

Open Access Article

Challenges and Opportunities for Counseling in the Industrial Revolution 4.0

Rifda El Fiah^{1,*}, Yahya A.D.¹, Syaiful Anwar², Baharudin³

¹Department of Islamic Education Guidance and Counseling, Universitas Islam Negeri Raden Intan Lampung, Lampung, Indonesia

²Department of Islamic Education, Universitas Islam Negeri Raden Intan Lampung, Lampung, Indonesia

³Department of Madrasah Ibtidaiyah Teacher Education, Universitas Islam Negeri Raden Intan Lampung, Lampung, Indonesia

Abstract: Industrial revolution 4.0 is in line with the existence of educational technology needs of the world. The era of industrial revolution 4.0 is called the period of disruption, which signifies a change in people's lives more to become and do good. Changes occurred massively in agriculture, manufacturing, mining, transportation, and technology. This research aims to examine various challenges and opportunities for the counseling profession that arose in the era of revolution 4.0 to support the counselor profession to become more professional. The research method used is a qualitative case study. The research subjects were 11 Counseling Guidance teachers at the Aliyah State Madrasah (MAN) in Bandar Lampung. The results of this study include counselors becoming counselors and becoming innovators, and being an inspiration for the rest of the world to be favorable to the industrial revolution 4.0 in improving the lives of Indonesian people.

Keywords: challenges, opportunities, counseling, counselors, Industrial Revolution 4.0.

工业革命4.0中咨询的挑战与机遇

摘要：工业革命4.0与世界上对教育技术的需求一致。工业革命4.0的时代被称为颠覆时期，它标志着人们生活的更多改变是为了变得更美好。农业，制造业，采矿业，运输业和技术领域发生了巨大变化。这项研究旨在探讨革命时代4.0来为辅导员行业提供专业支持所带来的各种挑战和机遇。使用的研究方法是定性的案例研究。研究对象是班达楠榜的上面有一所学校的11位辅导老师。这项研究的结果包括使辅导员成为辅导员和成为创新者，并为世界其他地区在改善印度尼西亚人民生活中促进工业革命4.0带来灵感。

关键词：挑战、机遇、咨询、顾问、工业革命 4.0.

1. Introduction

Human civilization has undergone changes ranging from primitive cultures, agricultural societies, and subsequently to industrial revolution society. The concept of Industrial Revolution 4.0 was introduced by Schwab, a well-known economist from Germany, founder and Chief Executive of the World Economic Forum (WEF). Schwab describes the world in the era of industrial revolution 4.0, where human life is dominated by technology in managing their lives [1].

In the fourth industrial revolution (IR 4.0) era, changes occurred massively in agriculture, manufacturing, mining, transportation, and technology. Intelligent systems and networks are capable of being produced by smart equipment such as products and machines that have been absorbed by the manufacturing industry [2]. In this era of industrial revolution 4.0, the industrial world is experiencing rapid progress and tremendous advances in manufacturing technology [3]. Industrial Revolution 4.0 has been one of the most talked-about

Received: February 12, 2021 / Revised: March 11, 2021 / Accepted: April 9, 2021 / Published: May 28, 2021

About the authors: Rifda El Fiah, A.D. Yahya, Department of Islamic Education Guidance and Counseling, Universitas Islam Negeri Raden Intan Lampung, Lampung, Indonesia; Syaiful Anwar, Department of Islamic Education, Universitas Islam Negeri Raden Intan Lampung, Lampung, Indonesia; Baharudin, Department of Madrasah Ibtidaiyah Teacher Education, Universitas Islam Negeri Raden Intan Lampung, Lampung, Indonesia

Corresponding author Rifda El Fiah, syaiful.rifda@gmail.com

topics since Klaus Schwab and the World Economic Forum declared it [4]. Industrial Revolution 4.0 promises increased flexibility, better quality, and improved productivity [5].

Industrial Revolution 4.0 is a vast domain, covering: production process, efficiency, data management, relationships with consumers, competitiveness, and more [6]. Research that has been done by Retnaningdyastuti [7] explained the four stages of the industrial revolution, namely industry 1.0, 2.0, 3.0, to 4.0. The industrial phase is a real change in the changes that exist. Industry 1.0 is characterized by the mechanization of production to support the effectiveness and efficiency of human activity. Industry 2.0 is characterized by mass production and quality standardization. Industry 3.0 is characterized by mass adjustment, manufacturing, and automation-based robot flexibility. Industry 4.0 then replaced drive 3.0, characterized by cyber physics and manufacturing collaboration [8]. The term industrial revolution 4.0 comes from a project initiated by the German government to promote manufacturing computerization.

