

# General Skill Domain in Industrial Training Currency using Fleiss Kappa Method



Zakaria. N, Ghazalan. M S, Hamidon. N I, Hamzah. N, Ariffin. A, Rubani. S N K

**Abstract:** *The purpose of this research is to obtain the most appropriate generic skills element agreement during the training industry to meet industry needs. The design used is a sequential exploration using a mixed method approach consist document analysis and questioner. The sample of this study involved 8 experts consisting of 4 industry representatives and 4 academic representatives. The findings using qualitative methods by analysing MQF 2018 documents report that 14 generic skills elements are identified. Whereas, the findings using a strongly correlated method by analysing Fleiss Kappa are used to measure the most appropriate generic skill element index in implementing activities. The findings show that 3 generic skills that are not suitable to be applied in the curriculum training industry based on the agreement experts include entrepreneurs, ethics and integrity as well as continuous learning skills from 11 generic elements of skills. The researcher hopes that the findings can be utilized by the higher education as a guide in the development of a generic skills curriculum that is more focused on training.*

**Keywords:** *Generic Skills, Industrial Training, Fleiss Kappa*

## I. INTRODUCTION

The Malaysian qualifications framework, MOH (2018) has outlined some of the educational institutions 'graduates' human capital development which is an important Malaysian Investment Qualifications Framework (2018). The Malaysian Qualifications Framework, KKM (2018) aims to empower graduates of Higher Education Institutions (IPTs) to have a balanced ability not only in technical skills but also in the development of human capital to enhance competitiveness in the global world (Prime Minister's Department, 2016).

However, the development of graduates of higher education institutions (HEIs) often fails to reach the satisfaction level of employers (Makhbul, Yusof and Awang, 2015 and Hassan 2013). In addition, it is a debate in many professional logs that address issues of weakness in the development of graduates of Higher Education Institutions (IPTs) that cause employers not to hire graduates (Bilah, Hama and Yusof, 2018 and Hashim et al, 2007).

**Revised Manuscript Received on December 30, 2019.**

\* Correspondence Author

**Zakaria. N\***, Lecturer at Faculty Technical and Vocational Education, UTHM, Batu Pahat, Malaysia.

**Ghazalan. M S., Student**, Universiti Tun Hussein Onn Malaysia

**Hamidon, N I.**, Student, Universiti Tun Hussein Onn Malaysia

**Hamzah, N.**, Lecturer at Faculty Technical and Vocational Education, UTHM, Batu Pahat, Malaysia.

**Ariffin. A.** Senior Lecturer at Faculty Technical and Vocational Education, UTHM, Batu Pahat, Malaysia.

**Rubani. S N K.** Lecturer at Faculty Technical and Vocational Education, UTHM, Batu Pahat, Malaysia.

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an [open access](https://creativecommons.org/licenses/by-nc-nd/4.0/) article under the CC-BY-NC-ND license <http://creativecommons.org/licenses/by-nc-nd/4.0/>

As a solution to the weakness of human capital development, graduates from Higher Education Institutions (IPTs), Higher Education Institutions (IPTs) have sought solutions to the establishment of an Industrial Training program aimed at empowering technical skills and human capital development graduates Higher Education, 2010).

This Institution of Higher Learning (IPT) initiatives, supported by educational researchers, according to Rodzalan et al (2012) and Ghazalan, Halim, Hamidon and Zakaria (2018) reported that industrial training programs had a positive impact in strengthening technical skills and the development of the human capital of graduates and as an alternative way to solve the problem of employers' issues does not employ graduates to work. The statement was further reinforced with Ghazalan et al (2018), Alias et al (2013) and Rahman et al (2015) which states that technical skills and human capital development graduates can be enhanced through a developed curriculum based on training among industry training curricula. This is because the objective of the implementation of the industrial training is to underscore the emphasis on technical skills and human capital development (Industrial Training Policy Report, DLI, 2010).

Therefore, the problem is that the most appropriate generic skills domain implemented with implementation activities will be undertaken while undergoing industrial training. This is because the most appropriate generic skills domain while undergoing industrial training plays an integrated and holistic role in empowering development student human capital. In conclusion, it is clear that the most appropriate generic skills domain while undergoing industrial training plays an integrated and holistic role in empowering the development of human capital graduates.

## II. OBJEVTIVES

The objectives of the study are as follows: The purpose of this study is to obtain the most appropriate generic skills element agreement implemented with the implementation activities will be undertaken while undergoing industrial training.

## III. RESEARCH METHODOLOGY

The designs used are sequential explorations using the mixed method approach to get the most appropriate generic skills element agreement implemented with implementation activities to be undertaken while undergoing industrial training.



