

The characteristics of efficacious leader in higher education: A literature review

Ibnu Siswanto¹, Mingchang Wu², Hongbo Ma³, Zainal Arifin¹, Moch Solikin¹, Agus Widianto¹

¹Department of Automotive Engineering Vocational Education, Faculty of Engineering, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia

²Graduate School of Technological and Vocational Education, College of Humanities and Applied Sciences, National Yunlin University of Science and Technology, Yunlin, Taiwan

³Department of Business Education, Zhejiang Industry Polutechnic College, Graduate school of Technological and Vocational Education, National Yunlin University of Science and Technology, Zhejiang, China

Article Info

Article history:

Received Jan 27, 2022

Revised Oct 21, 2022

Accepted Dec 23, 2022

Keywords:

Efficacious academic leader

Empowering

Envisioning

Executing

Integrating

Modelling the way

ABSTRACT

University is a remarkable institution which is always expected to change the world through its constantly innovative technology and science advancement and civilization promotion. Academic institution relies on its efficacious leader with vision and implementation to fully accomplish its missions. However, limited attention goes to this crucial leader's requirements and characteristics, even faculty members in the higher education institutions studiously conduct research for external organizations. This paper presents a comprehensive analysis addressing innovative academic leader's characteristics based on the current global situation, university mission, and unique culture. Finally, this article concludes the competencies and characteristics of efficacious academic leader demands in this changing era: envisioning the institutional future, integrating social resources with reciprocity, modeling the way with morality and integrity, executing university missions with professions and humanity, empowering team members with full support, and inspiring students with humanity. Those integrated characters could effectively guide faculty members for their future self-development, and contribute to achieving university mission on science development, producing high-quality human resources, and contributing of the human civilization promotion. This conclusion retrospectively raises further suggestions for future study, how faculty members build these characters considering the unique and complex situation of interpersonal and external factors within the university.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

Ibnu Siswanto

Department of Automotive Engineering Vocational Education, Faculty of Engineering

Universitas Negeri Yogyakarta

Colombo Street, No. 1 Yogyakarta, Indonesia

Email: ibnusiswanto@uny.ac.id

1. INTRODUCTION

Over the past thirty years, higher education has faced major challenges and undergone major transformations especially on its contribution toward human resources, sciences, and economic development [1]. As one of fundamental institution within community, traditionally university has three main missions; teaching, research and community service [2], [3]. Teaching means the university serves to prepare students obligating knowledge, skills, and attitudes needed to be successful in their future. The research aims to analyze, formulate, and create innovations in all areas based on the faculty member's expertise. Furthermore,

Dalmida *et al.* [4] define community service as university's contribution to the communities' development through formal or informal consultation designed to solve problems and improve their quality of life, especially for low-income individuals.

Today, higher education institutions encounter a changing tide with global mobility [5], [6], rapid knowledge advancement [7], [8], social transformation [9], democratic atmosphere evolution [10] and industrial revolution [11]. Contemporary universities should develop new formats that view their activities such as teaching, research, and development in a new light, seeing how academic institutions able to provide more contribution for economic and social development [12]. These three missions collaboratively supportive of each other with research activities to produce new academic innovation become more valued over teaching and community service in recent days. Research activities become essential in this transformation era because of technology rapid development and knowledge advancement growth highly relies on innovative knowledge and advance research of academia [13], [14]. Consequently, university fostering its faculty members to conduct high-quality research as part of their achieving tenure [15].

Accelerate research to generate new academic advancement and innovative technology invention need more support, engagement, and dedication from others institution such as government and industry to keep it valuable to social development and student's future [2], [16]. This situation is fostering mutual collaboration among university, government, and industry, so-called triple helix, to produce new advanced technology and industrial area [17]. The three institutions reciprocally support on this innovative knowledge and technology invention by university conducting advance research, industry supporting financial, equipment, and practice experience, and government giving incentive and directive provision [18], [19].

University success or failure on producing future knowledge, technology, and human resources is influenced by university members' orientation, motivation, empowerment, and satisfaction [20]. Previous studies revealed that leadership has a high effect on university staffs engagement through its ideas influence, empowerment, motivation, and individual stimulation [21], [22]. Furthermore, transformational leadership positively affects team performance and individual job satisfaction. A leader in a university also significantly influence organizational effectiveness [23], [24]. It also has a positive and significant relationship with students' academic achievement [25] and behavior [26]. It can be concluded that leadership is a key requirement for the current university transformation on academic growth advancement, student custody, and social reciprocity as shown in Figure 1.

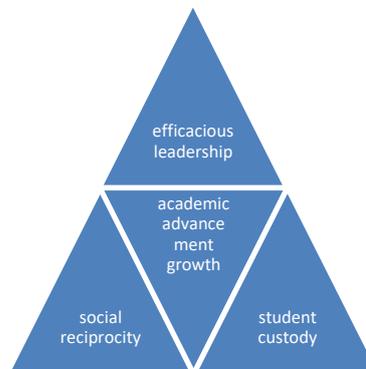


Figure 1. Efficacious leadership to achieve three university main mission

University as an institution which provides teaching to deliver knowledge and new innovative technology creation has unique characteristics compare than other organizations. There are many experts and professionals from various backgrounds in their respective fields gathering in one place [27]. Moreover, they disagree think themselves as followers because they possess academic freedom and profession that fostering a strong sense of independence from the possible directives instruction from their leader [28]. Even within the same university, being a leader of an engineering college and social sciences college requires very different strategies to manage it group's members [29]. Those unique nature traits require different types of leadership must demonstrate to manage various demands among academia in order to achieve university mission [28], [30]. Consequential curiosity emerges on what an academic leader characters should perform to effectively manage academia and achieve university missions. Therefore, this paper aims to propose efficacious academic leaders' characteristics based on the comprehensive analysis of current global challenges, university mission, and academia unique culture.

2. RESEARCH METHOD

This systematic literature review study firstly analyzed the current global situation, top university vision and mission, university's uniqueness culture and traits, and leadership theories. Secondly, it discussed the influential factors which affect contemporary university condition and further analyzed what kind of leadership characteristics needed. Finally, this study proposes an effective academic leader's characters based on the analysis and discussion.

This study uses a systematic literature study on the characteristics of efficacious leader in higher education. Searching related articles about the characteristics of efficacious leader in higher education using the Google Scholar's database for the last 17 years, from 2002 to 2021, found as many as 79 articles. The article search is done by optimizing the Boolean Operator. With keywords "leader" AND "higher education" found 31 research articles, with keywords "efficacious" AND "leader" found 10 review articles and 18 research articles, and with keywords "characteristics" AND "leader in higher education" found 20 research articles.