Industrial revolution 4.0 is in line with the existence of educational technology needs of the world. However, this can positively impact socio-economic problems [9]. One impact is caused by technological advances in the labor market [10]. The presence of disturbances can lead to destruction or the effect of faster shifts. According to [11], disruption replaces 'old markets', industries, and technologies and producing new, more efficient, and comprehensive things. It's destructive and creative. Harmful, because the old one has run out of dates, even causing shocks. Imaginative and creative innovation creates new things that are more efficient and comprehensive. Disruption is an innovation to replace old systems with more efficient and useful digital technology. Periods of turmoil are caused by many changes [12]. The main focus of industrial society is the mastery of science and technology to improve life quality. In this digital era, Indonesia is entering the global information and communication era. Thus, the industrial revolution 4.0 is characterized by fundamental changes in society's more efficient and beneficial life. These changes result from the invasion of digital technology through the acquisition and use of science and technology in improving the quality of life.

Based on the point of view of technology, organization, and management, the Industrial Revolution 4.0 poses significant challenges for manufacturing companies [13]. The immediate effect has begun to be felt in the community by establishing many startups in digital-based companies, making life more comfortable and replacing many traditional jobs. It is undeniable that industrial revolution 4.0 can be the separate convergence for the people and the nation, especially concerning the weeding of qualified human

resources workforce that can compete and adapt to the dynamics of change. Thus, increasing a competent and professional workforce during the changes caused by the industrial revolution 4.0 is a certainty that cannot be delayed so that we do not become spectators and victims of industrial revolution 4.0 itself.

During struggle and progress and dynamic change in the era of industrial revolution 4.0, it turns out to impact individual careers [14]. Counseling professions face a considerable challenge: guidance and counseling can adapt to technological advances and leaps, both in communication technology and information in particular. Therefore, a counselor is required to improve their competence in providing guidance and mentoring to counselors. Counselors update their knowledge, change their mindset, and update service strategies to follow the ability, character, and spirit following the 4.0 industrial revolution. One of the counselor's tasks is to help students develop their potential, the dynamics of their development, their mindset, and behavior in line with the digital industry's rapid changes and advances. This study examines various challenges and opportunities for the counseling profession that arose in the era of revolution 4.0 to support the counselor profession to become more professional. The success of counselor guidance in the development of industrial revolution 4.0 in education can create social life with compound conditions without being affected by the negative impact of industrial technology development 4.0 [15].

The novelty of this research is that there are at least five competencies pinned on counselors in schools in providing services such as counselors as supervisors, counselors as potential diggers, counselors as helpers to solve problems, counselors as generational character-building agents, and counselors as future planning friends. In addition, the pattern of developing the school counselor profession in the future is to face the industrial revolution 4.0 and global competition through cyber counseling services.

2. Research Methods

The research method used is a qualitative case study. The research subjects were 11 Counseling Guidance teachers at the Aliyah State Madrasah (MAN) in Bandar Lampung. Data collection techniques were performed through observation, interviews, and documentation. The data used are madrasah development profiles, documents of various madrasah activities, both internal and external. These documents were collected to strengthen the interview data. All interview results were made in transcripts, coded, compared, then analyzed to formulate research focus themes and create individual storylines. Various citations are used to describe each case presented in the text. In order to maintain a high level of authenticity and trustworthiness, the results are triangulated. Finally, researchers routinely discuss research findings

to purify and calculate the various possibilities that occur while conducting research.

3. Results and Discussions

The results of research on the challenges and opportunities of the counselor profession in the industrial revolution 4.0 are as follows:

3.1. Challenges and Opportunities for Counseling Professions in the Industrial Revolution 4.0

The era of industrial revolution 4.0, which is often called the period of disruption, is characterized by fundamental changes in productive and beneficial life in society due to digital technology innovation through mastery and use of science and technology to improve life quality. The disruption of the entry era marked by science and technology and digitization brought life changes. This era is like a two-sided coin that brings opportunities and challenges in all fields, with no exception in education and professional counselors. As an integral part of education, Counseling Guidance for teachers plays an essential role in the era of disruption and industry 4.0 this time. Therefore, counselors' profession as experts prepared with various competencies and skills need to innovate and act creatively in providing counseling services to counselors by utilizing massive and sophisticated technological developments. These competencies and skills to support Counseling Guidance teachers profession still exist, become strong, have the community's trust, and adjust to during the current industrial revolution 4.0 to not be eroded and drowned in an era of change.

In today's industry 4.0 era, the challenge of counselors is how to provide services to the generation of industrial revolution 4.0, called millennials, which is quite large [16]. Therefore, counselors should recognize the characteristics of the 4.0 industrial revolution generation. The 4.0 generation industrial revolution aspects depend on technology, driven by image, multitasking, openness to change, confidence, team-oriented, rich in information, impatience, and adaptability. Meanwhile, with the advent of the internet, counseling services can be offered through the network to the counsel without face-to-face meetings.

Considering the complexity of the problems in the industrial revolution 4.0 above, future counselors should be able to improve the profession's competence as required in the law, namely the standard competence of professional counselors in general. Besides, counselors must master another set of competencies in the mastery of information and communication technology needed. In other words, a counselor must be technologically literate inside and outside of pedagogical settings and follow the direction of the development of information technology and internet networks. Thus, the counseling profession becomes a commodity needed by the global community and

applies direct practice among the community through social media. In the millennial era, the website-based press became part of modern society, including students familiar with internet media. Therefore, counselors are required to master the 12 IT competencies needed. This development certainly requires the readiness and adaptation of counselors in learning technology to implement counseling services.