In this study, researchers have chosen to carry out research using mixed methods using sequential exploration designs for being able to answer the research questions (Creswell, 2015). The qualitative part is the analysis of the Malaysian Qualifications Framework (MQF) document to identify the generic skills outlined by the Ministry of Higher Education (MOE) which provides guidance in the development of curriculum institutions of higher learning and to identify the most dominant generic skills under the MQF. The quantitative part is the Fleiss Kappa agreement review checklist to identify the domains of the generic skills of industry training based on industry and academic expert consensus index.

**Population and Sample**

Population and sampling of research studies as stated: Expert Sample Size for Fleiss Kappa Agreement All the experts selected to fill out the Fleiss Kappa Agreement Index checklist are 8 specialists. A total of 4 academic experts comprise four CSU universities selected by researchers. Meanwhile, 4 selected industry specialists fill out the Fleiss Kappa Agreement Index checklist. The total sample size for the Kappa Fleiss Agreement consists of 8 experts will be involved in filling out the Fleiss Agreement Index checklist based on certain criteria that are relevant to the study. Sample values of 8 expert representatives have been sufficient because they have fulfilled the conditions set out that the number of experts must be above 2 persons (Fleiss, 1981). Additionally, referring Barreiro and Albandoz (2001) and Akbari and Yazdanmehr (2014) which stated that 8 experts had enough to get an expert agreement despite the distinctive features of the experts.

**Table. 1 Number of Samples for the Kappa Fleiss Agreement**

Institutions	Number of experts
Universiti Malaysia Pahang (UMP)	1
Universiti Teknikal Melaka (UteM)	1
Universiti Malaysia Perlis (UniMAP)	1
Universiti Tun Hussein Onn Malaysia (UTHM)	1
Engineering Related Industries	4
<b>Total</b>	<b>8</b>

**Instrument of Study**

This study will use the checklist of Fleiss Kappa approval checks. This instrument will be a set of Fleiss Kappa Agreement checklist. It uses 2 levels of Likert Scale between them agree and disagree. This checklist will be analyzed using the Fleiss Kappa Agreement.

**Data Analysis**

Data analysis is important in determining the findings of a research. In this study, for the research of mixed methods that include qualitative and quantitative approaches, the data were analyzed using the formula 1. Algorithm analysis of qualitative methods involving document analysis. Meanwhile, analytical method analysis involving the checking of the fleiss kappa agreement will be analyzed using the formula 1 1 Algorithm.

The Kappa Fleiss Formula is as follows:

$$P^a = \frac{1}{N} \sum_{i=1}^N P_i^2 \tag{1}$$

$$P^r = \sum_{j=1}^N P_j^2$$

$$kf = \frac{P^a - P^r}{1 - P^r}$$

Algorithm. 1 Fleiss Kappa formula (Source: Fleiss, 1981)

**IV. RESULTS**

The findings are divided into 2 methods as follows:

**Qualitative Division: Analysis of the Malaysian Qualifications Framework Document (MQF)**

In the process of analyzing MQF 2.0 (2006) and MQF 2.0 (2018) documents, researchers have identified the 14 elements that should be a guide in the development of education curriculum. In addition, as a result of a combination of MQF 2.0 (2006) and MQF 2.0 (2018) 14 elements reported to be the guideline among them are: (i) Management, (ii) Leadership, (iii) Knowledge, (iv) Interpersonal, (v.) Communicate, (vi.) Entrepreneurship, (vii.) Practical Skills, (viii) Critical Thinking, (ix.) Social Responsibility, (xii) Teamwork, (xiii) Skill Using Technology, and (xiv) Technology Skills.

**Quantitative Part: Analysis of the Kappa Fleiss Approval Index**

In the analysis process of the Index of Fleiss Kappa Consortium researchers have identified the entire 3 elements have been discarded due to low levels of consent through the results obtained. In addition, the analysis of the Fleiss Kappa approval index for the generic skills elements reported the value of the obtained Fleiss Kappa approval at a very high level of approval. Refer Table 2 to report the results obtained. Only eight elements of generic skills are applied when undergoing industrial training include management, leadership, interpersonal, communication, critical thinking, and problem solving, teamwork and technology skills.