A total of 79 articles on the characteristics of efficacious leader in higher education which include the characteristics leaders, the leader in higher education and higher education. Of the 52 articles identified, then screening was carried out and 22 articles were eligible. Of the 22 eligible articles, there are only 15 specific and systematic articles outlining the characteristics of efficacious leader in higher education. The article selection process using PRISMA is shown in Figure 2. This review article shows further research opportunities related to the characteristics of efficacious leader in higher education in the future.

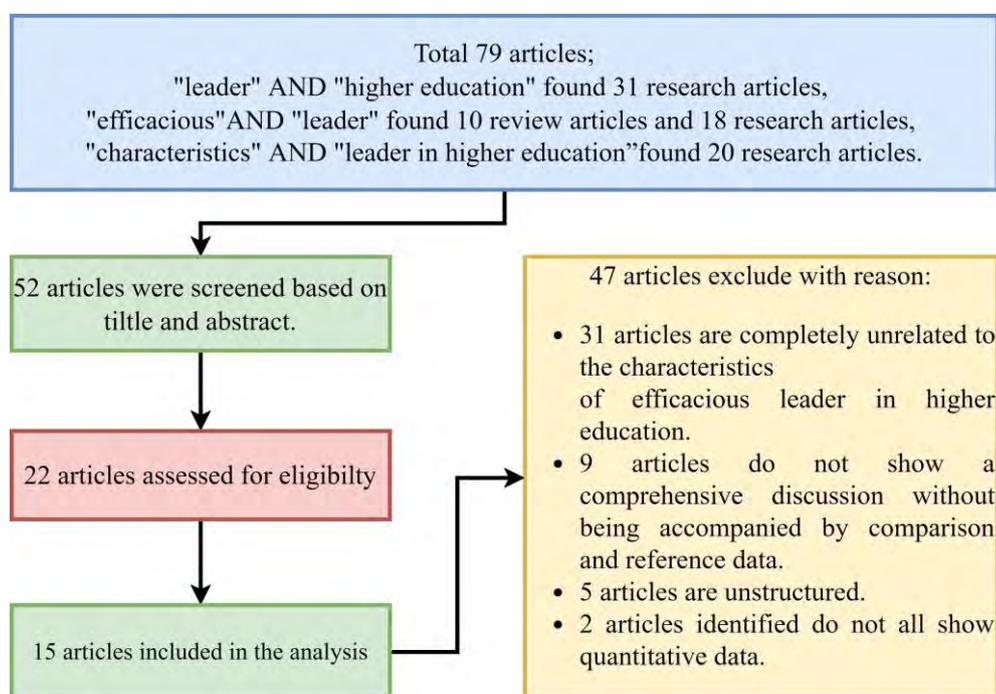


Figure 2. PRISMA diagram of retrieved studies

3. RESULTS

3.1. The current global trend challenges of university

There are some key factors challenging university to survive in this rapidly changing situation. They are: i) Impact of digital learning; ii) Heightened demand for career readiness; iii) Increased emphasis on application-based learning; iv) Use of data analytics to implement growth models; and v) Developing personal skills [31]; vi) Change happens rapidly and on a large scale; vii) Challenges are complicated by many factors [32]; viii) The nature of students, skills for all in the 21st century; ix) Advanced technology development; x) Distance education (Institute for Teaching and Learning Innovation [33]); xi) Industrial revolution [11]. Those factors might be concluded into industrial revolution 4.0, students' learning style and future career, advanced technology development, social diversity, and internationalization of higher education.

3.2. Industrial revolution 4.0

The first industrial revolution influenced manufacturing processes by mechanical equipment powered by steam. The second industrial revolution was improved the industry from small to mass production [34]. While the third one was characterized by the electronics devices and information technology (IT) into industrial practice. Currently, we are standing on the threshold of the fourth industrial revolution, which is marked by linking sub-components of the production process via internet of things [35].

This new era of industrial revolution 4.0 creates new kinds of challenges for university and their leader to deal with the situation and take the opportunities to attain achievements [11], [36]. There is a change in the functions and roles of the university in the midst of society during this period, initially it roles focus on the education and preparation of human resources for industrial need [37], then more functions as a center for the new innovative generation and community empowerment [17]. Moreover, today all those functions are more crucial, the university has to take roles as the leader in this remarkable technology and information advance era [38], [39]. Contemporary universities develop new formats for teaching, research and development activities because they need to give more direct contribution to economic and social development [12], [40].

3.3. Students' learning style and future career

In this global and interconnected era, there are some changes in the students' behavior and learning style [9], [41]. For instance, some teachers will not let their students brought cell phone during the class a decade ago, but now almost all class activities using a laptop, smartphone, and other electronic devices as part of their learning media. Moreover, a 21st century learner is highly dependent on technology for assessing, managing, creating, and sharing knowledge with people around the world. Students are capable of getting more resources about the topic they learned not only from the teacher. Even the students might be able to get the newest knowledge earlier than the teacher.

University leader also needs to prepare the students' future career [42]. Generally, there are four options for the job activity for the students in the future: public government employee, industry, scientist, and create their own business. All of the options are almost the same with the job options before, but the differences are about the requirement and the competency needed to further ahead than others competitor. This situation is fostering academic leader to rethink and redesign how to give more attention on creativity, critical thinking, communication, and collaboration as an integrated part of their professional skills to prepare the students for their future career [43], [44].

3.4. Advance technology development

The economist intelligence unit [45] reported that advance and information technologies would influence higher education on its curriculum, teaching methodologies, and all the academia within the university. Moreover, industry and technology development also run faster than before, the world's stock of data is now increasing two times every 20 months, online or electronics payments reached \$1 trillion marks, and the number of mobile Internet-connected devices has reached 12 billion [46]. Old response and strategy of the university to face all those changes will not succeed in the emerging environment [47]. Moreover, if university only has a goal to prepare their students to be ready to work according to industry need, they will be left behind with what industry achieve when they graduate. University has to change their goal not only preparing their students; they have to train the students so that they can adapt and learning new thing in their future workplace. The university also needs to develop themselves as part of the innovative center altogether with industry [48].

3.5. Social diversity

Transportation also made people move from another city to other cities or even from another country to other countries easily [5]. As an effect, it is easy to find various students in one class; there are local students, students from another city, or even international students [49], [50]. Diverse backgrounds of the students, different culture, belief, religion, social class, influence how people interact and communicate with each other, and performance [51]. All these heterogenetic situations are creating a lot of new conditions need to be solved. For instance, Western and Asian countries have a different way of the interaction between the teacher and students. In western countries, students and teachers interact actively in a dynamic way than in Asian countries. Different religion also forces the university to provide some spaces for the students' activity such as students' association, praying room, or even menu in the school's restaurant. Language is essential, but there also need social adjustment among the academia so that they can respect, study, and work together, and achieve the university goal. All of these social diversities and complexities will foster the university fail to evolve and grow if they can't manage it as well as it will foster the creation of great college if they can deal with it [52].