This development will affect guidance and counseling services because counseling is through the face-to-face process and communication media. The result of digital technology (online) and computers leads to interaction between counselors and clients as can be done through virtual relationships (internet) in the form of "cybercounseling." This media is easy to use and has a confidentiality principle, practical, and accessible from everywhere. Despite the developments in communication, counselors should continue to create the right environment and build positive relationships with clients [17]. In addition to a good atmosphere and positive relationships, according to [18], practice talk provides a safe space for clients.

Counselors are a dynamic profession, meaning that it will continue to follow stakeholders' changing needs and problems as a profession that provides services to stakeholders. That is because, over time, the challenges, issues, and conditions of the community, in general, are also continually changing. An increasingly diverse society's problems and needs also demand / imply various forms of services that must be provided. This era requires professional counselors to present challenges and opportunities for self-development counselors. Professional advisors are needed to develop their competencies following the demands of society and the times. Currently, the counseling profession is not limited to education in schools only, but the wider community also needs counselors' role and presence. In psychology, the styles of many models include psychodynamic contracts, cognitive stationery behavior, people-centered contracts, and multicultural contracts [19]. Counselors can develop themselves in various other fields, such as becoming an industry counselor. Counselor is expected to understand the client's subjective experience, create a positive relationship, and ground the counseling process in an individual focus [20].

Counselors are a promising profession in the future, which continues to grow from the introduction of services in secondary environments, community services to academic development [21]. Counselors are a promising profession in the future. The profession's strength and existence arise due to a shared interaction between professional staff performance and public trust. Thus, counselors' challenge in the current 4.0 industrial revolution is how to provide services to a large number of millennials. These millennials are very tech literate and familiar with social media, so counselors, in this case, should adapt counseling

services by keeping up with the development of communication technology. The counselor's profession in the future is a profession that must be familiar with the world of technology and understand technology development. Counseling Guidance teachers professions in the 4.0 industrial revolution are needed to develop communication and technology-based professional skills in the Guidance and Counseling program, such as online-based counseling development assessment, cyber counseling, and teleconferencing, development of online-based guidance and counseling media, as well as establishing cooperation between Counseling Guidance teachers and guiding through WhatsApp, Facebook and Twitter group [22]. Students/counseling needs are no longer solely in classic or conventional counseling services, but they are more comfortable if counseling is not done face-to-face. Students' familiarity with social media, such as Facebook, Twitter, Instagram, blogs, email, Skype, WhatsApp, and Video Calls, can be a vital tool to maximize the process of online counseling applications, or better known as cyber counseling. The media has a positive impact on social media use that is felt directly by students who need online counseling [23].

Website-based media has become part of modern society, including millennial students. The students, or counseling, are familiar with internet media. They often use the internet to communicate, find learning resources, play, watch videos, listen to music, shop online, and more. This media is easy to use, confidential, practical, and accessible from everywhere. Media can be applied in Guidance and Counseling services. Therefore, online counseling or cyber counseling becomes a useful and quick option for students to consult their problems. So as in the era of industrial revolution 4.0, the profession of counselors faced several challenges. According to [24], the counselor profession must meet at least four real obstacles. The challenges are mastery of information and communication technology, disruption of the social sector, cultural upheaval, and honesty.

Behind the challenges of counselors who are so severe in the era of disruption / industrial revolution 4.0 and realize facing the golden generation in Indonesia in the future, many expectations are given to counselors to be more relaxed and better in providing guidance and counseling services. At least five expectations are pinned on counselors in the current generation of disorder: counselors as supervisors, counselors as potential diggers, counselors as helpers to solve problems, counselors as agents of generational character formation, and counselors as future planning friends.

3.2. Revitalization of the Counseling Profession in Industrial Revolution 4.0

Experts and practitioners are making groundbreaking academic counseling to understand the dynamics of massive and structured social change as an effect caused by technological advances of the industrial revolution 4.0. This breakthrough is in rational and practical innovations by revitalizing the concept of counseling from the traditional approach (face-to-face counseling) with a modern system (network/internet-based approach to online technology). The counseling approach can address various issues that hinder individuals, families, and communities' academic, career, and personal/social development [25]. Counseling can be defined as the process of assistance provided by the counselor to the counselor to solve the problem. The counseling process aims to help the counselees understand themselves and their environment to make a person happy, prosperous, comfortable conditions, and living conditions more effective. The usual counseling is a face-to-face format between counselors and counselors. The counseling process can be done with various media that allow long-distance counseling relationships. Users of the internet network grew from academics and various formal and informal institutions and institutions in the community, including industry and educational institutions.

Meanwhile, online / internet networks in counseling are commonly referred to as cyber counseling derived from its use abroad that has existed since the 1970s with Eliza and Parry's application software program [26]. Counseling can also be done using telephone media, mobile phones, and unique teleconference media. This service is carried out by counselors to provide comfort assistance needed by the counselor when facing problems that do not allow to be done face-to-face [27]. This statement means that cyber counseling is competent enough to be an option for counselors with a fairly hectic schedule, making it impossible to meet in person with a counselor.

