worlds (den Boer et al., 2021). Apart from that, other factors that cause the gap with industry are: (1) several universities wanting to establish partnerships with industry but are constrained by costs; (2) the study program curriculum not yet in line with industry needs; (3) Insufficient funding and expertise to design pertinent curricula; and (4) absence of instructors with industry experience (Adams et al., 2022; Baert et al., 2021).

The challenges of education in the global and disruptive era will become more complex (Castelló et al., 2023). Therefore, the education system in the future faces different challenges than it does now, demanding various approaches in Higher Education implementation (Boonadir et al., 2020). These challenges are no longer about knowledge competition but rather about competition in creativity, imagination, innovative learning, and free thinking (Fahcruddin & Sulandra, 2021). The future situation will also be faced with conditions of volatility, uncertainty, complexity, and ambiguity, thus requiring higher education human resources to have inter-, multi-, and cross-disciplinary insight, in addition to insight into the work that will be faced by their students (Navío-Marco et al., 2023).

In today's fiercely competitive global landscape, failure by universities to promptly align with industry demands may result in foreign workers filling the skilled labor market void, particularly in Indonesia (Fauzan et al., 2023). The abundance of higher education graduates in Indonesia does not match the skills required by the business world and industry, leading to a shortage of skilled labor. The response of state and private universities in Indonesia to the expectations of the business and industrial world is inadequate. As a result, there is a mismatch between competencies (Russell, 2018; Suharno et al., 2018).

To combat this challenge, Ministry of National Education and Culture has launched curricula based on the Indonesian Qualification Framework (KKNI) (Ministry of National Education and Culture, 2012). The KKNI-aligned curriculum aims to bridge student qualifications with industry-expected competencies, thus equipping students with the skills necessary for various sectors. Since its inception through government regulations in 2012, numerous higher education institutions have adopted KKNI-based curricula. These curricula enhance the quality of teaching and learning processes, leading to improved outputs in terms of knowledge, skills, and attitudes (Wahyuni & Budianti, 2021).

However, it's essential to note that the KKNI-based curriculum primarily concentrates on student competency and overlooks the enhancement of lecturer proficiency, despite lecturers being the primary agents of knowledge dissemination in higher education. As previously highlighted, the dearth of lecturers with industrial experience contributes to the gap between universities and industry. The World Bank emphasizes the necessity of fostering collaboration between universities and industry through research initiatives or internships for both students and lecturers to address these challenges effectively (The World Bank, 2014).

In anticipation of this, the Ministry of National Education and Culture has initiated the independent learning-independent campus (MBKM) program by issuing Ministerial Regulation No. 3 of 2020 regarding the National Standards for Higher Education. In addition to issuing policies related to independent campus programs, the Ministry of Education and Culture has also issued Ministerial Decree No. 754/P/020 concerning the Main Performance Indicators of State Higher Education Institutions, namely 1) Graduates obtaining decent jobs, 2) Students gaining experiences outside campus, 3) Lecturers engaging outside campus, 4) Practitioners teaching within campus, 5) Lecturer work results used by the community or receiving international recognition, 6) Study Programs collaborating with world-class partners, 7) Collaborative and Participatory Classes, 8) Study Programs meeting international standards.

In this new policy, students have the right to determine their learning patterns so that students are more agile in facing their surroundings, which are difficult to predict, full of uncertainty, and increasingly complex. Lecturers, as Higher Education HR who have a strategic role in all academic activities of Higher Education, are not only required to be proficient in their field of study (teaching, researching, and serving) but also to have

communication skills (verbal and written) (Adams et al., 2022); mastery and utilization of information and communication technology; building extensive networks with the working world and industry; being sensitive to changes and developments in their surroundings and having future insights (Jerez Gomez et al., 2023).

In facing the independent learning policy, independent campus demands on Higher Education HR become heavier because they are required to be more creative in developing curricula that are more in line with the demands of the working world and industry while also being able to build broader networks with the working world and industry, both domestically and internationally. Higher Education HR are also required to communicate effectively to establish cooperation in learning systems different from before. Based on data from the Global Competitiveness Report for Indonesia, the aspects still considered weak and need to be improved are training, higher education, and innovation (IMD - International Institute for Management Development, 2023).