3.6. Internationalization of higher education

Internationalization indicates a process of integrating an international, intercultural and global dimension in which the world more interconnected and interdependent because of increasing flows of knowledge, people, culture, ideas, and trade [5], [6]. The internationalization of higher education institutions has been an issue of increasing debate and interest among colleges and universities [53]. In 2009 almost 3.7 million students were studying outside their home country [54], and may rise to 7.2 million by 2025 [55]. There is also transnational education where a university have a branch in other countries so that the local students can study there and no need to go to overseas [56]. Globalization has created an environment in which higher education is transformed into multinational institutions or enterprises that provide service for all people around the world without any border [57]. University must be ready to compete and make a collaboration with other universities around the world. One of the most important things in this global competition is how the university could make the world know and recognize their institutions, faculty members, program, and output. For instance, students who graduate from the university in Asian country are able to work in the European, American, or Middle East countries. It needs an international standardization among those universities, professional association, and countries.

Conclude all the new challenges of the university as the most influential institutions of the society in this global interconnected community such as industrial revolution 4.0, students' learning style and future career, social diversity, information and technology, and internationalization, fostering university leader to give more attention to technology and media information, creativity and critical thinking skills, national and international mutual collaboration, and social adjustment. Academic leader must be more knowledgeable than ever about the effects of internal and external new situations and develops strategies to achieve the university goals for knowledge exploration, new innovative technology generation, social development, and students' career enhancement [5], [53].

3.7. University vision and mission

An academic leader needs to understand the university's goal as a guidance, dream, and motivation to inspire and drive all of the academic members to achieve it. There are various visions and missions of well-known universities in the world, such as University of Oxford (United Kingdom, Europe), California Institute Technology (United States), University of Toronto (Canada), University of Melbourne (Australia), and National University of Singapore (Singapore, Asia) as can be seen in Table 1.

From the top first university of each region, Europe, United States, Canada, Australia, and Asia, there are same keywords of their vision such as world-class, internationally, and global leading represents their idea of research, teaching and learning coverage's areas. There are also some keywords of their mission such as contributions on economic growth, quality of education, policymaking, quality of education and experience, singularly collegial, interdisciplinary atmosphere, freedom of speech, services to the University community, partnership, and professional development of staff.

It can be concluded that university's vision should coverage a global community, having an international vision. It might be achieved through recruit and develop professional faculty members and staffs and collegial leadership to provide a good quality of education for students and contribute to the local, national, and international community with partnership and collaboration with all the stakeholders.

Table 1. Top universities vision and mission

University	Vision and Mission
University of Oxford	Vision “The University of Oxford aims to lead the world in research and education/To be recognized as delivering world-class facilities that support world-class research, teaching and learning.”
	Mission “To develop our capacity to generate and share knowledge in the UK, Europe, and globally, ensuring significant contributions to public policy-making and economic growth. To work effectively with other institutions and organizations, where such partnerships can lead to outstanding research and teaching. To enhance structures for collaboration across departments, colleges, and the University. To fulfil the aims that no potential student should be deterred from applying to Oxford by financial or other barriers and that no student’s success should be hampered by financial difficulties. To ensure, through a commitment to the personal education of each student, a quality of education and experience which enables students to apply the values, skills, and intellectual discipline they have acquired in their future lives and careers, and which generates a lifelong sense of connection with Oxford. To contribute effectively to the cultural, social, and economic life of the city of Oxford and the Oxford shire region. To recruit and retain the best academic staff and ensure that under-represented groups have equality of opportunity in recruitment, personal development, and career progression in all areas of employment in the University.”
California Institute of Technology	“The mission of the California Institute of Technology is to expand human knowledge and benefit society through research integrated with education. We investigate the most challenging, fundamental problems in science and technology in a singularly collegial, interdisciplinary atmosphere while educating outstanding students to become creative members of society.”
University of Toronto	Vision “The University of Toronto is committed to being an internationally significant research university, with undergraduate, graduate and professional programs of excellent quality.”
	Mission “The University of Toronto is dedicated to fostering an academic community in which the learning and scholarship of every member may flourish, with vigilant protection for individual human rights, and a resolute commitment to the principles of equal opportunity, equity, and justice. Within the unique university context, the most crucial of all human rights are the rights of freedom of speech, academic freedom, and freedom of research. And we affirm that these rights are meaningless unless they entail the right to raise deeply disturbing questions and provocative challenges to the cherished beliefs of society at large and of the university itself. It is this human right to radical, critical teaching and research with which the University has a duty above all to be concerned; for there is no one else, no other institution and no other office, in our modern liberal democracy, which is the custodian of this most precious and vulnerable right of the liberated human spirit.”
University of Melbourne	“The University of Melbourne aims to be one of the finest universities in the world. Growing Esteem is the University’s strategy for achieving high regard and for making a distinctive contribution to society.”
National University of Singapore	Vision “A premier partner in securing the safest environment possible for Singapore’s leading global university”
	Mission “To provide and maintain, a safe and secure environment for work and study, through effective partnership with stakeholders. To provide responsive, timely and quality value-added services to the University community. To safeguard and promote the interests of National University of Singapore through close and dedicated partnership with the University’s stakeholders. To foster the personal and professional development of staff to improve the professional operations of our department continually”

Data sources: the world university rankings [58]

3.8. University’s uniqueness culture and traits

Campus as an institution who which provides teaching to deliver knowledge and new innovative creation to support community and economic development, has unique characteristics compare than other organizations [5], [59]. There are many experts and professionals from various backgrounds in their respective fields gathering in one place [27], creating there is no single theoretical approach that fits to manage university with its unique nature. Furthermore, the academia is composed of faculty members, staffs, and students who must interact with daily activities. Additionally, there are other stakeholders who involved in the campus activities such as government, industry, parents of students and other communities [60]. These constituencies, both internal and external, have its own notions of what an effective university is [61]. Students, for example, often view college as an instrument to find a job or generate higher income in the

future, parents wish university could prepare their children to have a good life after graduation, faculty members expect university provides them with the necessary resources to do their work, administrators evaluate the degree of well-being they might be achieve, and community members want to know how the campus enhance their economic and quality of life [62], [63].

The campus also has different organizational cultures from businesses organization, armed forces, and associations because many faculty members have its own sense of hierarchy. They don't think themselves as followers because they have intellectual freedom that fostering a great sense of liberation from the possible instruction from their colleagues. Organizational cultures of higher education also need a different type of leadership must demonstrate [28]. Even within the same universities, being a leader of an engineering college and social sciences college requires very different strategies [29].

