The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10695901

THE OPTIMIZATION OF HUMAN RESOURCES THROUGH VOCATIONAL SCHOOL IN FACING THE DEMOGRAPHIC BONUS

AGUS WIYONO

Department of Civil Engineering, Faculty of Engineering, State University of Surabaya, Indonesia.
Email: aguswiyono@unesa.ac.id

NUR LUTHFIATUS SOLIKAH

Department of Sport Science, Faculty of Sport and Health Science, Surabaya State University, Indonesia.

DWI SEPTI PERMATASARI

Department of Visual Communication Design, Faculty of Literature, State University of Malang.

Abstract

Indonesia will face an era of demographic bonus in the next few years, to be precise from 2030 to 2040. The demographic bonus in question is a period where the population of productive age (15-64 years) is greater than the non-productive age population (65 years and above) with a proportion of more than 60% of the total population of Indonesia. This case happens because of increasing welfare and public education. In welcoming this era, the Government must prepare with careful planning. The government is currently working on various programs to realize the Golden Indonesia Vision 2045. Demographic bonus productive human resources will not be productive if there are no jobs that match the skills and fields they master. The government must prepare various job opportunities and open investment taps both from within the country and abroad. The demographic bonus is a strategic opportunity for Indonesia to accelerate development with the support of abundant human resources (HR) from the productive age. Moreover, in 2030 there is a big agenda for sustainable development (Sustainable Development Goals). In line with this, the government has also launched the Golden Indonesia Vision 2045 with the hope of creating a quality productive generation. The states role is to intervene, creating jobs through investment. So investment, whether using domestic or foreign funds, including inviting foreign capital to enter Indonesia, is actually to create jobs for the productive generation.

Keywords: Demographic Bonus, Vocational School, Sustainable Development Goals, Unemployment.

INTRODUCTION

Comparison of the Number of High School and Vocational School

In general, there are three types of education in Indonesia the academic education, vocational education and professional education. There are similarities in academic, vocational and professional education from the basic level, starting from early childhood education programs, Kindergarten, Elementary School and Middle School. The differences between the two range from high school to college is academic education starts at high school level namely SMA/SMU/MA, then higher education levels from Bachelor's, Master's, to Doctoral degrees. Vocational education starts at high school level namely SMK/MAK, and the higher education level are from D1, D2, D3, D4, Applied Masters and Applied Doctorate. Professional education includes SP1 to SP2.

ISSN 1533-9211

DOI: 10.5281/zenodo.10695901

An important part of the education level is at the senior secondary school (SLTA) level, namely SMA and SMK. At this level there is a transition from children to teenagers to adults or the workforce (productive age) and the transition from school students to college or the world of work. Based on data from the Central Statistics Agency (BPS) in 2023, the number of students at the Senior High School (SMA) level in the country was 5.17 million people. This number increased by 1.44% compared to the previous period which was 5.09 million people. Meanwhile, the number of students at Vocational High School (SMK) level is 5.05 million people. The number decreased by 6.28% compared to 2021/2022 which was 5.39 million people. This data only comes from the Ministry of Education, Culture, Research and Technology (Kemendikbud Ristek). This data does not include the number of students studying at schools managed by the Ministry of Religion (Kemenag). Meanwhile, the number of students that studying under the Ministry of Religion will be 9.17 million in 2022/2023. This number has increased by 1.55% compared to 2021/2022 which was 9.03 million people. For more detailed data on the number of high school and vocational school students can be seen in Figure 1.