Based on the facts outlined above, the quality enhancement of higher education, as the main driving force, needs to be developed immediately. The quality enhancement is not only targeting the students but also lecturers as the main drivers of higher education in Indonesia. Therefore, Higher Education HR, especially lecturers, are also required to have the 4Cs characteristics, namely Critical Thinking/Problem Solving, Creativity, Communication, and Collaboration (Stanikzai, 2023). This particular type of character must go through a structured and consistent process before appearing.

Vocational education has been implemented in Indonesia from pre-independence to the post-reformation era. The allocation of practical learning in vocational education is much greater than theoretical, and internship opportunities are even given to students to increase their knowledge and competence in the real condition in industry. However, several company managers complain about vocational education graduates' low quality and work readiness (Suharno et al., 2020). Their competitiveness is exceptionally low, at 10% globally and 35% at the ASEAN level (Schwab, 2016). Education policies aim to improve lecturer quality and competence through an internship program, not just student-focused. Lecturers not only teach but also contribute to the development of the industrial world. The lecturer internship program aims to align the research and educational outcomes of lecturers with the demands of both the industry and the professional realm. In addition, lecturers can build good relations with companies and relevant agencies to improve the absorption capacity of vocational education graduates, especially maritime universities in Indonesia. This study examines the effectiveness of internship programs for lecturers in Indonesian maritime universities and evaluates their outcomes.

METHODS

The research method used is qualitative descriptive. Interviews were the primary method used for data collection, which involved direct interviews with various parties, including lecturers, students, regulators, shipping associations, and shipping companies. The specified time for data collection is a maximum of 1 month. The methodology employed in this study involves qualitative description for data analysis. The research itself constitutes a literature review, where conceptual ideas pertaining to the industry lecturer internship program are gathered, read, noted, and reviewed. Subsequently, these conceptual ideas are analyzed, and the findings are delineated in the report.

In this study, the data analysis process consisted of three steps: (1) data reduction, (2) data presentation, and (3) conclusion (Mezmir, 2020).

1. Data Reduction

Data reduction involves a series of activities integral to data analysis. Data reduction activities include selecting, simplifying, focusing, and transforming the data obtained. From all collected data, such as (1) interview transcripts, (2) recorded interview data, and (3) the researcher's important notes during data collection, they are reduced so that the researcher can draw acceptable and accountable conclusions. Data reduction was carried

out by (1) excluding responses from interviewees that are not relevant to the research topic, (2) excluding conversation in interviews that are not directly related to the research, (3) focusing on answers to the research questions, and (4) analyzing them according to the references and literature used.

2. Data Presentation

Data presentation is the next crucial step in data analysis after data reduction. Data presentation here refers to the organization and arrangement of information that enables researchers to base their conclusions. The results of data reduction can be presented as data in the form of narrative text, both written results and interviews with stakeholders in companies and lecturers.

3. Concluding

Concluding is the subsequent important step in analysis after data presentation. From the beginning of data collection, researchers keep hypotheses about the implementation of lecturer internships and the factors hindering their execution. They then verify these hypotheses to obtain new information or data. Furthermore, conclusions are drawn based on all the data gathered by the researcher. The purpose of the conclusion is to explain the meaning of the presented data.

The location of this research is the Maritime Institute, maritime association, harbor master offices, port authorities, and several shipping companies. Research is carried out at Maritime Institute because it is easier for researchers to know the educational policies and standards used and the policies implemented and planned for the long term. Then, shipping associations and shipping companies were selected to understand important issues related to the competencies needed by the maritime industry for human resource development (Priyadi et al., 2021). Furthermore, the harbor master offices and port authorities were used to understand the regulations that have been established to support maritime human resources. The research conducted is field research, which entails direct observation of the subjects under study to gather pertinent data. The methodology employed in this research is qualitative, focusing on gathering and analyzing non-numerical data to gain insights into the phenomena being studied.