The presence of cyber counseling certainly provides an excellent opportunity for counselors to develop counseling models and develop future professions in the face of the 4.0 industrial revolution and global competition. However, using this counseling format or model must be balanced with counselors' skills in using IT so that the counseling process can be done anywhere as long as it is connected to the internet. The following will describe cyber counseling as a development model or counseling format for counselors to conduct counseling. Before discussing the definition of cyber counseling further, we first look at the meaning of counseling itself.

Counseling is a learning, process-oriented social environment that is simple. The process by which an advisor (professionally competent in relevant psychological skills and knowledge) seeks to help

clients with methods that suit their needs [28]. Counseling does not have to be done face-to-face, but it is possible to do it remotely with knowledge development. Individual counseling maintains the counselor's confidentiality, making close contact between the counselor and counselor and the therapy process.

Virtual counseling is a therapeutic counseling service developed using communication technology using email, chat sessions, pc-to-pc telephones for use with webcams (live video sessions), which use computers and the internet [29]. Virtual guidance and guidance are critical strategies for more in-depth programs with direction and guidance [30]. Online movements and counselors communicate using video and audio streaming. In this case, the process of taking over the internet (websites, email, Facebook, video conferencing) and cheap ideas. Through this world's technology, the world of services from formulating service efforts by using technology services. When conducting surveillance through virtual media, counselors' skills in the media use many services provided [31]. In this era of industrial revolution 4.0, counselors provide services to be competitive and capable of high [32]. Here, the world of professional counselors is better and optimal.

3.3. Competency Development Counselors in the Industrial Revolution 4.0

Counselors get special education in Higher Education and devote all their time to guidance and counseling services [33]. Besides, the term counselor is officially used in Law No. 20 of 2003 on the National Education System, which states: educators are qualified education personnel as teachers, lecturers, counselors, tutors, instructors, instructor tutors, facilitators, and other designations according to their specificity, and participate in the implementation of education.

From the information above, it can be interpreted that the counselor is one part of the teaching staff. Article 39, paragraph 2 of Law Number 20 the Year 2003 concerning the National Education System states that educators are professionals responsible for the learning process (planning and implementation), assessing learning outcomes, conducting mentoring and training, as well as conducting research and services to the community, especially for college educators.

All educators, including counselors as education professionals, are obliged to plan and implement learning, assessment, guidance, and training with different contents in the realm of cognitive, affective, psychomotor learning, faith, and devotion to The One True God. With such significant responsibilities and obligations, school counselors have academic qualifications through appropriate levels of formal education. The authorities recognized them, namely at least after graduating from Bachelor 1 (S1), then Master (S2), and even to a doctoral program (S3). It

can be concluded that the counselor is a professional who gets special education in tertiary institutions and plans and carries out learning activities, assessment, guidance, and training for students or extension workers in various cognitive, affective, psychomotor, and faith activities and piety to The One True God.

Counselors, as professional educators, must have competence as excellent educators. According to some experts, competence itself has a strong character, and it becomes a way of behavior and thinking in all situations and lasts for an extended period. According to that, competence is a combination of knowledge, skills, values, and attitudes reflected in thinking and acting habits. So as in the teaching system, competencies are used to describe professional abilities, namely the ability to demonstrate knowledge and conceptualization at a higher level. Competencies themselves can be obtained through education, training, and other experiences following the story of competence. While in Law No. 14 of 2005 on Teachers and Lecturers, competencies are defined as a set of knowledge, skills, and behaviors that must be owned alive and mastered by teachers or lecturers in carrying out their professional duties.

The rapid development of technology in the era of industrial revolution 4.0 has now created the order of modern life. Technology has become a friend of millennials. This development's positive impact has made technology devices, especially information and communication technology, a kind of ideology for a new generation of millennials, which should precisely concern the counselor profession. Most millennials have been treated with easy access to information as innovative, creative students to improve academic achievement. They often use internet media to communicate, find learning resources, play, watch videos, youtube, listen to music, business, and others. However, this era's negative impact has left millennials caught up in the problem of moral degradation and cybercrime through social media due to a large number of uneducated social media content. In this aspect of technology, the challenges of counselor attitude and professionalism are at stake.

4. Conclusion

The challenge of counselors in the current 4.0 industrial revolution is how to provide services to advisors with the characteristics of the era of the 4th generation industrial revolution itself, namely the generation that depends on technology, image-based, multitasking, open to change confident, team-oriented, productive information, impatient, and adaptable. Thus, the generation of technology literacy counseling services must respond to the development of technology devices on the internet / online. The counseling process can not only be done conventionally (face-to-face) but also through a virtual method.

By paying attention to the complexity of the problems in the industrial revolution 4.0 above, the profession of counselors in the future must be able to improve the competence of the job as required in the law, namely the competence of professional standards of counselors in general, and mastery of information and communication technology required. In other words, a counselor must be technologically literate inside and outside of pedagogical settings and follow the direction of the development of information technology and internet networks. The profession of Counseling Guidance teachers is a commodity needed by the global community. Thus, the work of future counselors is promising in the world of education. Therefore, future counselors' profession is promising in education because counselors' job is dynamic. Counselors are the type of career that provides services to stakeholders that will continue to follow the changing needs and problems. Therefore, as a professional counselor, it is necessary to update the information and develop skills tailored to the community's needs.

