

# The Comparison Life and Career Skills among Premier, Conventional and Metro Polytechnics Students in Malaysia

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**Abstract:** The 21st Century education requires a holistic transformation in terms of infrastructure, knowledge, and teaching strategies that encourage a more complex thinking process. Life and career skills are essential to both learning and work in the 21st century. The purpose of this study is to determine the difference between life skills and career skills of flexibility and adaptability, initiative and self-directed skills, social skills and cross-cultural skills, productivity and accountability, responsibility, and leadership, between Polytechnic students in Malaysia. This study used a quantitative research approach. The respondents consisted of 527 students at the Polytechnic diploma in Malaysia, which is determined using stratified random sampling. Data was collected using a questionnaire. The collected data were analyzed by t-test and ANOVA using SPSS version 21. The results of this study show that there is a significant difference between the flexibility and adaptability skills possessed by the students in different types of polytechnics in Malaysia. However, this study found that there is no significant difference between the initiative and self-direction skills, social and cross-cultural skills, productivity and accountability skills, responsibility, and leadership skills possessed by the students in different types of polytechnics in Malaysia. Therefore, researchers suggest that future researchers explore other critical elements of Work Readiness with 21st-century skills for polytechnic students in Malaysia.

**Keywords:** 21st Century Education, Life and career skills, transferable skills, TVET.

## I. INTRODUCTION

Living in the 21st century with the ever-changing working environments due to the dynamic economy, the biggest challenge that people will strive for a living is securing a job. One needs to have the skills that employers need to get a job (Ismail et al., 2019; Sumarwati, Yunos & Ibrahim, 2017; Pool & Sewell, 2007). However, the scenario facing the global world is that employers find it difficult to hire suitable and competent employees (Robinson, 2000). The ideal perception of students studying in higher educational institutions is getting a suitable job after graduation. Therefore, students need to have life and career skills to be able to have high marketability and to face various career challenges in the future. The skills for 21st Century comprise life and career skills, learning, and innovation skills and information, media, and technology skills. All the skills are important for the

workers of the 21st century. Specifically, to identify the skills that are important for the development of the 21st-century workforce is the skill of life and career skills. The elements of the skills consist of five key components that are flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility (Trilling & Fadel, 2009).

Unemployment is one of the problems faced by many countries. One of the factors of unemployment is the existence of the skill gap possessed by graduates with the skills desired by employers. Various research reports show that there is a problem of unemployment due to the gap in skills among existing human resources. Therefore, educational institutions are responsible for paying more attention to improving the quality of skills of graduates. (Daniels & Brooker, 2014; Fong, Sidhu, & Fook, 2014). However, higher educational institutions have taken many initiatives to cater to this issue. The Ministry of Education Malaysia has taken steps to improve education towards fulfilling the criteria of the fully developed country, which is The National Higher Education Strategic Plan (NHESP) that consists of 23 critical agenda projects (CAPs). All the CAPs are contiguous to the Malaysian Government Transformation Programme (GTP) and Malaysian Economic Transformation Programme (ETP), which are the progress of the Malaysian government towards Vision 2020.

Employers nowadays seek employees who possess the appropriate skills to be employed. Life and career skills are essential to both learning and work in the 21st century. It is important both in local and international careers. As in the local context, polytechnics are one of the main technical and vocational education and training (TVET) institutions in Malaysia that aims to produce the workforce to meet industrial needs. Currently, Malaysia has produced three types of polytechnics namely Premier polytechnics, METrO polytechnic, and Conventional polytechnic (Department of Polytechnic Studies, 2014).

In addition to understanding the real situation, the researcher has made an initial interview with two polytechnic students

that were doing an internship to get the student's overview of the skills gained throughout the learning process in the polytechnic. From the interview, the students reported that in the beginning, they are not given the task that is related to their field. This has made them feel a bit frustrated when they only have to do unrelated tasks such as photocopying documents and other simple tasks. They admitted that their supervisors do not want them to interfere with the company's works.

Hence, it is the role of higher education institutions such as polytechnics in preparing the students with life and career skills to help them to survive the global economy in this 21st century. Although research on 21st-century skills has been increasing in number, and reports have been published many years, the studies reviewed were focused on information media and technology skills and learning and innovation skills (Arsad, Osman & Soh, 2011)

Therefore in such situations, it is important to investigate whether life and career skills are being embedded by the higher education institutions especially in the technical and vocational education since it provides a semi-skilled and skilled workforce to compete in the global labor market. However, their main aim is to produce a skilled workforce for Malaysia. Therefore, the objective of this study is:

- i. To identify the difference between the Flexibility and Adaptability skills possessed by the students in different types of polytechnics.
- ii. To identify the difference between the Initiative and Self-direction skills possessed by the students in different types of polytechnics.
- iii. To identify the difference between the social and Cross-cultural skills possessed by the students in different types of polytechnics.
- iv. To identify the difference between the Productivity and Accountability skills possessed by the students in different types of polytechnics.
- v. To identify the difference between the Responsibility and Leadership skills possessed by the students in different types of polytechnics.

## II. 21ST CENTURY SKILLS

The goal of TVET is to be a skilled and semi-skilled workforce for the world of work. Employability skills help graduates get jobs, while life and career skills balance skills to get a job and face the various challenges of the 21st century. By possessing these skills, TVET students will be able to find jobs and are ready for the world of work. Students will need the ability to work in diverse teams, be flexible and adaptable in the ever-changing working environment, and willing to learn new things on their own to

accomplish certain tasks.