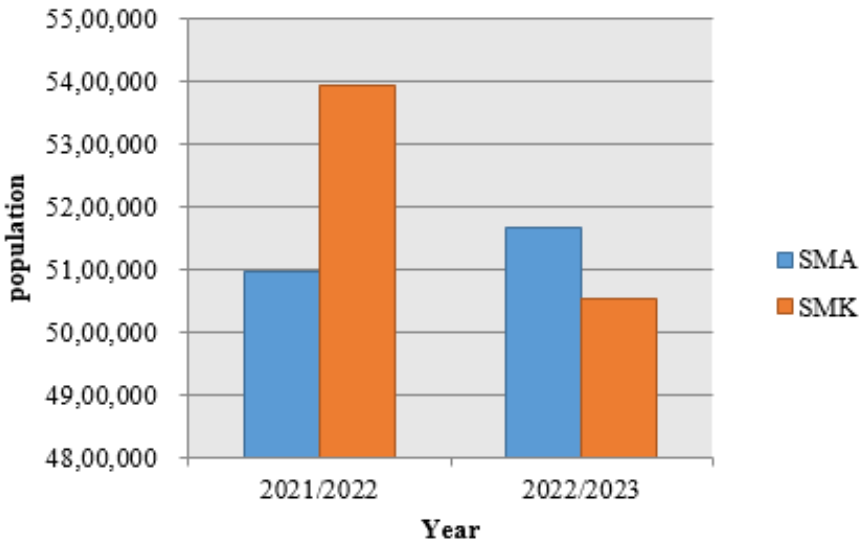

Figure 1: Comparison of the number of high school and vocational high school students

These data show that there is an increase in the number of high school students and a decrease in the number of vocational school students. Furthermore, based on data from BPS in 2023 regarding the number of schools, it was found that the number of High School and Vocational High School has increased. The number of High School has increased by 1.63% from 2022 to 2023. Meanwhile, the number of Vocational High School has also increased by 0.46% from 2022 to 2023. Details of the number of High School and Vocational High School can be seen in Figure 2.

ISSN 1533-9211

DOI: 10.5281/zenodo.10695901

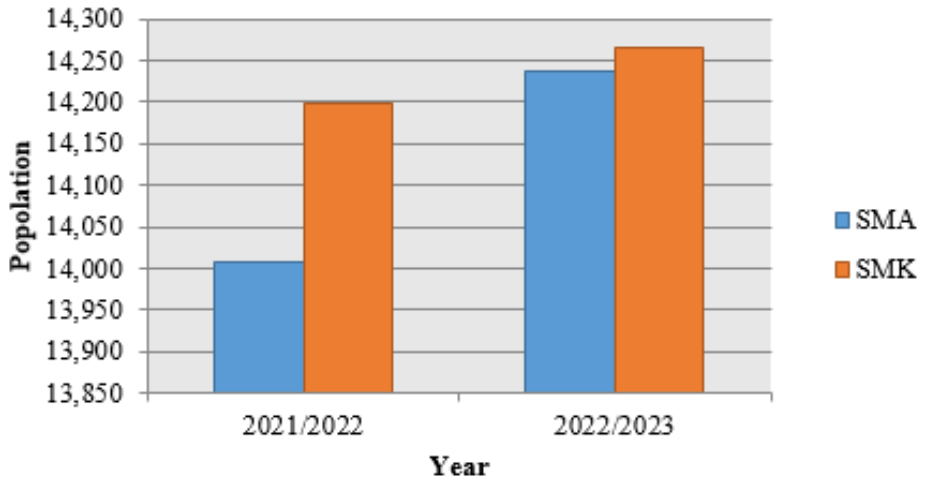

Figure 2: Comparison of the number of High School and Vocational High schools

Problems of vocational school graduates

Based on Figure 1 and Figure 2, information is obtained that there has been an increase in the number of students in high schools in accordance with the increase in the number of high schools. Meanwhile at Vocational Schools there has been a decline in the number of students, even though the number of Vocational Schools has increased. Vocational School is a secondary school level that produces graduates who can work in industry or the business world.

Vocational schools are an important part of improving the economy and community welfare in accordance with the mandate of laws and government regulations. Instruction from President of the Republic of Indonesia no. 9 of 2016 concerning Revitalization of Vocational High Schools in the Context of Improving the Quality and Competitiveness of Indonesian Human Resources.

Vocational Schools can produce graduates who become workers needed by the business/industrial world (DU/DI). In reality, the problem that occurs is that there is still high unemployment for vocational school graduates.

BPS data for 2023 explains that the highest open unemployment rate (TPT) is at the vocational and high school levels. Unemployment A comparison of the percentage of unemployed high school and vocational school graduates can be seen in Figure 3.