The limitation of this research is related to the challenges and opportunities for increasing the professional competence of Counseling Guidance teachers in schools in providing services to students in the era 4.0. The implications of the results of this study are to support the professional competence of the Counseling Guidance teacher in the era of 4.0 through determining the pattern of services performed.

References

- [1] XU M., DAVID J. M., and KIM S. H. The Fourth Industrial Revolution: Opportunities and Challenges. *Int J Financ Res*, 2018, 9(2): 90-95. <http://www.sciedupress.com/journal/index.php/ijfr/article/view/13194/8136>
- [2] TECK T. S., SUBRAMANIAM H., and SOROOSHIAN S. Exploring Challenges of the Fourth Industrial Revolution. *International Journal Innovative Technology and Exploring Engineering*, 2019, 8(9): 27-30. <http://umpir.ump.edu.my/id/eprint/25914/1/Exploring%20challenges%20of%20the%20fourth%20industrial%20revolution.pdf>
- [3] DA XU L., XU E. L., and LI L. Industry 4.0: State of the Art and Future Trends. *International Journal of Production Research*, 2018, 56(8): 2941-2962. <https://www.tandfonline.com/doi/abs/10.1080/00207543.2018.1444806>
- [4] LEE M. H. How to Respond to the Fourth Industrial Revolution, or the Second Information Technology Revolution? Dynamic New Combinations Between Technology, Market, and Society Through Open Innovation. *J Open Innov Technol Mark Complex*, 2018, 4(3): 1-24. <https://www.mdpi.com/2199-8531/4/3/21>
- [5] ZHONG R. Y., XU X., KLOTZ E., and NEWMAN S. T. Intelligent Manufacturing in the Context of Industry 4.0: A Review. *Engineering*, 2017, 3(5): 616-630. <https://www.sciencedirect.com/science/article/pii/S2095809917307130>
- [6] PICCAROZZI M., AQUILANI B., and GATTI C. Industry 4.0 in Management Studies: A Systematic Literature Review. *Sustainability*, 2018, 10(10): 1-24. <https://www.mdpi.com/2071-1050/10/10/3821>
- [7] RETNANINGDYASTUTI M. T. S. R. Tantangan dan Peluang Siswa dan Guru BK di Era Disrupsi. *Prosiding Seminar Nasional Strategi Pelayanan Bimbingan dan Konseling di Era Disrupsi*. Universitas PGRI Semarang, Semarang, Indonesia, 2018: 6-12. <http://prosiding.upgris.ac.id/index.php/bk2018/bkk20188/paper/viewFile/2565/2469>
- [8] FIRMAN. Strategi dan Pendekatan Pelaksanaan Bimbingan Konseling di Sekolah untuk Menghadapi Revolusi Industri 4.0. *Ina-RXIV Papers*, 2019. <https://osf.io/preprints/inarxiv/c5bpv/>
- [9] VAN RENSBURG N., TELUKDARIE J. A., and DHAMIJA P. Society 4.0 Applied in Africa: Advancing the Social Impact of Technology. *Technol Soc*, 2019, 59. <https://ideas.repec.org/a/eee/teins/v59y2019ics0160791x18303361.html>
- [10] QAISER S., YUSOFF N., AHMAD F. K., and ALI R. Sentiment Analysis of Impact of Technology on Employment from Text on Twitter. *Int J Interact Mob Technol*, 2020, 14(7): 88-103. <https://www.online-journals.org/index.php/ijim/article/view/10600/6975>
- [11] CHRISTENSEN C. M., RAYNOR M. E., and MCDONALD R. What Is Disruptive Innovation? *Harvard Business Review*, 2015. <https://hbr.org/2015/12/what-is-disruptive-innovation>.
- [12] WIBOWO N. C. H. Bimbingan Konseling Online. *J Ilmu Dakwah*, 2016, 36(2): 271-287. <https://journal.walisongo.ac.id/index.php/dakwah/article/view/1773>
- [13] HORVÁTH D., & SZABÓ R. Z. Driving Forces and Barriers of Industry 4.0: Do Multinational and Small and Medium-Sized Companies Have Equal Opportunities? *Technol Forecast Soc Change*, 2019, 146: 119-132. <https://www.sciencedirect.com/science/article/pii/S0040162518315737>
- [14] HIRSCHI A. The Fourth Industrial Revolution: Issues and Implications for Career Research and Practice. *Career Dev Q*, 2018, 66(3), 192-204. <https://www.semanticscholar.org/paper/The-Fourth-Industrial-Revolution%3A-Issues-and-for-Hirschi/3042e5c33a26cbe2025b27f81d195037505a79a0>
- [15] LUE M., & RIYANTO K. B. Multicultural Social Peaceful Education through Social Guidance and Counseling Services in Development of Industrial Revolution 4.0. *Advances in Social Science, Education and Humanities Research*, 2020, 462: 241-245 <https://www.atlantispress.com/proceedings/isgc-19/125943326>
- [16] DEWI N. K. Peluang dan Tantangan Menjadi Konselor Industri di Era Masyarakat Ekonomi Asean (MEA). *Proceedings International Seminar FoE (Faculty of Education)*, 2015: 306-313. <http://prosiding.unipma.ac.id/index.php/PIS-FoE/article/view/102/102>
- [17] STARGELL N., CRAIGEN L., BRADLEY N., WHISENHUNT J., CAMPBELL E., and KRESS V. E. Relational-Cultural Supervision: A Humanistic Approach to Promoting Vulnerability and Counselor Development. *J Humanist Couns*, 2020, 59(3): 188-200. <https://onlinelibrary.wiley.com/doi/abs/10.1002/johc.12144>