**Table. 2 The Findings of the Fleiss Kappa Agreement**

Generic Skill Elements	Eligibility of Elements Referring to MQF 2018	Acceptable Elements of Acceptance	Acceptable Elements of Acceptance
<b>Management</b>	Suitable	100%	Accepted
<b>Leadership</b>	Suitable	87.5 %	Accepted
<b>Knowledge</b>	Not Suitable	-	-
<b>Interpersonal</b>	Suitable	87.5 %	Accepted
<b>Communication</b>	Suitable	100 %	Accepted
<b>Entrepreneurship</b>	Suitable	0 %	Dismissed
	Not	-	-
<b>Practical Skills</b>	Suitable		
<b>Critical Thinking</b>	Suitable	87.5 %	Accepted
<b>Social responsibility</b>	Suitable	-	-
<b>Problem Solving</b>	Suitable	100 %	Accepted



<b>Professional and Ethical</b>	Suitable	50 %	Dismissed
<b>Group Work</b>	Suitable	87.5 %	Accepted
<b>Life-Long Learning</b>	Suitable	37.5 %	Dismissed
<b>Technology Skills</b>	Suitable	87.5 %	
<b>Number of Deleted Elements</b>	<b>2</b>	<b>3</b>	

## V. CONCLUSION

Based on the generic skills domain that is most suitable to be implemented with implementation activities will be undertaken while undergoing industrial training. Researchers believe that the most appropriate generic skills domain found in implementation with implementation activities will be undertaken while pursuing a goal industrial training to empower the technical skills and human capital development will be achieved in line with the objective of the Malaysian Qualifications framework (MQF). In conclusion, the researcher hopes that this study will help various responsible parties especially the Ministry of Higher Education (MOE) to improve the quality of graduates in terms of empowering technical skills and human capital development. Indirectly improving the employer's satisfaction towards the quality of graduates. Hence, it is clear that the most appropriate generic skills domain is implemented with implementation activities will be undertaken while undergoing industrial training to play an integrated and holistic role in empowering technical skills and human capital.

## ACKNOWLEDGMENT

This research was partially supported by Universiti Tun Hussein Onn Malaysia, Johor using PPG Grant (V022). We thank our colleagues from Universiti Tun Hussein Onn Malaysia who provided insight and expertise that greatly assisted the research.

## REFERENCES

1. Akbari, R., & Yazdanmehr, E. (2014). A Critical Analysis of the Selection Criteria of Expert Teachers in ELT. *Theory & Practice in Language Studies*, 4(8).
2. Alias, R. Mohd Hamzah, M. I. & Yahya, N. (2013). Generic Skill Requirement: Between Employer's aspiration and the need of professional employees. *Jurnal Pengurusan*, 37, 105-114.
3. Bilah, M. S., Hama, N. F. M., & Yusof, F. J. M. (2018). Tahap Kemahiran Insaniah Dalam Kalangan Pelajar Kktm Di Johor Mengikut Perspektif Pelajar. *Human Sustainability Procedia*.
4. Barreiro, P. L., & Albandoz, J. P. (2001). Population and sample. *Sampling techniques. Management Mathematics for European Schools*, 1, 6.
5. Creswell, J. (2015). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. New York: Pearson.
6. Fleiss, J.L. (1981). *Statistical methods for rates and proportions*. (2nd ed.). New York: John Wiley.
7. Hassan, S. N. H., Mohd Zamberi, M., Khalil, S. N., Sanusi, N., Kamarolzaman, Sanusi, Kamarolzaman, A. (2013). Company perception on the employability skills of industrial training students. *Journal of Technical Education and Training (JTET)*, 4(2), 1-8.
8. Hashim, Atan Hj. Hussein, Aziz, Hadi & Abidin (2007), Kolaborasi Ipta Dan Industri Dalam Penerapan Kemahiran Insaniah, *Prosiding SKIKS* 08. 403- 408
9. Kementerian Pengajian Tinggi, (2010). ), Laporan Dasar Latihan Industri, pp 12 - 14 Dicapai pada Oktober, 18 2015 di <http://www.utar.edu.my/fs/file/MOHE%20Dasar%20Latihan%20Indus tri.pdf>