ISSN 1533-9211

DOI: 10.5281/zenodo.10695901

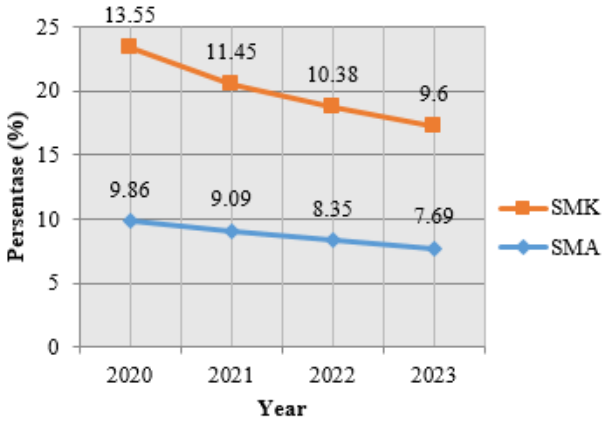

Figure 3: Comparison of the percentage of open unemployment rates high school and vocational school graduates

Based on Figure 3, information is obtained that the number of unemployed vocational school graduates is still higher than that of high school graduates. Although in 2023 the percentage will both decrease. Vocational school graduates should be immediately absorbed into the world of work, because the curriculum at Vocational Schools has been designed in accordance with existing skill competencies in industry according to the spectrum of the Directorate of Vocational High School Education.

Broadly speaking, there are three problems that occur in vocational schools. Firstly, there is a mismatch between the skill competencies possessed by vocational school students and those required by the business world or world of work. Both vocational schools opened skills competencies in accordance with existing trends, without paying attention to the potential of the area where the school was established. Third, there is a mismatch between vocational school graduates (skill competencies) and the needs of the business and industrial world

Solutions to the problems of vocational school graduates

The match between the competencies of vocational school graduates and the needs of the world of work is an issue that has not been resolved. Changes in skills or competency, technological improvements, global competition are several factors that need to be considered. It is important to synchronize skill competencies in vocational schools with the needs of the world of work. Collaboration between vocational schools and the world of work needs to be strengthened and always go hand in hand.

It is a common sight that people in rural areas or smaller areas will look for work in big cities which provide more job opportunities. This results in an imbalance in the economic levels in rural and urban areas. Many vocational school graduates migrate to the cities that look for works, while the skills competency of graduates in the regions is still below the standard of urban vocational school graduates, so their bargaining value to occupy the same position in the competition is still low. To reduce this problem, one way that can be done is to open skills competencies in vocational schools based on regional potential.

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10695901

The match between the competencies of vocational school graduates and the needs of the world of work is an issue that has not been resolved. Changes in skills or competency, technological improvements, global competition are several factors that need to be considered. It is important to synchronize skill competencies in vocational schools with the needs of the world of work. Collaboration between vocational schools and the world of work needs to be strengthened and always go hand in hand.

It is a common sight that people in rural areas or smaller areas will look for work in big cities which provide more job opportunities. This results in an imbalance in the economic levels in rural and urban areas. Many vocational school graduates migrate to the cities and looking for works, while the skills competency of graduates in the regions is still below the standard of urban vocational school graduates, so their bargaining value to occupy the same position in the competition is still low. To reduce this problem, one way that can be done is to open skills competencies in vocational schools based on regional potential.

The establishment of vocational schools with skill competencies needs to pay attention to suitability with regional potential, not just existing trends. If you only follow the trend, vocational school graduates from the regions will be unable to compete with vocational schools in urban areas which are actually favorite and advanced schools. The establishment of a vocational school must look at the potential of each region where the school is established. This is important so that graduates do not have to look for jobs in urban areas, because these areas already have potential and job opportunities that are in accordance with the skills competencies available in vocational schools. By opening a skills competency program based on regional potential, it will be possible to increase the competitiveness of the potential that has been exploited and can increase people's income. What is even better is that vocational school graduates do not need to look for work but can open up job opportunities.

Vocational schools that suit regional potential are a solution to reducing urban sprawl. Vocational schools can produce graduates who suit the job opportunities that exist in the region, so that graduates can be easily absorbed into the world of work and can improve the economy in their respective regions. Graduates who have appropriate skill competencies can become potential workers in increasing the value of local products and regional excellence. So, in the end it can improve community welfare.

Apart from the importance of synchronizing the skills competency programs opened at Vocational Schools with regional potential, there is also the need to determine the location of Vocational Schools. The location of a vocational school is important because it greatly influences the sustainability of the vocational school. Don't let it happen that after the Vocational School is built there are no students because it competes with SMA, MAN and even Vocational Schools which are located nearby while in that location there is only 1 (one) or 2 (two) Junior High Schools (SLTP). The level of accessibility in determining the location of the school is also an important factor to pay attention to, lest people feel that it is difficult to go to school because the vocational school is located far away or requires quite heavy transportation and the lack of public transportation that passes the school.