- [18] MONTGOMERY L., & OWEN-PUGH V. Bereavement Counseling in Uganda and Northern Ireland: a Comparison. *British Journal of Guidance and Counselling*, 2018, 46(1): 91-103. [https://pureadmin.qub.ac.uk/ws/portalfiles/portal/133153330/Bereavement Counseling in Uganda and Northern Ireland. A Comparison.pdf](https://pureadmin.qub.ac.uk/ws/portalfiles/portal/133153330/Bereavement+Counseling+in+Uganda+and+Northern+Ireland.+A+Comparison.pdf)
- [19] CHIBOOLA H., & MUNSAKA S. M. Nature and Role of Traditional Forms of Counseling in Zambia: A Case of Lusaka Province. *British Journal of Guidance and Counselling*, 2018, 46(1): 79-90. <https://www.tandfonline.com/doi/abs/10.1080/03069885.2016.1187710>
- [20] BAYNE H. B., & HANKEY M. S. Exploring Cognitive Empathy: Further Validation of the Empathic Counselor Response Scale and Application to Practice. *J Humanist Couns.*, 2020, 59(3): 219-239. <https://onlinelibrary.wiley.com/doi/abs/10.1002/johc.12146>
- [21] KAI-CHING YU C., FU W., ZHAO X., and DAVEY G. Public Understanding of Counsellors and Counselling in Hong Kong. *Asia Pacific J Couns Psychother*, 2010, 1(1): 47-54. <https://www.tandfonline.com/doi/abs/10.1080/21507680903574310>
- [22] KILBER J., BARCLAY A., and OHMER D. Seven Tips for Managing Generation Y. *Journal of Management Policy and Practice*, 2014, 15(4): 80-91. http://www.na-businesspress.com/JMPP/BarclayA_Web15_4_.pdf
- [23] KRAUS R., ZACK J. S., and STRICKER G. *Online counseling: A Handbook for Mental Health Professionals*. Elsevier Science, Amsterdam, Netherlands, 2004.
- [24] SUDARYANTI D., SUKOHARSONO E. G., BARIDWAN Z., and MULAWARMAN A. D. Critical Analysis on Accounting Information Based On Pancasila Value. *Procedia - Soc Behav Sci*, 2015, 172: 533-539. <https://www.sciencedirect.com/science/article/pii/S187704281500436X>
- [25] RATTIS MANIVONG J. Social Justice Counseling: Toward the Development of a Fifth Force Among Counseling Paradigms. *Journal of Humanistic Counseling Education and Development*, 2009, 48(2): 160-172. <https://onlinelibrary.wiley.com/doi/abs/10.1002/j.2161-1939.2009.tb00076.x>
- [26] KOUTSONIKA H. E-Counseling: the New Modality. Online Career Counseling - a Challenging Opportunity for Greek Tertiary Education. *Political Sciences*, 2009. <https://nanopdf.com/download/online-counseling-web-science-repository.pdf>
- [27] HARTONO A. Kepribadian Profesi Konselor Islami di Era Industri 4.0. *J Bimbing dan Konseling Ar-Rahman*, 2019, 5(1): 62-66. <https://ojs.uniska-bjm.ac.id/index.php/BKA/article/view/1853>
- [28] GIBSON D., DOLLARHIDE C., and MOSS J. Professional Identity Development: A Grounded Theory of Transformational Tasks of New Counselors. *Couns Educ Superv*, 2010, 50(1): 21-38. <https://cpb-us-w2.wpmucdn.com/u.osu.edu/dist/7/4817/files/2013/09/Gibson-Dollarhide-Moss-Transformational-Tasks.pdf>
- [29] KOSTIN Y., & UNRUH R. Virtual Counseling: An Examination of Academic Advising via the Internet. *Journal of College Orientation, Transition, Retention*, 2005, 12(2): 38-39.
- [30] VÁZQUEZ CANO E., & LÓPEZ MENESES E. Virtual Tutoring and Counseling in Schools. *ISRN Education*, 2012, 2012: 1-8. <https://downloads.hindawi.com/archive/2012/816590.pdf>
- [31] HARYATI A. Online Counseling Sebagai Alternatif Strategi Konselor dalam Melaksanakan Pelayanan E-Counseling di Era Industri 4.0. *Bulletin of Counseling and Psychotherapy*, 2020, 2(2): 27-38. <https://core.ac.uk/download/pdf/335024788.pdf>
- [32] INDRAWAN P. A., and LAY A. E. Guidance and Counseling Teachers' Competency Perspective in the Era of Industrial Revolution 4.0. *The International Journal of Innovation, Creativity and Change*, 2019, 5(3): 147-161. https://www.ijcc.net/images/Vol_5_Iss_3/8_Indrawan_P147_2019R.pdf
- [33] FAROZIN M. Counselor Professional Identity of Counselor Profession Education. *Cakrawala Pendidik*, 2019, 38(1): 104-119. <https://media.neliti.com/media/publications/272276-counselor-professional-identity-of-couns-d72baa84.pdf>