It can be concluded that the major traits of current universities are the presence of international experts from various fields, the distributed organization cultures that accommodate freedom and collegiality, and extensive communication both internal and external institutions. All those university's unique environment and culture make it more interesting and challenging on how the university leaders manage the office to achieve its mission. They need skills and experiences that totally different from their predecessor in the past to be successful managing the 21st century challenge.

3.9. Academic leader

Leadership is an important issue and become one of the most discussed topics in the social sciences because of its multiple paradigms, traits, and behaviors [59], [64]. There are some definition of academic leadership: i) Leadership is the process of affecting individuals and direct them toward a collective visionary goal [29]; ii) Academic leadership is the process of influencing a community of scholars, setting a direction, and achieving common goals through the empowerment of its members [65]; iii) Academic leadership is the a person capability to create a highly productive department or university [66]; and iv) Academic leadership is the notion of teamwork, collaboration, empowerment of others, the art of coalition and team building based on the integrity of core values and clarity of mission [5]. It can be concluded that academic leadership is the performance of influencing, building, and empowering a group of academicians to achieve their mission through teamwork, collaboration, and empowerment of others.

3.10. Character of academic leaders

Academic leaders are strategically promoting the success of all students and improving the quality of the institution based on university mission, environment, and future trends [67]. To attain this achievement, there are some competencies required of an academic leader. Gini and Green [68] proposed the ten virtues, deep honesty, moral courage, moral vision, compassion and care, fairness, intellectual excellence, creative thinking, aesthetic sensitivity, good timing, deep selflessness, as attributes of the great leader.

Kouzes and Posner [69] research for more than 20 years shows that there are five leadership practices: model the way, inspire a shared vision, challenge the process, enable others to act, encourage the heart. Model the way is that leaders know they need to become exemplars of their followers or people within the organization, they need to recognize and express their personal values. Inspire a shared vision is how the leader envisions the favored future, establishing an ideal image of the universities, and share it to get others behind actively involve making it come into reality. Challenge the process means that leaders look for various approaches to improve processes to get the work effectively and efficiently done and always learn from their mistakes as well as from their accomplishments. Enable others to act described as the leader ensure that people within his/her organization enhance their self-confidence and capacity to accomplish the team goal by giving respect to others, trusting people, and involving in the decision making. Encourage the hearts mean that leaders must bring hope, satisfaction, encouragement, and appreciation to team members.

Additionally, Wooldridge [70] mention some characteristics of leaders in Higher Education: interpretative leadership, confidence building, providing a challenge, developing a clear institutional narrative, and energizing. Interpretative leadership is the leader ability to explain to their staff in a very understandable way for a complex situation. Confidence building is the leader ability to offer encouragement to their colleague wherever possible. Providing challenges to staffs while giving adequate support to make it success. Developing a clear institutional narrative is a capability to acknowledge something that will need to be developed as the future image of universities unfolds. Energizing is leader ability to build up energy and resilience in its organizations to counter all the pressures and difficulties. Bryman [71], whose study identified six main elements of behavior associated with effectiveness in higher education: An effective leader is a character who is trustworthy, has an integrity, give support to his/her staff, and requires consultation of others, and protects their staff.

An academic leader should make improvements to have greater impact on the students' experience, the faculty's productivity, and the institutions' community engagement. Based some references above, it can be concluded important characteristic of an academic leader are envisioning the institutional future,

integrating social resources with reciprocity, modeling the way with morality and integrity, executing university missions with professions and humanity, empowering team members with full support, and inspiring students with humanity.

4. DISCUSSION

4.1. The supportive characteristics of academic leaders

Based on comprehensive analysis of current global challenge, university mission, and unique culture, there are some characters needed to respond the challenge arises in Table 2. With reference to an analysis of the current world situation, the mission of the university, and its unique characteristics, the character of the academic leader should be able to imagine the future of the organization, integrate social resources with reciprocity, and lead the way with morality and integrity. It can conclude that modeling and doing. Carry out the mission of the university with professionalism and humanity, provide full support to her members of the team, and humanize the students, as shown in Figure 3.

Table 2. Influential factors, need of characteristic, and characteristic

Influential factors	Need of characteristic	Characteristic
International recognition World class university World-class research World class teaching Advance technology, internet of thing, information technology Teaching, research, and development, how they can contribute to economic and social development Innovative generation Collaboration	Someone who can project future events and prepare the stages needed to deal with them	Inspiring a shared vision
Internal (students, faculty members, and staffs) and external (industry, government, community) stakeholders Faculty members, staffs, students hope Parents, government, industry, and society hope	Someone who can optimize all available resources to achieve university missions	Integrating social resources with reciprocity
Professional faculty members and staff Academic freedom Unique culture International community Social adjustment Facilitator than the only main source Collegial leadership Professionals (experts)	Someone who can be a role model of achievement, morals, and integrity Someone who can make the policy/decision appropriately for the sake of achieving the goal	Modelling the way Executing university goals with professions and humanities
Facilitating soft skills (creative thinking, problem-solving, communication, and collaboration) Prepare the students to adapt and learn new thing in the future	Someone who can optimize the existing professional resources Someone who able to encourage students to maximize their future with tolerance	Empowering team members with full supports Inspiring members with humanity

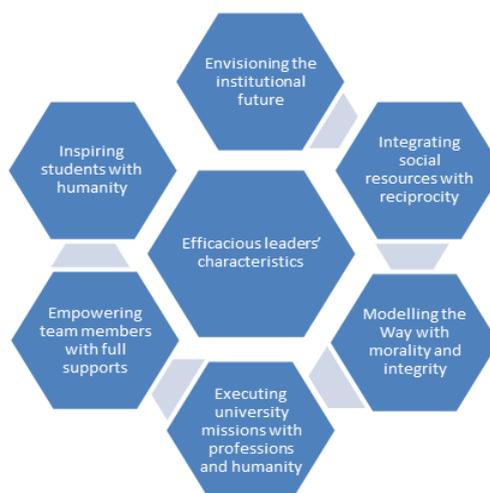


Figure 3. Supportive traits of efficacious leaders in university

4.2. Envisioning the institutional future

Analysis of current global trend, university mission, and its traits show that university members need to give greater attention to international recognition, collaboration, and world-class services of teaching and research. Academic leaders must be able to understand and adjust the internal situation and external global environment to keep the core values of their university vision [5]. They also need to have a clear vision about the future and imagine what is possible to turn those visions into reality [29]. A successful academic leader is creating and fostering partnerships based on common values among its members [72].