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10695901

Based on the description above, it can be understood that, firstly, it is important for us to prepare human resources in facing the Demographic Bonus, one of which is by preparing human resources for vocational school graduates. Synchronization between Skills Competency Programs in Vocational High Schools (SMK) with Regional Potential as a solution to high vocational school unemployment and efforts to increase the competitiveness of products or types of business from existing regional potential and to be able to hold back the rate of urbanization of the productive age. Therefore, it is hoped that in every Provincial Education Office there will be a mapping of vocational schools based on regional potential. This is to capture the need for new vocational schools and provide solutions to increase the competitiveness of production or business based on regional potential while also limiting the flow of urbanization which continues to increase in welcoming the Demographic Bonus.

CONCLUSTION

Members of the Academic Senate and those present at the invitation whom I respect, the explanation above is a series of research that I have carried out and am currently carrying out in an effort to support the Instruction of the President Republic of Indonesia no. 9 of 2016 concerning Revitalization of Vocational High Schools in the Context of Improving the Quality and Competitiveness of Indonesian Human Resources. We need to take this Presidential Instruction deeper because universities are institutions that produce Human Resources which have the burden of carrying out the Government's mandate in facing challenges in the Demographic Bonus era.

References

1) Adisasmita, R, 2005. *Dasar-Dasar Ekonomi Wilayah*. Yogyakarta: Graha Ilmu.

2) Agafonova, et al, 2015. Professional and Personal Undergraduates' Development in the Educational Process from the Perspective of Competency-Based Approach. Procedia - Social and Behavioral Sciences, Volume 214, 5 December 2015, Pages 479-486.

3) Alexander Karpov, 2015. *The Acient Episteme of Activity as Ontological Horison of Modern Education Development*. Procedia – Social and Behavior Sciences 214 (2015) 448-456. Peer-review under responsibility of: Bulgarian Comparative Education Society (BCES), Sofia, Bulgaria & Research International Pusat (IRC) scientific cooperation, Rostov-on-Don, Rusia.

4) Anastasia N, 2014. *Education for Sustainable Development and Environmental* Ethics. Procedia - Social and Behavioral Sciences 214 (2015) 1077 – 1082

5) Andrea Ferraz Young, 2016. *Adaptation actions for integrated climate risk management into urban planning: a new framework from urban typologies to build resilience capacity in Santos* (SP), *City, Territory and Architecture* An interdisciplinary debate on project perspectives. 2016 3:12

6) Baiba, et al, 2015. *Evaluation of higher education study programmes and their development trends as drivers of regional growt.*Procedia Economics and Finance 26 (2015) 643 – 650.

7) Badan Pusat Statistik Propinsi Jawa Timur, 2023. Data Jumlah SMK tahun 2023, Data Jumlah lulusan SMK 2023, Data Pengangguran 2023, Badan Pusat Statistik Propinsi Jawa Timur.

8) Badan Pusat Statistik Indonesia, 2023. Data Jumlah SMK tahun 2023, Data Jumlah lulusan SMK 2023, Data Pengangguran 2023. Badan Pusat Statistik Indonesia.

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10695901

9) Barizi. 2009. Menjadi Guru Unggul. Yogyakarta: Ar-Ruzz Media.

10) Barth, et al. 2007. *Developing key competencies for Sustainable Development in Higher Education,* International Journal of sustainability in Higher Education, Vol. 8 No. 4, 2007. pp. 416-430

11) Beicht and Walden, 2016. *Transitions into vocational education and training by lower and intermediate secondary school leavers. Can male adolescents compensate for their school- based educational disadvantage in comparison with female adolescents?* Empirical Res Voc Ed Train (2016) 8:11. DOI 10.1186/s40461-016-0037-9

12) Bory-Adams, et al, 2005. *'The Human CapabilityApproach and Education for Sustainable Development: Making the abstract real'*, Fifth Conference of the Capability Approach, Paris.

13) Branch, 1995. *Urban Planning Theory*, John Willey & Sons, Inc, Stroudsburg.

14) Chang, 2016. *Introduction to Geograpic Information Systems.* University of Idaho. McGraw-Hill Education, 2 Penn Plaza, New York.

15) Christina, 2014. *An econometric model on bilateral trade in education using an augmented gravity model*. Journal of Industrial Engineering and Management JIEM, 2014 – 7(2): 401-412 – Online ISSN: 2014-0953 – Print ISSN: 2014-8423 http://dx.doi.org/10.3926/jiem.1009.