RESULT AND DISCUSSION

The implementation of industrial internship programs for lecturers in maritime higher education institutions under the Ministry of Transportation, began to be enhanced again in 2022. The activities of industrial internship programs for lecturers are carried out by the instructions from the Acting Secretary of the Human Resources Development Agency of Transportation, through letter Number: SM. 113/1/9Set.BPSDMP-2022 regarding the Education Calendar and Micro Internship Programs for Lecturers/Instructors at Higher Education Institutions under the Transportation HR Development Agency. The implementation of industrial internship programs for lecturers is one of the series of activities in realizing Independent Learning - Independent Campus by the decision of the Head of the Transportation Human Resource Development Agency, No: KP-BPSDMP 259 of 2022 regarding the Implementation of Independent Learning - Independent Campus in Higher Education Institutions under the Transportation HR Development Agency.

The implementation of industrial internship programs for lecturers by higher education institutions, in general, is also one of the main performance indicators of State Higher Education Institutions as determined by the Minister of Education and Culture Decree Number 754/P/020 regarding the Main Performance Indicators of State Higher Education Institutions. Therefore, by regulation, the implementation of industrial internship programs for lecturers has been determined by the government, and thus, it must be carried out in higher education institutions. The recapitulation of industrial internship

programs for lecturers at maritime higher education institutions under the Ministry of Transportation in 2022 is presented in Table 1.

Table 1. Recapitulation of Industrial Internship Lecturers in the Technical Implementation Unit at the Ministry of Transportation in 2022

| No | Region of Maritime Higher Education | Internship Lecturer | Scope |
|----|-------------------------------------|---------------------|--------------------------------------------------------------------------------------|
| 1 | Barombong | 6 | Ship construction |
| | | | Ship Operation |
| | | | Transportation management services |
| | | | Inaport |
| | | | Draft Survey |
| 2 | Semarang | 2 | Logistic |
| | | 1 | Cargo Handling on Tanker |
| | | 1 | Cargo Handling on Container Ship |
| | | 2 | Operation and maintenance of ship machinery |
| 3 | Jakarta | 2 | Ship Operation Control; Compass and Steering System |
| | | 2 | Navigation functions according to current conditions on the ship |
| | | | Cargo Handling |
| | | 2 | Crew Training and Scholarship |
| | | 2 | Shipping Technology and Ship Machinery Management |
| | | 2 | Management of HR |
| | | | Strategy to increase company revenue |
| | | 2 | Current developments in the shipping industry |
| 4 | Banten | | Technology / Digitalization used in the Company |
| | | 1 | Ship Crew Management |
| 5 | Sulawesi Utara | 1 | Port |
| | | 3 | Management of Dedicated Terminal |
| | | 2 | Engineering |
| | | 6 | Cargo Handling |
| | | 1 | Port operations and transport documents, export and import |
| 6 | Makassar | 1 | Compass Sharing |
| | | 1 | Ship Machinery |
| | | 1 | Export & Import |
| 7 | Aceh | 1 | Marine Engineering |
| | | 1 | Function of Navigation |
| | | 1 | Function of Navigation |
| 8 | Surabaya | 1 | Development of teaching materials on function: controlling the operation of the ship |
| | | 3 | Electrical, Electronic and Control Engineering |
| | | 1 | Development of teaching materials on function: cargo handling and stowage |
| | | 1 | Controlling the Operation of the Ship |

From Table 1, it is evident that the majority of maritime higher education institutions have established and implemented lecturer industrial internship programs both in shipping companies and government agencies. The documents regarding the establishment and implementation of lecturer industrial internship programs include Decisions from the Head of BPSDMP regarding the implementation of MBKM, followed by correspondence expressing willingness to host lecturer internships to shipping companies or government agencies, then the Assignment Letter for Lecturers to conduct industrial internships, and

finally the report on the implementation of lecturer industrial internships. Examples of some of these documents are attached to this research report.

From the implementation of lecturer industrial internships, several outcomes were obtained to enhance the knowledge and skills of lecturers and students in the maritime field, including:

1. Curriculum alignment, including course implementation plans, teaching materials, and exam questions, must align with the needs of the business and industry world.
2. Practical lectures from industry practitioners, both structured and scheduled, are needed to bridge the gap between the knowledge and competencies gained in lectures with the technological advancements and operational systems of shipping companies.
3. Follow-up on Memorandums of Understanding (MoU) that have been established, especially the implementation of MBKM.