4.3. Integrating social resources with reciprocity

To achieve the university's mission of science, human resources, social and economic development, leaders should be able to optimize all its potential and resources. They might optimize all potentials and resources through developing a mutual collaboration with both internal and external stakeholders. There are some types of collaboration such as triple helix collaboration model, a collaboration among universities, industries, and governments aimed at generating new innovations or new industrial areas [17]. The triple helix model of cooperation enables the reciprocal benefits from industries to universities such as research funding, equipment, and marketing, and from the government like regulation and patent recognition [73]. Another type of collaboration is teaching factory, which is the university strives to integrate a product or service production into student's learning process and sell it to society and industry [74].

4.4. Modeling the way with morality and integrity

One of an academic leader role is to inspire people of the organization within their responsibility to get greater achievement as much as possible [68]. The academic leader is expected to provide inspiration, especially for people who become their responsibility such as students, faculty members, and administrative staffs [75]. A person can inspire other people according to their expectations of their life in the future. For example, a student hoping to get useful knowledge for a successful career in the future and expect their professor to facilitate them to obtain it. In this case, an academic leader must have the ability to effectively facilitate students get knowledge and skills that fit their needs along with the empirical experience of life in the industry or real work. As for the faculty member, they hope to become a professor or researcher who is expert and known in their field, particularly marked with a number of scientific papers produced. Therefore, academic leaders need to prepare themselves to be able to reach the professor as soon as possible and maintain the productivity of scientific papers produced for a leader.

4.5. Executing university missions with professions and humanity

Leadership is a process involving a groups of people who work together in the same organization [29]. Analysis of the university traits shows that there are faculty members with various character, background, and expertise. How to manage all this heterogenic society and lead it to achieve the institution vision? In general, an individual will respect someone who more superior than himself [76]. Therefore, an academic leader needs to build his academic credibility and career first (modeling the way). Subsequently, modeling the way to be placed in the second order after developing the university's vision. Academic credibility and career include teaching, research, community service, and building cooperation with various stakeholders to provide more benefits to campus. A leader can direct the various experts who are in the group by way of empowering, strengthening feelings, but also to be firm and committed to making decisions [77].

4.6. Empowering team members with full supports

There are a lot of experts and professional in their respective fields within the university [27]. Consequently, an academic leader has to create an atmosphere of trust to do mutual collaboration so that every of the faculty members, staffs, and students are feeling capable, powerful, and useful in university goals achievement [29]. According to Blanchard leadership model, individual with high competence need more supporting and delegating with full supports and responsibilities from their leader than coaching or directing as an approach to lead them [78]. It also supported by Zulkifly *et al.* [79] that collegial or distributed leadership is more applicable inside of academic culture.

4.7. Inspiring members with humanity

Inspiring members with humanity mean leaders realize that in order to accomplish university mission they need to enhance their subordinates by giving respect to others, trusting people, and involving in the decision making [29]. All the university members need to learn new approaches and strategies, creating innovation and facing world challenge. Sometimes they will get success or fail, but leaders know that innovation generation involves mistakes and failures, and it is accepted as part of learning opportunities. Successful leaders understand that people produce greater achievement through relentless innovation. They have to help others academia and students come to grips with the innovative idea, see the benefits in it and

embrace a culture innovation [28]. Faculty members, staffs, and students hard work should be recognized to give hope, satisfaction, encouragement, and appreciation to them [29].

5. CONCLUSION

Academic leader is different with any other organizations because of its unique nature of people, culture, function, and interaction. Based on the comprehensive analysis of global current condition, university missions and its unique culture, this article finally concluded that an academic leaders' characters consist of envisioning the institutional future, integrating social resources with reciprocity, modelling the way with morality and integrity, executing university missions with professions and humanity, empowering team members with full support, and inspiring students with humanity. Those characters could individually help faculty members to guide for future self-development, and contribute to achieve university mission on developing science, producing high-quality human resources, and contributing of the human civilization development. This conclusion retrospectively raised further suggestions for future study, how faculty members build these characters considering the unique and complex situation of interpersonal and external factors within university.

ACKNOWLEDGEMENTS

This publication resulted in part from research supported by the Faculty of Engineering, Universitas Negeri Yogyakarta number T/3.4/UN34.15/PT.01.02/2022.

REFERENCES

- [1] V. Bikse, I. Lusena-Ezera, B. Rivza, and T. Volkova, "The transformation of traditional universities into entrepreneurial universities to ensure sustainable higher education," *Journal of Teacher Education for Sustainability*, vol. 18, no. 2, pp. 75–88, Dec. 2016, doi: 10.1515/jtes-2016-0016.
- [2] H. E. Fitzgerald, K. Bruns, S. T. Sonka, A. Furco, and L. Swanson, "The centrality of engagement in higher education: Reflections and future directions," *Journal of Higher Education Outreach and Engagement*, vol. 20, no. 1, pp. 245–254, 2016.
- [3] T. L. Moore and K. Ward, "Institutionalizing faculty engagement through research, teaching, and service at research universities," *Michigan Journal of Community Service Learning Fall*, vol. 17, no. 1, pp. 44–58, 2010.
- [4] S. G. Dalmida *et al.*, "Volunteer service and service learning: Opportunities, partnerships, and united nations millennium development goals," *Journal of Nursing Scholarship*, vol. 48, no. 5, pp. 517–526, Sep. 2016, doi: 10.1111/jnu.12226.
- [5] J. E. L. R. M. Hendrickson J. T. Harris, and R. H. Dorman, *Academic leadership and governance of higher education: A guide for trustees, leaders, and aspiring leaders of two-and four-year institutions*, 60893rd ed. Stylus Publishing, 2013.
- [6] J. Knight, "Updated definition of internationalization," *International Higher Education*, no. 33, Mar. 2015, doi: 10.6017/ihe.2003.33.7391.
- [7] P. Hallinger and C. Chatpinyakoo, "A bibliometric review of research on higher education for sustainable development, 1998–2018," *Sustainability (Switzerland)*, vol. 11, no. 8, p. 2401, Apr. 2019, doi: 10.3390/su11082401.
- [8] L. S. Neuwirth, S. Jović, and B. R. Mukherji, "Reimagining higher education during and post-COVID-19: Challenges and opportunities," *Journal of Adult and Continuing Education*, vol. 27, no. 2, pp. 141–156, Nov. 2021, doi: 10.1177/1477971420947738.
- [9] J. S. Groff, "Technology-rich innovative learning environments technology-rich innovative learning environments," in *OECD Innovative Learning Environments project.*, 2018, no. June, pp. 1–30.
- [10] O. Caliskan, S. Akin, and C. Engin-Demir, "Democratic environment in higher education: The case of a Turkish public university," *International Journal of Educational Development*, vol. 72, p. 102129, Jan. 2020, doi: 10.1016/j.ijedudev.2019.102129.
- [11] M. Baygin, H. Yetis, M. Karakose, and E. Akin, "An effect analysis of industry 4.0 to higher education," in *2016 15th International Conference on Information Technology Based Higher Education and Training, ITHET 2016*, Sep. 2016, pp. 1–4, doi: 10.1109/ITHET.2016.7760744.
- [12] H. Etzkowitz, M. Ranga, and J. Dzisah, "Whither the university? The Novum Trivium and the transition from industrial to knowledge society," *Social Science Information*, vol. 51, no. 2, pp. 143–164, Jun. 2012, doi: 10.1177/0539018412437099.
- [13] M. Belitski, A. Aginskaja, and R. Marozau, "Commercializing university research in transition economies: Technology transfer offices or direct industrial funding?," *Research Policy*, vol. 48, no. 3, pp. 601–615, Apr. 2019, doi: 10.1016/j.respol.2018.10.011.
- [14] A. Sengupta and A. S. Ray, "University research and knowledge transfer: A dynamic view of ambidexterity in british universities," *Research Policy*, vol. 46, no. 5, pp. 881–897, Jun. 2017, doi: 10.1016/j.respol.2017.03.008.
- [15] E. Kim, S. Benson, and T. A. Alhaddab, "A career in academia? Determinants of academic career aspirations among PhD students in one research university in the US," *Asia Pacific Education Review*, vol. 19, no. 2, pp. 273–283, Jun. 2018, doi: 10.1007/s12564-018-9537-6.
- [16] F. C. Tseng, M. H. Huang, and D. Z. Chen, "Factors of university-industry collaboration affecting university innovation performance," *Journal of Technology Transfer*, vol. 45, no. 2, pp. 560–577, Apr. 2020, doi: 10.1007/s10961-018-9656-6.
- [17] M. Ranga and H. Etzkowitz, "Triple helix systems: An analytical framework for innovation policy and practice in the knowledge society," *Industry and Higher Education*, vol. 27, no. 4, pp. 237–262, Aug. 2013, doi: 10.5367/ihe.2013.0165.
- [18] R. Viale and H. Etzkowitz, *The capitalization of knowledge: A triple helix of university-industry-government*. UK: Edward Elgar Publishing, 2010.
- [19] M. Wu and I. Siswanto, "Collaboration between universities, government, and industries: Applying the triple helix relationship model to Indonesian education improvement," *International Journal of Manufacturing Technology and Management*, vol. 34, no. 6, pp. 523–539, 2020, doi: 10.1504/IJMTM.2020.110002.