16) CNBC Indonesia, 17 Mei 2023. Waduh! Lulusan SMK Paling Banyak Jadi Pengangguran di RI. https://www.cnbcindonesia.com/news/ 20230517192520-4-438315/waduh-lulusan-smk-paling-banyak-jadi-pengangguran-di-ri.

17) Corburn J, 2009. *Some challenges for healthy city planning Toward the healthy city: people, places, and the politics of urban planning*. Massachusetts Institute of Technology, Cambridge, pp 1–24.

18) Danoedoro, Projo, 2004. Sains Informasi Geografis: Dari Perolehan dan Analisis Citra hingga Pemetaan dan Pemodelan Spasial, Yogyakarta: Jurusan Kartografi dan Penginderaan Jauh Fak. Geografi UGM.

19) Darwanto, 2003. Membangun wilayah yang produktif. Direktur Pengembangan Kawasan Khusus dan Tertinggal. Jakarta, Bappenas.

20) De Chiara, 1975. *Urban Planning and Design Criteria*, Van Nostrand Reinhold Company, New York.

21) Djojonegoro, 1999. Pengembangan Sumber daya manusia melalui Sekolah Menengah Kejuruan. Penerbit PT. Balai Pustaka, Jakarta.

22) Dinas Pendidikan dan Kebudayaan Propinsi Jawa Timur, 2019-2024. Renstra Dinas Pendidikan dan Kebudayaan Propinsi Jawa Timur tahun 2010 – 2024.

23) Dwiningrum, 2011. Desentralisasi dan Partisipasi Masyarakat Dalam Pendidikan. Yogyakarta: Pustaka Pelajar.

24) Fattah, 2006. Manajemen Berbasis Sekolah.Jakarta, Universitas Terbuka.

25) Grill et al, 2017. *Supervisors and teachers' influence on expectations on empowering leadership among students in vocational education and training*. *Empirical Res Voc Ed Train 2017 9:2.* DOI 10.1186/s40461-017-0046

26) Habibi, et al, 2013. *Spatial Model of Social Economic and Institutional Vulnerability Of Merapi Disaster*. Jurnal Teknik PWK Volume 2 Nomor 1 2013. Universitas Diponegoro Semarang.

27) Isbandi, 2007. Perencanaan partisipatoris berbasis asset komunitas: dari pemikiran menuju penerapan. Depok: FISIP UI Press.

28) Jacobson, et al., 2006. *Conservation Education and Outreach Techniques,* Oxford University Press, Oxford.

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10695901

29) Jerreet M, et al. 2010. *Spatial Modeling in Environmental and Public Health Research*. Int. J. Environ. Res. Public Health 2010, 7, 1302-1329; doi:10.3390/ijerph7041302.

30) Jayadinata, 1999. Tata Guna Tanah Dalam Perencanaan Pedesaan, Perkotaan dan Wilayah, ITB, Bandung.

31) Johnson, 1996, "*GIS Applications in Archaeology: A short course*", UISPP XIIIth Congress (Forli) Colloquium II Proceedings, Archaeological Computing Laboratory University of Sydney.

32) Jhingan, 2000. Ekonomi Pembangunan dan Perencanaan, PT. Raja Grafindo Persada, Jakarta.

33) Judge, Sebastian, 1988. *Quantifing the Present & Predicting the Past: Theory, Method, and Aplication of Archaeological Predictive Modeling*. Denwer, CO:US Dept. Of The Interior, Bureau of Land Manajement 650pp.

34) Jumadi, et al, 2010. Pemodelan Spatial Menggunakan Sistem Informasi Geografis (SIG) Berbasis Web Untuk Pengelolaan Wilayah Yang Terintegrasi dengan Kebijakan Pemerintah. Seminar Nasional-PJ dan SIG I Tahun 2010, Universitas Muhammadiyah Surakarta.

35) Kantor Menteri Negara Pemberdayaan Aparatur Negara, 1996. Kebijakan Pemberdayaan Aparatur Negara Menuju Pemerintahan yang baik, Jakarta.

36) Katsaprakakis, Christakis, 2016. The exploitation of electricity production projects from Renewable Energy Sources for the social and economic development of remote communities. The case of Greece: An example to avoid. Renewable and Sustainable Energy Reviews, Volume 54, February 2016, Pages 341-349

37) Kemendikbud, 2020. Rencana Strategis Kementerian Pendidikan dan Kebudayaan tahun 2020-2024. Kementerian Pendidikan dan Kebudayaan, Jakarta.