参考文献:

- [1] XU M., DAVID J. M., 和 KIM S. H. 第四次工业革命：机遇与挑战。国际期刊金融研究, 2018, 9(2): 90-95. <http://www.sciencedirect.com/journal/index.php/ijfr/article/view/13194/8136>
- [2] TECK T. S., SUBRAMANIAM H., 和 SOROOSHIAN S. 探索第四次工业革命的挑战。国际期刊创新技术与探索工程, 2019, 8(9): 27-30. <http://umpir.ump.edu.my/id/eprint/25914/1/Exploring%20challenges%20of%20the%20fourth%20industrial%20revolution.pdf>
- [3] DA XU L., XU E. L., 和 LI L. 工业4.0：最新技术和未来趋势。国际生产研究杂志, 2018, 56(8): 2941-2962. <https://www.tandfonline.com/doi/abs/10.1080/00207543.2018.1444806>
- [4] LEE M. H. 如何应对第四次工业革命或第二次信息技术革命？通过开放式创新实现技术，市场与社会之间的动态新组合。公开创新技术商标综合体, 2018, 4(3): 1-24. <https://www.mdpi.com/2199-8531/4/3/21>
- [5] ZHONG R. Y., XU X., KLOTZ E., 和 NEWMAN S. T. 工业4.0中的智能制造：回顾。工程, 2017, 3(5): 616-630. <https://www.sciencedirect.com/science/article/pii/S2095809917307130>
- [6] PICCAROZZI M., AQUILANI B., 和 GATTI C. 管理研究中的工业4.0：系统文献综述。可持续发展, 2018, 10(10): 1-24. <https://www.mdpi.com/2071-1050/10/10/3821>
- [7] RETNANINGDYASTUTI M. T. S. R. 在颠覆时代，辅导指导学生和教师面临的挑战和机遇。干扰时代全国指导和咨询服务策略研讨会论文集。印度尼西亚三宝壟三宝壟教师联盟大学, 2018: 6-12. <http://prosiding.upgris.ac.id/index.php/bk2018/bkk20188/paper/viewFile/2565/2469>
- [8] FIRMAN. 面向工业革命4.0的学校实施咨询指导的策略和方法。印尼档案馆, 2019. <https://osf.io/preprints/inarxiv/c5bpv/>