- [20] H. Coates, I. R. Dobson, L. Goedegebuure, and L. Meek, "Across the great divide: What do Australian academics think of university leadership? Advice from the CAP survey," *Journal of Higher Education Policy and Management*, vol. 32, no. 4, pp. 379–387, Jul. 2010, doi: 10.1080/1360080X.2010.491111.
- [21] M. Ekman, M. Lindgren, and J. Packendorff, "Universities need leadership, academics need management: discursive tensions and voids in the deregulation of Swedish higher education legislation," *Higher Education*, vol. 75, no. 2, pp. 299–321, Feb. 2018, doi: 10.1007/s10734-017-0140-2.
- [22] R. C. Nicdao, "Transformational leadership and its beneficial," *Management Research and Practice*, vol. 11, no. 4, pp. 53–62, 2018.
- [23] C. C. Colenda and R. Azziz, "Presidential and academic health center leadership within the modern university: Opportunities and challenges," in *The Transformation of Academic Health Centers: Meeting the Challenges of Healthcare's Changing Landscape*, Elsevier, 2015, pp. 13–21.
- [24] M. Anam Siddique, H. Danial Aslam Senior Lecturer, M. Khan Senior Lecturer, M. Urooj Fatima, and J. Victor, "Impact of academic leadership on faculty's motivation, and organizational effectiveness in higher education system," *International Journal of Business and Social Science*, vol. 2, no. 8, pp. 184–191, 2011, [Online]. Available: <http://eric.ed.gov/?id=ED183043>.
- [25] N. H. M. Amin and M. M. Yusof, "Head of program's leadership style and academician's perception towards higher learning Institution students' academic achievement," *Procedia - Social and Behavioral Sciences*, vol. 65, pp. 821–826, Dec. 2012, doi: 10.1016/j.sbspro.2012.11.205.
- [26] A. L. Al-Khasawneh and S. M. Futa, "The impact of leadership styles used by the academic staff in the Jordanian Public Universities on modifying students' behavior: A field study in the Northern Region of Jordan," *International Journal of Business and Management*, vol. 8, no. 1, Dec. 2012, doi: 10.5539/ijbm.v8n1p1.
- [27] M. Wu, H. Lin, Y. K. Lin, and W. Chang, "A study on the tacit knowledge of university faculty: A case study in Taiwan," *Asia Pacific Education Review*, vol. 14, no. 2, pp. 171–188, Jun. 2013, doi: 10.1007/s12564-013-9241-5.
- [28] J. L. Buller, *Positive academic leadership: How to stop putting out fires and start making a difference*. John Wiley & Sons, 2013.
- [29] W. H. Gmelch and J. L. Buller, *Building academic leadership capacity: A guide to best practices*. John Wiley & Sons, 2015.
- [30] M. M. Alayoubi, M. J. Al Shobaki, and S. S. Abu-Naser, "Strategic leadership practices and their relationship to improving the quality of educational service in Palestinian Universities," *International Journal of Business Marketing and Management*, vol. 5, no. 3, pp. 2456–4559, 2020, [Online]. Available: <http://www.ijbmm.com>.
- [31] M. Attaran, J. Stark, and D. Stotler, "Opportunities and challenges for big data analytics in US higher education: A conceptual model for implementation," *Industry and Higher Education*, vol. 32, no. 3, pp. 169–182, Jun. 2018, doi: 10.1177/0950422218770937.
- [32] B. Daniel, "Big Data and analytics in higher education: Opportunities and challenges," *British Journal of Educational Technology*, vol. 46, no. 5, pp. 904–920, Sep. 2015, doi: 10.1111/bjet.12230.
- [33] C. L. Scott, "The futures of learning 3: what kind of pedagogies for the 21st century?," 2015.
- [34] R. D. Piacentini, M. Vega, and A. S. Mujumdar, "Beyond industrial revolution 4.0: How industrial revolution 5.0 is related to drying technology," *Drying Technology*, vol. 39, no. 4, pp. 437–438, Feb. 2021, doi: 10.1080/07373937.2021.1875185.
- [35] M. Abramovici, J. C. Göbel, and M. Neiges, "Smart engineering as enabler for the 4th industrial revolution," in *Integrated Systems: Innovations and Applications*, Cham: Springer International Publishing, 2015, pp. 163–170.
- [36] N. W. Gleason, *Higher education in the era of the fourth industrial revolution*. Springer Nature, 2018.
- [37] J. M. C. de Mello, A.-M. Maculan, and T. B. Renault, "Brazilian Universities and their contribution to innovation and development," in *Universities in Transition*, New York, NY: Springer New York, 2011, pp. 53–76.
- [38] B. B. Bayuo, C. Chaminade, and B. Göransson, "Unpacking the role of universities in the emergence, development and impact of social innovations-A systematic review of the literature," *Technological Forecasting and Social Change*, vol. 155, p. 120030, Jun. 2020, doi: 10.1016/j.techfore.2020.120030.
- [39] M. A. Demircioglu and D. B. Audretsch, "Public sector innovation: the effect of universities," *Journal of Technology Transfer*, vol. 44, no. 2, pp. 596–614, Apr. 2019, doi: 10.1007/s10961-017-9636-2.
- [40] J. Anttila and K. Jussila, "Universities and smart cities: the challenges to high quality," *Total Quality Management and Business Excellence*, vol. 29, no. 9–10, pp. 1058–1073, Jul. 2018, doi: 10.1080/14783363.2018.1486552.
- [41] X. Yuan, D. Song, and R. He, "Re-examining 'learning by doing': implications from learning style migration," *Design Journal*, vol. 21, no. 3, pp. 1–18, May 2018, doi: 10.1080/14606925.2018.1444126.
- [42] C. S. Kramer, A. J. Lester, and K. C. Wilcox, "College, career, and civic readiness: Building school communities that prepare youth to thrive as 21st century citizens," *Theory and Research in Social Education*, vol. 49, no. 4, pp. 602–629, Oct. 2021, doi: 10.1080/00933104.2021.1968984.
- [43] L. Nota, M. Cristina Ginevra, S. Santilli, and S. Soresi, "Contemporary career construction: The role of career adaptability," in *Psycho-Social Career Meta-Capacities: Dynamics of Contemporary Career Development*, 2014, pp. 247–263, doi: 10.1007/978-3-319-00645-1_13.
- [44] S. Sudha, "Career Attitudes Influence over Career Adaptability-A pilot study among MBA students in Chennai," 2020.
- [45] The Economist Intelligence Unit, "The Economist Intelligence Unit's Index of Democracy 2008," *The Economist*, p. 31, 2008.
- [46] J. Manyika, M. Chui, and J. Bughin, "Disruptive technologies: Advances that will transform life, business, and the global economy," *McKinsey Global* ..., 2013. http://www.mckinsey.com/insights/business_technology/disruptive_technologies%5Cnhttp://www.chrysalixevc.com/pdfs/mckins_ey_may2013.pdf.
- [47] S. H. Mian, B. Salah, W. Ameen, K. Moiduddin, and H. Alkhalefah, "Adapting universities for sustainability education in industry 4.0: Channel of challenges and opportunities," *Sustainability (Switzerland)*, vol. 12, no. 15, p. 6100, Jul. 2020, doi: 10.3390/su12156100.
- [48] S. Ramakrishna, A. Ngowi, H. De Jager, and B. O. Awuzie, "Emerging industrial revolution: Symbiosis of industry 4.0 and circular economy: The role of universities," *Science, Technology and Society*, vol. 25, no. 3, pp. 505–525, Nov. 2020, doi: 10.1177/0971721820912918.
- [49] T. T. Heng, "Understanding the heterogeneity of international students' experiences: A case study of Chinese international students in U.S. Universities," *Journal of Studies in International Education*, vol. 23, no. 5, pp. 607–623, Nov. 2019, doi: 10.1177/1028315319829880.
- [50] R. Z. Peng and W. P. Wu, "Measuring communication patterns and intercultural transformation of international students in cross-cultural adaptation," *International Journal of Intercultural Relations*, vol. 70, pp. 78–88, May 2019, doi: 10.1016/j.ijintrel.2019.03.004.
- [51] A.-S. Kim, S. Choi, and S. Park, "Heterogeneity in first-generation college students influencing academic success and adjustment to higher education," *The Social Science Journal*, vol. 57, no. 3, pp. 288–304, Jul. 2020, doi: 10.1016/j.soscij.2018.12.002.