10. Jabatan Perdana Menteri (2016), Laporan Pekerjaan, Pengangguran Dan Kadar Penglibatan 2001 - 2009 , Unit Perancangan Ekonomi, Malaysia, April 2015. Dicapai pada April, 20 2016 di <http://www.epu.gov.my/documents/10124/3d27b61b-5daf-42bd-a522-c9fbf23b25cf>
11. Malaysian Qualifications Framework 2nd Edition (2018), Higher Education Qualifications in Malaysia, Dicapai pada september, 20 2018 di <http://www.mqa.gov.my/portalmqav3/red/en/mqf.cfm>
12. Makhbul, Z. M., Yusof, I., & Awang, A. H. (2015). Antara realiti dan harapan - Kajian empirikal persepsi majikan terhadap prestasi graduan tempatan Between reality and expectation - An empirical study of employers' perceptions of the performance of Malaysian local graduates. *Malaysian Journal of Society and Space* 11, 10(10), 27-36.
13. Malaysian Qualifications Framework (2006) , Point of Reference and Joint Understanding of Higher Education Qualifications in Malaysia, Dicapai pada september, 5 2015 di <http://cgs.unimap.edu.my/images/pdf/MQF.pdf>
14. Rahman, Jusoh, Serji & Salleh (2015), Faktor-Faktor Kepuasan Majikan Terhadap Pelajar Latihan Industri Di Institut Pengajian Tinggi (IPT): Satu Sorotan. *International Conference on Arabic Studies and Islamic Civilization, iCASiC 2015(e-ISBN 978-967-0792-02-6)*, 9-10
15. Rodzalan, S. A., & Mohamed Saat, M. (2012). The Effects of Industrial Training on Students' Generic Skills Development. *Procedia - Social and Behavioral Sciences*, 56, 357-368. <http://doi.org/10.1016/j.sbspro.2012.09.664>
16. Ghazalan, M. S., Halim, F., Hamidon, N. I., & Zakaria N. (2018). Industrial Training Framework to Enhance the Quality of Generic Skills. *Advanced Science Letters*, 24(11), 8027-8029.
17. Ghazalan, M. S., Ab Halim, Samad, N. A., F, F., Hamidon, N. I., & Hariri, T. I. A. A. (2018). Level Readiness Participant Of Lifelong Learning (LLL) Program Venture Into Entrepreneurship. In *MATEC Web of Conferences*.

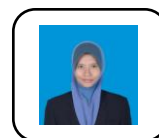
## AUTHORS PROFILE



**NORMA H BINTI ZAKARIA**, PhD, is a lecturer at Faculty Technical and Vocational Education, Universiti Tun Hussein Onn Malaysia. She graduated her doctorate degree in Technic and Vocational Education from Universiti Putra Malaysia, 2013. She received her bachelor degree in Electric and Microelektronics from Univesiti Teknologi Malaysia, 2010 and Master in Technical and Vocation Education from Unversiti Tun Hussein Onn Malaysia, 2007. Her current research interests includes social studies (i.e single mother, ex-convict, and enterpreurship)



**MOHD SHAHZUAN GHAZALAN** is a student PhD of Technical and Vocational Education, Universiti Tun Hussein Onn Malaysia. He graduated his master degree in Technical and Vocational Education from Universiti Tun Hussein Onn Malaysia, 2015. He received Bachelor of Electrical Engineering from Universiti Tun Hussein Onn Malaysia. His current research interests includes generic skills and industrial training.



**NUR IZEANTY BINTI HAMIDON** is a student PhD of Technical and Vocational Education, Universiti Tun Hussein Onn Malaysia. She graduated her master degree in Technical and Vocational Education from Universiti Tun Hussein Onn Malaysia, 2015. She received Bachelor of Applied Science (Conservation and Biodiversity Management), 2005 from Universiti Malaysia Terengganu. Her current research interests in career development.



**NORHASYIMAH BINTI HAMZAH**, PhD, is a lecturer at Faculty Technical and Vocational Education, Universiti Tun Hussein Onn Malaysia. She graduated her doctorate degree in Educational Technology from Universiti Teknologi Malaysia, 2014. She received the B.E. degree in computer science and technology with education (mathematics) from University Technology Malaysia, 2010.

Her current research interests includes web based collaborative learning, blended learning, MOOC.



**ARIHASNIDA BINTI ARIFFIN**, PhD, is a senior lecturer at Faculty Technical and Vocational Education, Universiti Tun Hussein Onn Malaysia. She graduated her doctorate degree in Educational Technology from Universiti Sains Malaysia, USM 2015. She received the B.E. degree in Technical and Vocational Education

in 2008, and the Ms. Instructional and Technology from Universiti Tun Hussein Onn Malaysia in 2010. Her current research interests includes instructional design and technology, web



**SITI NUR KAMARIAH BINTI RUBANI**, PhD, is a lecturer at Faculty Technical and Vocational Education, Universiti Tun Hussein Onn Malaysia. She graduated her doctorate degree in Educational Technology from Universiti Sains Malaysia 2016 she received her B.E

degree in technology with education (Mechanical Engineering) from Univesiti Teknologi Malaysia, 2017. Her current research interests includes project based learning with structured scaffolding, technology education, technical and vocational, teaching and learning, and instructional design technology.