38) Kodoatie, 2005. Pengantar Manajemen Infrastruktur. Pustaka Pelajar. Yogyakarta

39) Kominfo, 2020. Komitmen Pemerintah Wujudkan Bonus Demografi yang Berkualitas. 27 Juni 2020, https://www.kominfo.go.id/ content/ detail/27423/komitmen-pemerintah-wujudkan-bonus-demografi -yangberkualitas/0/berita#:~:text=Bonus%20demografi%20 yang%20dimaksud%20adalah,dihadapi%20dengan%20perencanaan%20yang%20matang.

40) Kompas, 2016. *Jokowi Teken Inpres Perkuat SMK, Menko Puan Diminta Mengawasi,* Kompas Internasional 19-09-2016 (http://internasional.kompas.com/read/2016/09/19/18413671/jokowi.teken.inpres.perkuat.smk.menko.puan .diminta.mengawasi). Jakarta.

41) Kompas, 2016. Jokowi Minta Sistem Pendidikan Kejuruan di Indonesia Dirombak, Kompas Internasional 13 - 09 - 2016, (http://nasional. kompas.com/read/2016/09/13/ 19354171/jokowi.minta.sistem.pendidikan.kejuruan.di.indonesia.dirombak). Jakarta.

42) Kompas, 2016. Mendikbud Ingin Pendidikan Kejuruan Berdaya Saing Internasional, Kompas Internasional 11 - 08 - 2016, (http:// nasional.kompas.com/read/ 2016/08/11/ 13543341/mendikbud.ingin.pendidikan.kejuruan.berdaya.saing.internasional). Jakarta.

43) Kopnina, 2013. *Scholling the word: Exploring the critical course on sustainable development trough an anthropological lens*. International Journal of Education Development . www.elsevier.com/locate/ijeddudev.

44) Lawale, Bory-Adams, 2010. *The Decade of Education for Sustainable Development: Towards four pillars of learning Development*, 53(4), (547–550) 2010 Society for International Development 1011-6370/10. www.sidint.org/development/

45) Lee, 2014. *Education hubs and talent development: policymaking and implementation challenges*. High Educ 68:807–823)

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10695901

46) Liputan6, 2016. Jokowi : Benahi SMK jadi Pekerjaan Besar Mendikbud, Liputan6.com, 6-12-2016, Jakarta. (http://m.liputan6.com/bisnis/ read/ 2670742/ jokowi-benahi-smk-jadi-pekerjaan-besar-mendikbud)

47) Lulzime Leka – Mulaku, 2013. *The significance of culture and visual arts in the educative system, Lulzime Leka – Mulaku, State University of Tetovo – Macedonia*. International Journal of Scientific & Engineering Research Volume 4, Issue 2, February-2013.

48) M. Fjellström, 2017. *Vocational learning in a Swedish post- secondary apprenticeship*. Empirical Res Voc Ed Train 9:5 DOI 10.1186/ s40461-017-0051-6

49) Marshal, N and Lawe, S. 1994. *Land use allocation modeling in uni-centric and multi-centric regions*. Paper presented at the 1994 TRB National Conference.

50) Matthias B, et al, 2007. *Developing key competencies for sustainable development in higher education*. International Journal of Sustainability in Higher Education Vol. 8 No. 4, 2007. pp. 416-430. DOI 10.1108/14676370710823582

51) Min Zhou, et al, 2015. *Influences of Different Land Use Spatial Control Schemes on Farmland Conversion and Urban Development*. PLoS ONE 10(4): e0125008. doi:10.1371/journal. pone.0125008.

52) Miller R, et al. 2012. *Climate change adaptation planning in Latin American and Caribbean Cities*. A report submitted by ICF GHK in association with King's College London and Grupo Laera, p 112.

53) Mosse, Lewis, 2005. *The aid effect: giving and governing in international development,* Anthropology, culture and society. The Genealogy of the Good Governance. Pluto.

54) Muthmainah, 2008. Konsep Pemerataan Akses Pendidikan Tingkat Menengah di Kabupaten Grobogan. Jurnal Penataan Ruang, volume 3 nomor 2 tahun 2008. ISSN 1907 – 4972.