In the age of Industry 4.0, collaboration between higher education institutions and industry is imperative for survival. The business and industrial sectors demand sufficient technology and resources to innovate and develop their products. Conversely, higher education institutions also need the industry to understand the needs of graduate users, both in the industry and government agencies. From the data collected through literature studies and direct interviews with shipping companies, government agencies in the maritime sector, and maritime higher education institutions, several explanations regarding the evaluation of the implementation of lecturer industrial internships were obtained, as presented in the following discussion.

The mutually beneficial symbiotic relationship fostered through collaboration between higher education institutions and industry has facilitated the exchange of valuable knowledge and experience. Table 2 outlines the advantages accrued by both parties (Slotte & Tynjälä, 2003).

Table 2. Benefits of collaboration between universities and industry

| No | Industries | University |
|----|-----------------------------------------------------------------|----------------------------------------------------|
| 1 | Expand theoretical knowledge | Understand actual conditions in the field |
| 2 | Strengthening cooperation and fostering collaborative research. | Gain work experience in industry |
| 3 | Share practical field experiences with students and lecturers. | Increase awareness of the business world |
| 4 | Acquire skilled labor | Get better facilities |
| 5 | Creates continuity and stability | Obtain case studies to use in the teaching process |

The establishing robust partnerships between universities and industries can be accomplished through two methods: knowledge transfer and sharing experiences via collaborative research (Iqbal et al., 2013). Moreover, six models of collaborative research that industries can engage in with universities, which include (Guan & Zhao, 2013):

1. Direct procurement of research outcomes from universities.
2. Co-development of products or services in collaboration with universities.
3. Delegating research and development tasks to universities.
4. Collaborative group research initiatives with universities.
5. Participation in national collaborative projects.
6. Hiring skilled personnel from universities to work in the industrial sector.

Among the six collaboration models, the most favored by industries is model (2), centered on jointly developing products or services with universities. This approach has been persistently practiced in Indonesia. However, universities seek novel models to broaden their collaborative endeavors with industries. (Guan & Zhao, 2013) indicates that besides engaging in product development with universities (model 6), another preferred model is hiring skilled personnel from universities to work in the industry. This preference

stems from the industry's persistent need for skilled labor, and recruiting from universities can be cost-effective. To address the shortage of skilled workers, universities can implement internship programs for students or lecturers in industries. Introducing industrial internships for lecturers can aid companies or government entities in fulfilling the demand for skilled employees. Consequently, the extent of collaboration between universities and industries is depicted in Figure 1 (Dinira & Natalia, 2018).

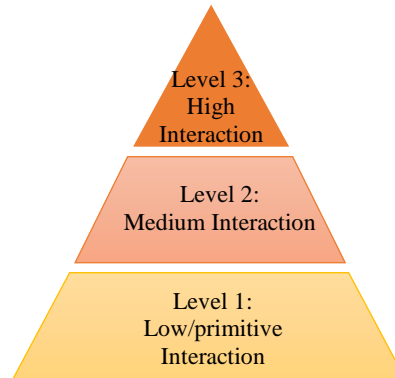


Figure 1. The level of collaboration between universities and industry

Figure 1 illustrates three levels of interaction between industry and university. An example of level 1 interaction is when students engage in study tours or internships at industries, or when industries visit universities to recruit potential employees. Level 2 interaction involves scenarios such as lecturers visiting industries or industries organizing seminars at universities. Level 3 interaction, representing the highest level of cooperation, involves joint activities aimed at enhancing the skills of both parties (Pai & Chiplunkar, 2015). The lecturer internship program in the industry exemplifies level 3 interaction, showcasing the pinnacle of collaboration between universities and industries.

Internship programs serve as skill development training in specialized fields. While lecturer internships in the industry are not novel, they are not widely practiced in Indonesia. Most internship programs in the country focus on enhancing students' skills rather than those of lecturers. Consequently, lecturer internships in the industry remain relatively uncommon, with only a handful of institutions having implemented such initiatives.

To ensure the effectiveness of the industry internship program, it is crucial to select the appropriate timing and location for the internship. The chosen location should align with the lecturers' areas of expertise, ideally taking place during extended semester breaks when lecturers have fulfilled their primary responsibilities for the semester. The remaining time during breaks can then be utilized to strengthen collaboration between lecturers and industry representatives (Stephens, 2011).