- [9] VAN RENSBURG N., TELUKDARIE J. A., 和 DHAMIJA P. 社会4.0在非洲的应用：促进技术的社会影响。技术学会, 2019, 59. <https://ideas.repec.org/a/eee/teinso/v59y2019ics0160791x18303361.html>
- [10] QAISER S., YUSOFF N., AHMAD F. K., 和 ALI R. 推特上的文本对技术对就业的影响进行了情感分析。国际互动移动技术杂志, 2020, 14(7): 88-103. <https://www.online-journals.org/index.php/ijm/article/view/10600/6975>
- [11] CHRISTENSEN C. M., RAYNOR M. E., 和 MCDONALD R. 什么是颠覆性创新？哈佛商业评论, 2015. <https://hbr.org/2015/12/what-is-disruptive-innovation>
- [12] WIBOWO N. C. H. 在线咨询指导。大华科学杂志, 2016, 36(2): 271-287. <https://journal.walisongo.ac.id/index.php/dakwah/article/view/1773>
- [13] HORVÁTH D., 和 SZABÓ R. Z. 工业4.0的驱动力和障碍：跨国公司和中小型公司是否有平等的机会？技术预测社会变革, 2019, 146: 119-132. <https://www.sciencedirect.com/science/article/pii/S0040162518315737>
- [14] HIRSCHI A. 第四次工业革命：对职业研究和实践的问题和启示。职业发展季刊, 2018, 66(3), 192-204. <https://www.semanticscholar.org/paper/The-Fourth-Industrial-Revolution%3A-Issues-and-for-Hirschi/3042e5c33a26cbe2025b27f81d195037505a79a0>
- [15] LUE M., 和 RIYANTO K. B. 在工业革命4.0的发展中通过社会指导和咨询服务进行的多元文化社会和平教育。社会科学，教育与人文研究的进展, 2020, 462: 241-245 <https://www.atlantispress.com/proceedings/isgc-19/125943326>
- [16] DEWI N. K. 成为东盟经济共同体时代的工业参赞的机遇与挑战。国际会议论文集（教育学院），2015: 306-313. <http://prosiding.unipma.ac.id/index.php/PIS-FoE/article/view/102/102>
- [17] STARGELL N., CRAIGEN L., BRADLEY N., WHISENHUNT J., CAMPBELL E., 和 KRESS V. E. 关系文化监督：促进脆弱性和辅导员发展的人文主义方法。人文咨询杂志, 2020, 59(3): 188-200. <https://onlinelibrary.wiley.com/doi/abs/10.1002/johc.12144>
- [18] MONTGOMERY L., 和 OWEN-PUGH V. 乌干达和北爱尔兰的丧亲辅导：比较。英国指导与咨询杂志, 2018, 46(1): 91-103. https://pureadmin.qub.ac.uk/ws/portalfiles/portal/133153330/Bereavement_Counselling_in_Uganda_and_Northern_Ireland_A_Comparison.pdf
- [19] CHIBOOLA H., 和 MUNSAKA S. M. 赞比亚传统咨询形式的性质和作用：以卢萨卡省为例。英国指导与咨询杂志, 2018, 46(1): 79-90. <https://www.tandfonline.com/doi/abs/10.1080/03069885.2016.1187710>
- [20] BAYNE H. B., 和 HANKEY M. S. 探索认知移情：移情咨询员反应量表的进一步验证和在实际中的应用。人文咨询杂志, 2020, 59(3): 219-239. <https://onlinelibrary.wiley.com/doi/abs/10.1002/johc.12146>
- [21] KAI-CHING YU C., FU W., ZHAO X., 和 DAVEY G. 公众对香港辅导员和辅导的了解。亚太地区心理咨询服务杂志, 2010, 1(1): 47-54. <https://www.tandfonline.com/doi/abs/10.1080/21507680903574310>
- [22] KILBER J., BARCLAY A., 和 OHMER D. Y世代管理的七个技巧。管理政策与实践杂志, 2014, 15(4): 80-91. http://www.na-businesspress.com/JMPP/BarclayA_Web15_4_.pdf
- [23] KRAUS R., ZACK J. S., 和 STRICKER G. 在线咨询：心理健康专业人员手册。爱思唯尔科学，荷兰阿姆斯特丹, 2004.
- [24] SUDARYANTI D., SUKOHARSONO E. G., BARIDWAN Z., 和 MULAWARMAN A. D. 基于潘卡西拉价值的会计信息批判性分析。普罗迪亚-社会行为科学, 2015, 172: 533-539. <https://www.sciencedirect.com/science/article/pii/S187704281500436X>
- [25] RATTIS MANIVONG J. 社会正义咨询：在咨询范式中发展第五力量。人文咨询教育与发展, 2009, 48(2): 160-172. <https://onlinelibrary.wiley.com/doi/abs/10.1002/j.2161-1939.2009.tb00076.x>
- [26] KOUTSONIKA H. 电子咨询：新模式。在线职业咨询-希腊高等教育的极具挑战性的机会。政治学, 2009. <https://nanopdf.com/download/online-counseling-web-science-repository.pdf>
- [27] HARTONO A. 工业时代4.0中的伊斯兰参赞的个性。仁慈的指导和咨询杂志, 2019, 5(1): 62-66. <https://ojs.uniska-bjm.ac.id/index.php/BKA/article/view/1853>
- [28] GIBSON D., DOLLARHIDE C., 和 MOSS J. 职业身份发展：新辅导员转型任务的扎根理论。辅导教育监督, 2010, 50(1): 21-38. <https://cpb-us-w2.wpmucdn.com/u.osu.edu/dist/7/4817/files/2013/09/Gibson-Dollarhide-Moss-Transformational-Tasks.pdf>
- [29] KOSTIN Y., 和 UNRUH R. 虚拟咨询：通过互联网进行的学术咨询考试。大学定位，过渡，保留杂志, 2005, 12(2): 38-39.
- [30] VÁZQUEZ CANO E., 和 LÓPEZ MENESES E. 学校的虚拟辅导和咨询。改善科学研究网络教育, 2012, 2012: 1-8. <https://downloads.hindawi.com/archive/2012/816590.pdf>
- [31] HARYATI A. 在工业时代4.0中，在线咨询可替代咨询者在实施电子咨询服务中的策略。心理咨询与治疗简报, 2020, 2(2): 27-38. <https://core.ac.uk/download/pdf/335024788.pdf>
- [32] INDRAWAN P. A., 和 LAY A. E. 工业革命4.0时代的指导与辅导教师能力观。国际创新，创造力和变化杂志, 2019, 5(3): 147-161. https://www.ijcc.net/images/Vol_5_Iss_3/8_Indrawan_P147_2019R.pdf
- [33] FAROZIN M. 辅导员职业教育的辅导员职业认同。教育视野, 2019, 38(1): 104-119. <https://media.neliti.com/media/publications/272276-counselor-professional-identity-of-couns-d72baa84.pdf>