55) Nin˜o Z, 2016. *Aid, education policy, and development*. International Journal. Education. Dev. http://dx.doi.org/10.1016/j-ijedudev.2015.12.002.

56) Owens, 2012. "*Historic In A Bad Way: How The Tribal Law And Order Act Continues The American Tradition of Providing In Adequate Protection To American Indian and Alaska Native Rape Victim*". The Journal of Criminal Law & Criminology, Vol. 102, No. 2. USA: Northwestern University School of Law.

57) Prasojo, 2007. *Financial Resources Sebagai Faktor Penentu Dalam Implementasi Kebijakan Pendidikan,* Universitas Negeri Yogyakarta.

58) Rimantho, et al, 2016. Aplikasi Analytical Hierarchy Process Pada Pemilihan Metode Analisis Zat Organik Dalam Air. JITI, Vol.15 (1), Jun 2016, 47 – 56

59) Scholten, Tieben, 2017. *Vocational qualification as safety-net? Education- to- work transitions of higher education dropouts in Germany. Empirical Res Voc Ed Train (2017) 9:7.*DOI 10.1186/s40461-017-0050-7

60) Shin, Jung Cheol, 2012. *Higher Education Development in Korea: Western University Ideas, Confucian Tradition, and Economic Development.*

61) *Higher Education: The International Journal of Higher Education and Educational Planning*, v64 n1 p59-72 Jul 2012

62) Shivali L, Bory-Adams, 2010. *The Decade of Education for Sustainable Development: Towards four pillars of learning*. Development (2010) 53(4), 547–550. doi:10.1057/dev.2010.76

63) *Suparji, et al, 2019. Curriculum adequacy on the undergraduate program of building technique-faculty of engineering-state university of surabaya towards the vocational high school.* ***International Journal of Recent Technology and Engineering****, 2019, 8(3), pp. 3371–3374.*

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.10695901

64) Suryani et al, 2012. Sistem Informasi Geografis Pemetaan Sekolah Tingkat Pendidikan Dasar Dan Menengah Di Kota Serang. Jurnal Masyarakat Informatika, Volume 2, Nomor 3, 2012. ISSN 2086 – 4930. Universitas Diponegoro Semarang.

65) Tarigan, 2018. Ekonomi Regional Teori dan Aplikasi, Edisi Revisi. PT. Bumi Aksara, Jakarta.

66) Tarigan, 2016. Perencanaan Pembangunan Wilayah Edisi revisi, PT. Bumi Aksara, Jakarta.

67) UNESCO, 2005. *United Nations Decade of Education for Sustainable Development 2005-2014 International Implementation Scheme*, Paris: UNESCO.

68) UNESCO, 2013. *Education for Sustainable Development Policy Dialogue1*: EFA-ESD dialogue: Educating for a sustainable. world, Paris: UNESCO.

69) Vytautas, Snieskaa, et al, 2015. *City attractiveness for investment: characteristics and underlyingfactors*. 20th International Scientific Conference Economics and Management - 2015 (ICEM-2015).

70) Wiyono. A, Isnur. S, 2023. *Optimising vocational school development for priority industry sectors in Indonesia using location quotient analysis***.** *World Transactions on Engineering and Technology Education. Vol.21, No.1, 2023.*

71) Wiyono. A, et al, 2021. *Determining factors for Location of Vocational Schools Based on Regional Characteristics in Pasuruan Regency, Indonesia. Educational Sciences: Theory and Practice*, 2021, 21(4), pp. 211–222.

72) Wiyono. A, et al, 2018. *Spatial Modeling Vocational Education Development To Support Regional Potential.* Eco. Env. & Cons. 24 (4) : 2018; pp. (1540-1545) Copyright@ EM International.

73) Xixi Chen, et al, 2014. *Landscape Analysis of Geographical Names in Hubei Province, China.entropy* ISSN 1099-4300 Entropy 2014, 16, 6313-6337; DOI:10.3390/ e16126313

74) Yasik et al., 2012. Kabupaten Sumenep memiliki potensi migas 6 trilyun TCF, infokom Kabupaten Sumenep. http://Sumenepkab.go.id/berita/baca/ kabupaten-sumenep-miliki-potensi-migas-6-trilyun-tcf.

75) Zhou M, et al. 2015. *Influences of Different Land Use Spatial Control Schemes on Farmland Conversion and Urban Development.* PLOS ONE | DOI:10.1371/ journal.pone.0125008. April 27, 2015.