The lecturer internship program in the industry is a mutually beneficial initiative that contributes to both the industry and the university, benefiting lecturers and students as stakeholders. Through participation in the program, lecturers, who are inherently lifelong learners, can enhance their competencies significantly. These competencies, as identified by (Slotte & Tynjälä, 2003), include:

1. Developing soft skills such as teamwork, collaboration, communication, and networking.
2. More opportunities for career development.
3. More chances to increase salary.
4. Job security.
5. Lifelong learning.

Lecturers also benefit from internships in industrial research programs by gaining fresh experience in industry work and conducting research that contributes to societal

welfare. Figure 2 provides an overview of the main competencies lecturers develop upon finishing industry internship programs (Dinira & Natalia, 2018).



Figure 2. Hard skills and soft skills by lecturers through internship programs

Students instructed by lecturers who have participated in internship programs will gain a deeper insight into the challenges encountered in the industrial sector. Furthermore, these lecturers will be better equipped to field inquiries pertaining to the business landscape and industries, thanks to their firsthand experience. Upon completion of the internship program, lecturers will exhibit greater flexibility in fostering collaborative learning environments and employing open problem-solving methodologies for students. Additionally, they can elucidate to students the observations gleaned from industry experiences regarding the soft skills essential for professional employees, as identified by (Dinira & Natalia, 2018):

1. Ability to cope with pressure;
2. Willingness to always try new things;
3. Positive interest and attitude towards work;
4. Possessing personal initiative;
5. Having self-confidence;
6. Remaining calm when facing problems;
7. Possessing and always maintaining a professional attitude.

The summary of expected student competencies after attending lectures from lecturers who have undergone internship programs is presented in Figure 3.



Figure 3. Hard skills and soft skills that students are expected to obtain from lecturers

Although the internship program for lecturers in the industry offers numerous advantages to institutions, the business world, lecturers, and students, several factors can impede the opportunities for the program (Dinira & Natalia, 2018). The inhibiting factors for the internship program for lecturers in the industry encompass issues within the industry

itself, internal challenges within academic institutions, misalignment between industry practices and academic goals, and discrepancies between the strategic plans of companies and institutional research agendas (Muscio & Vallanti, 2014).

Industry-related problems include issues with patent claims, the transient nature of industrial research, which contrasts with the long-term research focus favored by universities, challenges in disseminating research findings, and a deficiency in industry input. Conversely, university-related issues consist of the absence of established cooperation procedures between universities and industry, difficulties in establishing industry contacts, and discrepancies between industry needs and the expertise offered by universities. Consequently, these challenges can hinder the career advancement of lecturers and the progression of research endeavors (Muscio & Vallanti, 2014).

Additionally, factors influencing the success of an internship program include robust collaboration between universities and industry, appropriate placement of participants, and the duration of the internship (Akomaning et al., 2011). Effective collaboration is fostered through the continual adoption of policies prioritizing industry-funded research. Proper placement in relevant fields is essential for industry performance enhancement.

The duration of the internship significantly impacts the success of the lecturer internship program in the industry. In Indonesia, internship durations are categorized into three: short-term (1-12 weeks), medium-term (13-52 weeks), and long-term (more than 12 months). Internships lasting less than four weeks are deemed ineffective by the industry. Industries generally prefer internship programs with longer durations, typically four weeks, eight weeks, or more (Kaminskienė & Rutkienė, 2012). Therefore, it is imperative that the minimum duration for a lecturer internship program in the industry should be four weeks or one month.

CONCLUSION

The industrial lecturer internship program represents a popular form of collaboration between universities and industry, particularly favored by the industry. Executing the lecturer internship program requires careful planning and precision, especially concerning the selection of location, duration, and objectives. The results showed that universities under the Ministry of Transportation implemented the lecturer industry internship program. Then, the follow-up of the internship results obtained the sustainability of universities in producing the human resources needed by the business world and the shipping industry. From the evaluation of the internship program for lecturers, several factors hindering its implementation are identified, including internal academic institution issues, the industry not having the same view as the Academic objectives of the institution, and the strategic research plans of universities not aligning with the goals and needs of the shipping industry.