- [52] W. Scott and G. Davis, *Organizations and organizations*. Routledge, 2007.
- [53] R. Middlehurst, "Changing internal governance: Are leadership roles and management structures in United Kingdom universities fit for the future?," *Higher Education Quarterly*, vol. 67, no. 3, pp. 275–294, Jul. 2013, doi: 10.1111/hequ.12018.
- [54] OECD, *Manual de Frascati 2015: Guidelines for collecting and reporting data on research and experimental development, The measurement of scientific, technological and innovation activities*. OECD, 2015.
- [55] A. Bohm, T. Davis, D. Meares, and D. Pearce, "Global student mobility 2025: Forecasts of the global demand for higher education," 2002.
- [56] J. Knight, "Transnational education remodeled: Toward a common TNE framework and definitions," *Journal of Studies in International Education*, vol. 20, no. 1, pp. 34–47, Feb. 2016, doi: 10.1177/1028315315602927.
- [57] J. E. Lane and K. Kinsler, "Reconsidering privatization in cross-border engagements: The sometimes public nature of private activity," *Higher Education Policy*, vol. 24, no. 2, pp. 255–273, Jun. 2011, doi: 10.1057/hep.2011.2.
- [58] Times Higher Education, "World University Rankings 2022," 2022. <https://www.timeshighereducation.com/world-university-rankings/2022/world-ranking>.
- [59] J. Lumby, "What do we know about leadership in higher education?," in *Leadership Foundation for Higher Education*, 2012.
- [60] Z. A. Smith and M. Wolverson, "Higher education leadership competencies: Quantitatively refining a qualitative model," *Journal of Leadership and Organizational Studies*, vol. 17, no. 1, pp. 61–70, Feb. 2010, doi: 10.1177/1548051809348018.
- [61] R. D. Herman and D. O. Renz, "Doing things right: Effectiveness in local nonprofit organizations, a panel study," *Public Administration Review*, vol. 64, no. 6, pp. 694–704, Nov. 2004, doi: 10.1111/j.1540-6210.2004.00416.x.
- [62] J. L. Bess and J. R. Dee, *Understanding college and university organization: Theories for effective policy and practice*. Stylus Publishing, 2008.
- [63] J. L. Bess and J. R. Dee, *Bridging the divide between faculty and administration: A guide to understanding conflict in the academy*. Routledge, 2014.
- [64] D. S. Derue, J. D. Nahrgang, N. Wellman, and S. E. Humphrey, "Trait and behavioral theories of leadership: An integration and meta-analytic test of their relative validity," *Personnel Psychology*, vol. 64, no. 1, pp. 7–52, Mar. 2011, doi: 10.1111/j.1744-6570.2010.01201.x.
- [65] M. W. and W. H. Gmelch, "College deans: Leading from within," in *American Council on Education/Oryx Press Series on Higher Education*, 2002.
- [66] E. Hebert, "Faculty morale: A perspective for academic leaders," *Kinesiology Review*, vol. 8, no. 4, pp. 305–311, Nov. 2019, doi: 10.1123/kr.2019-0040.
- [67] D. E. McNair, C. A. Duree, and L. Ebbers, "If i knew then what i know now: Using the leadership competencies developed by the american association of community colleges to prepare community college presidents," *Community College Review*, vol. 39, no. 1, pp. 3–25, Jan. 2011, doi: 10.1177/0091552110394831.
- [68] A. Gini and R. M. Green, *Ten virtues of outstanding leaders: Leadership and character*. John Wiley & Sons, Inc., 2013.
- [69] J. Kouzes and B. Posner, "The leadership challenge: how to make extraordinary things happen in organizations," in *Choice Reviews Online*, vol. 50, no. 05, 2013, pp. 50–2759.
- [70] E. Wooldridge, "Leadership in higher education: some lessons from other sectors," *International Journal of Leadership in Public Services*, vol. 7, no. 3, pp. 245–250, Aug. 2011, doi: 10.1108/17479881111187439.
- [71] A. Bryman, *Leadership and organizations (RLE: Organizations)*. Routledge, 2013.
- [72] E. K. and R. Başaran, "Academic leadership," in *Vocational identity and career construction in education*, 2019, pp. 238–257.
- [73] A. Hernández-Trasobares and J. L. Murillo-Luna, "The effect of triple helix cooperation on business innovation: The case of Spain," *Technological Forecasting and Social Change*, vol. 161, p. 120296, Dec. 2020, doi: 10.1016/j.techfore.2020.120296.
- [74] I. Siswanto and H. Raharjo, "Technology and innovation capitalization: A comparative study of Massachusetts institute of technology and University of Saskatchewan," *Journal of Physics: Conference Series*, vol. 1273, no. 1, p. 12006, Nov. 2019, doi: 10.1088/1742-6596/1273/1/012006.
- [75] P. U. Ibiyeomie, "Leadership styles and church growth," *Academic Journal Accounting and Business Management*, vol. 2, no. 4, pp. 12–20, 2021.
- [76] M. K. Mickson and A. Anlesinya, "Enhancing job satisfaction among local government servants in Ghana," *International Journal of Public Leadership*, vol. 16, no. 1, pp. 1–16, Aug. 2019, doi: 10.1108/ijpl-03-2019-0007.
- [77] E. Helland, M. Christensen, and S. T. Innstrand, "The relationship between empowering leadership, work characteristics, and work engagement among academics: A sem mediation analysis," *Scandinavian Journal of Work and Organizational Psychology*, vol. 5, no. 1, Oct. 2020, doi: 10.16993/SJWOP.84.
- [78] S. A. Raza and A. Sikandar, "Impact of leadership style of teacher on the performance of students: An application of Hersey and Blanchard Situational Model," *Bulletin of Education and Research*, vol. 40, no. 3, pp. 73–94, 2018.
- [79] N. A. Zulkifly, I. A. Ismail, and S. Asimiran, "Collegial and distributed leadership: two sides of the same coin?," *International Journal of Leadership in Education*, pp. 1–14, Aug. 2020, doi: 10.1080/13603124.2020.1804623.