REFERENCES

- Adams, T., Koster, B., & Brok, P. den. (2022). Patterns in student teachers' learning processes and outcomes of classroom management during their internship. *Teaching and Teacher Education*, 120. <https://doi.org/10.1016/j.tate.2022.103891>
- Akomaning, E., Voogt, J. M., & Pieters, J. M. (2011). Internship in vocational education and training: Stakeholders' perceptions of its organisation. *Journal of Vocational Education and Training*, 63(4), 575-592. <https://doi.org/10.1080/13636820.2011.590222>
- Baert, B. S., Neyt, B., Siedler, T., Tobback, I., & Verhaest, D. (2021). Student internships and employment opportunities after graduation: A field experiment. *Economics of Education Review*, 83. <https://doi.org/10.1016/j.econedurev.2021.102141>
- Boonadir, N., Ishak, R., Yusof, H., & Lamakasauk, A. F. (2020). Theories of Maritime Education and Training (MET) in Improving Maritime Sector in Malaysia. *Open*

- Journal of Business and Management*, 08(03), 1193-1200. <https://doi.org/10.4236/ojbm.2020.83076>
- Castelló, M. L., Barrera, C., & Seguí, L. (2023). Bridging the academia-industry gap in the food sector through collaborative courses and internships. *Education for Chemical Engineers*, 42, 33-43. <https://doi.org/10.1016/j.ece.2022.11.003>
- den Boer, L., Klimstra, T. A., & Denissen, J. J. A. (2021). Associations between the identity domains of future plans and education, and the role of a major curricular internship on identity formation processes. *Journal of Adolescence*, 88, 107-119. <https://doi.org/10.1016/j.adolescence.2021.02.005>
- Dinira, L., & Natalia, C. (2018). *Lecturer Internship Program in Industry to Provide Real Work Experience for University Students*. <https://ejurnal.unisri.ac.id/index.php/proictss/article/view/2145>
- Fahcruddin, I., & Sulandra, I. M. (2021). Proses Scaffolding Berdasarkan Kesalahan Peserta Didik Dalam Pemecahan Masalah Volume Benda Putar. *Histogram: Jurnal Pendidikan Matematika*, 4(2). <https://doi.org/10.31100/histogram.v4i2.586>
- Fauzan, A., Triyono, M. B., Hardiyanta, R. A. P., Daryono, R. W., & Arifah, S. (2023). The Effect of Internship and Work Motivation on Students' Work Readiness in Vocational Education: PLS-SEM Approach. *Journal of Innovation in Educational and Cultural Research*, 4(1), 26-34. <https://doi.org/10.46843/jiecr.v4i1.413>
- Forster, A. M., Pilcher, N., Tennant, S., Murray, M., Craig, N., & Coppingf, A. (2017). The fall and rise of experiential construction and engineering education: Decoupling and recoupling practice and theory. *Higher Education Pedagogies*, 2(1), 79-100. <https://doi.org/10.1080/23752696.2017.1338530>
- Guan, J., & Zhao, Q. (2013). The impact of university-industry collaboration networks on innovation in nanobiopharmaceuticals. *Technological Forecasting and Social Change*, 80(7), 1271-1286. <https://doi.org/10.1016/j.techfore.2012.11.013>
- IMD - International Institute for Management Development. (2023). *IMD World Competitiveness Booklet 2023 World Competitiveness Center*.
- Iqbal, S., Muhammad Iqbal, A., Shahid Khan, A., & Senin, A. A. (2013). *Jurnal Teknologi A Modern Strategy for the Development of Academic Staff Based on University-Industry Knowledge Transfer Effectiveness & Collaborative Research*. www.jurnalteknologi.utm.my
- Jerez Gomez, M. P., Bojica, A., Martínez-del-Río, J., & Karaja, R. (2023). Designing successful internships: exploring the role of duration, formalization and motivational practices. *Education and Training*. <https://doi.org/10.1108/ET-12-2021-0480>
- Kaminskienė, L., & Rutkienė, A. (2012). Student internships in Lithuania: a stakeholder perspective on management and economics programmes. *European Journal of Higher Education*, 2(2-3), 290-306. <https://doi.org/10.1080/21568235.2012.692627>
- Manuel, M. E. (2017). Vocational and academic approaches to maritime education and training (MET): Trends, challenges and opportunities. *WMU Journal of Maritime Affairs*, 16(3), 473-483. <https://doi.org/10.1007/s13437-017-0130-3>
- Mezmir, A. E. (2020). Qualitative Data Analysis: An Overview of Data Reduction, Data Display and Interpretation. *Research on Humanities and Social Sciences*. <https://doi.org/10.7176/rhss/10-21-02>
- Ministry of National Education and Culture. (2012). *Presiden Republik Indonesia Peraturan Presiden Republik Indonesia Nomor 8 Tahun 2012 Tentang Kerangka Kualifikasi Nasional Indonesia Dengan Rahmat Tuhan Yang Maha Esa Presiden Republik Indonesia*.
- Muscio, A., & Vallanti, G. (2014). Perceived Obstacles to University-Industry Collaboration: Results from a Qualitative Survey of Italian Academic Departments. *Industry and Innovation*, 21(5), 410-429. <https://doi.org/10.1080/13662716.2014.969935>

- Navío-Marco, J., Sánchez-Figueroa, C., & Galán, A. (2023). Business internships for bachelor's degrees at blended learning universities: A pilot study to assess the transition from hybrid studies to the workplace. *International Journal of Management Education*, 21(2). <https://doi.org/10.1016/j.ijme.2023.100821>
- Pai, P. S., & Chiplunkar, N. N. (2015). Success Story of Industry Institution Collaboration for Enhancing Teaching-Learning Experience. In *Proceedings of the International Conference on Transformations in Engineering Education* (pp. 95-102). Springer India. https://doi.org/10.1007/978-81-322-1931-6_14
- Priyadi, A. A., Fahrudin, I., Almuzani, N., & Gupron, A. K. (2021). *Beyond Standard: Do the Marine Engine Officers Competence?* 57-63. <https://doi.org/10.5220/0010038100570063>
- Russell, E. (2018). Making a maths degree work for the workplace. *Higher Education Pedagogies*, 3(1), 403-416. <https://doi.org/10.1080/23752696.2018.1499420>
- Schwab, K. (2016). *World Economic Forum: Annual Meeting 2016 Mastering the Fourth Industrial Revolution*. https://www3.weforum.org/docs/WEF_AM16_Report.pdf
- Slotte, V., & Tynjälä, P. (2003). Industry-University Collaboration for Continuing Professional Development. *Journal of Education and Work*, 16(4), 445-464. <https://doi.org/10.1080/1363908032000093058>
- Stanikzai, M. I. (2023). Critical Thinking, Collaboration, Creativity and Communication Skills among School Students: A Review Paper. *European Journal of Theoretical and Applied Sciences*, 1(5), 441-453. [https://doi.org/10.59324/ejtas.2023.1\(5\).34](https://doi.org/10.59324/ejtas.2023.1(5).34)
- Stephens, G. E. (2011). Teacher Internships as Professional Development in Career & Technical Education. In *©2011-Journal of Career and Technical Education* (Vol. 26, Issue 2).
- Suharno, Pambudi, N. A., & Harjanto, B. (2020). Vocational education in Indonesia: History, development, opportunities, and challenges. In *Children and Youth Services Review* (Vol. 115). Elsevier Ltd. <https://doi.org/10.1016/j.childyouth.2020.105092>
- Suharno, S., Harjanto, B., Handayani, N. M., & Sutanti, N. (2018). Evaluation of Five-Day School Program Implementation Using the Model of Context, Input, Process, and Product. *Jurnal Pendidikan Teknologi Dan Kejuruan*, 24(1), 155-161. <https://doi.org/10.21831/jptk.v24i1.18342>
- The World Bank. (2014). *Indonesia's Higher Education System: How Responsive is it to the Labor Market?*
- Wahyuni, S., & Budianti, Y. (2021). *Pengembangan Kurikulum Merujuk KKNI Pada Prodi PIAUD*. 4(1). <http://ejournal.radenintan.ac.id/index.php/al-athfaal>