BIOGRAPHIES OF AUTHORS



Ibnu Siswanto    is an Assistant Professor at Automotive Engineering Education Department of Yogyakarta State University, Indonesia. He received his Ph.D. at Graduate school of Technological and Vocational Education, National Yunlin University of Science and Technology, Taiwan. His main area of interest is the study of vocational education curriculum, employability skills, and collaboration between university and industry. He has published papers in an SSCI, EI, and Scopus indexed journal and proceeding. He can be contacted at email: ibnusiswanto@uny.ac.id.



Mingchang Wu    received his Ph.D. from Purdue University. He is currently a full professor in College of Humanities and Applied Sciences of National Yunlin University of Science and Technology, Taiwan. He is dedicated to academic research in the field of Vocational education development, Reasoning Skills, and Collaborative projects in educational settings. He has presented papers at several conferences around the world and published in international journal including in SSCI, Scopus, and EI Journals. He can be contacted at email: wumc@yuntech.edu.tw.



Hongbo Ma    is a Lecturer at Business Education Department of Zhejiang Industry Polytechnic College, China. He received his Ph.D. at Graduate school of Technological and Vocational Education, National Yunlin University of Science and Technology, and M.D. at Graduate school of Management, Zhejiang University. His main area of interest is the study of statistics, logistics and related vocational education. He has published papers in SCI, CSSCI, and Scopus indexed journal and proceeding. He can be contacted at email: zjumahongbo@outlook.com.



Zainal Arifin    is an associated professor he received his Ph.D. at Graduated school of Indonesia Education University (UPI) Bandung. He is a Lecturer in Magister the Study Program of Educational Management, and Lecturer in Automotive Engineering Education Department, Faculty of Engineering at the Yogyakarta State University (UNY), Kampus FT UNY Karangmalang Depok Sleman Yogyakarta 55281, Indonesia. The field of research carried out in the fields of management of Vocational Education and TVET, has attended short course quality assurance in education at Nanyang Polytechnic Singapore, Vehicle Inspection Management at Korea Transport Safety Authority Korea. His main area of interest is the Automotive Engineering Education Management, Internal combustion engine-Diesel engine Vehicle emission control, Alternative fuel, Higher education management, and Transport management. He has published papers in Scopus indexed journal and proceeding. Hp. 082134535197. He can be contacted at email: zainal_arifin@uny.ac.id.



Moch Solikin    is an Assistant Professor at Automotive Engineering Education Department of Yogyakarta State University, Indonesia. He received his Master at Universitas Gadjah Mada, Indonesia. His main area of interest is the study of electrical, occupational health and safety, and collaboration between university and industry. He has published papers in Scopus indexed journal and proceeding. He can be contacted at email: moch_solikin@uny.ac.id.



Agus Widianto    is a lecturer at the Department of Automotive Engineering Education, Yogyakarta State University, Indonesia. He received his doctorate at the Department of Mechanical Engineering, University of Indonesia, Indonesia. His research interest is welding technology, materials science, neural network, and automotive technology. He has published several papers in journals and proceedings indexing by Scopus. He can be contacted at email: aguswidianto@uny.ac.id.