21st Century requires changes in the economic, social, cultural, information technology, and social environments that meet the demands of the industry. Development in the field of industry, supporting a country to achieve developed nation status (Ofori, 2015). Therefore, educational institutions as the medium of educates human resources to meet the needs of the industry also need to adapt to the development of education in the 21st century and beyond.

To encounter the challenges especially, our future human resources are supposed to be nurtured with 21st-century skills life and career skills. Janet, Kimberly, and Ken (2010) emphasized that students should be groomed for careers by incorporating 21st-century skills and career as well as technical education into the entire system. Students should be exposed to academic skills or the employability and technical knowledge and skills that are equally valued in a creative and innovative society.

As life and work in the 21st century are more challenging and complex, so students need more than just simple thinking and understanding of basic knowledge. Trilling and Fadel (2009) proposed that life and career skills have five main skills where each of the skills has sub-skills that need to be taught to students. The main five skills mentioned are Flexibility and Adaptability Skills, Initiative and Self-direction skills, Social and Cross-cultural skills, Productivity and Accountability skills, and Leadership and Responsibility skills.

Table 1. Summary of Ways to Teach Life and Career Skills

Main skills	How to teach students
Flexibility and Adaptability Skills	Teach student how to adapt to varied roles, responsibilities, schedules and contexts.
	Teach students how to appreciate feedback and how to respond to it in a positive manner.
Initiative and Self-direction skills	How to set goals.(specific, measurable, achievable, realistic). How to make goals timely
	Students should be encouraged to prioritize tasks, without waiting to be told how to proceed with other tasks. Students should be alert to changes and decide themselves on how to respond to the changes. Monitor and evaluate their own progress with minimal or no supervisory directive
	Remind students that self-direction has risk of making mistakes and failure at times. Students need to be persistent and resilient to keep motivated to try out independent initiatives. Build self-confidence.
Social and Cross-cultural skills	Students should be taught social skills to communicate effectively with others. Be active listener.
	How to handle themselves and how to deal in such an international arena with an open mind with respect to other people's ethnicity, social and cultural differences. Respect other people views and opinions.
Productivity and Accountability skills	Prioritize the tasks they are required to complete. To set goal that are smart
	Teach how to work positively and ethically, manage time and projects effectively, multitask, participate actively as well as be reliable and punctual, present oneself professionally and with proper etiquette, collaborate and cooperate effectively with teams, respect and appreciate team diversity and be accountable for results.
Leadership and Responsibility skills	How to direct the activities of others towards stated targets. How to give instructions and directives that lead to progress How to use psychological approaches to motivate others and to get them engaged with the firm's activities.

Compared to today's traditional classroom environment, the 21st-century students are more self-motivated and will be able

to voice out their questions and better in discussing academically in the subject matter (Levin et al., 2000). Educators will have to be prepared for the changes to happen and willing to support the positive changes, especially in the education field. Chalk and talk surpassed in functionality (Levin et al., 2000). Therefore, educators must implement the vision and mission of teaching and learning and must support the changes that will take place in society.

### III. METHODOLOGY

The quantitative approach using a cross-sectional survey design is the design of this study. To select the study sample, the researchers used a stratified random sampling strategy. This sampling strategy is suitable to be used when researchers are interested in particular groups or strata within the population. In this study, the strata were the types of polytechnics in Malaysia namely premier polytechnics, conventional polytechnic, and METrO polytechnic. By using stratified random sampling, there was an equal probability that each polytechnic could be selected as the research sample. The respondents consisted of 527 students at the Polytechnic diploma in Malaysia. Data was collected using a questionnaire. The questionnaire was divided into three main sections and five sub-sections under elements of 21st-century life and career skills for TVET students. The sections are as follows: Part A (Demographic data), Part B (Elements of 21st-century life and career skills for TVET students: Flexibility and Adaptability, Initiative and Self-direction, Social skills and Cross-cultural skills, Productivity and Accountability, Leadership and Responsibility), Part C (Situational judgment questions). The collected data were analyzed by t-test and ANOVA using SPSS version 21.

### IV. FINDINGS

*Is there any difference between the Flexibility and Adaptability skills possessed by the students in different types of polytechnics in Malaysia?*

A one-way between-groups analysis of variance (one-way ANOVA) was conducted to explore the difference of polytechnics types on students' life and career skills. The respondents from this study were divided into three groups according to types of polytechnic: Premier, Conventional, and METrO. Levene's test for homogeneity of variance was conducted and the Sig. value was  $p = .967 > 0.05$  as in Table 3. Therefore, the homogeneity of variance assumption is not violated. The null hypothesis for homogeneity assumption is retained and can be concluded that there is no significant difference between the group's variances.

Table 2. Descriptive Table for Flexibility and Adaptability Skills

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Premier	195	4.3295	.51218	.03501	4.2605	4.3985	3.12	5.71
Conventional	223	4.2089	.53342	.02400	4.1618	4.2561	1.94	5.94
Metro	109	4.1618	.54229	.05101	4.0608	4.2629	3.12	5.71
Total	527	4.2339	.53184	.01856	4.1975	4.2703	1.94	5.94

Table 3. Test of Homogeneity of Variances for Flexibility and Adaptability Skills

Levene Statistic	df1	df2	Sig.
.033	2	524	.967

Table 4. Anova Table for Flexibility and Adaptability Variable

	df	Mean Square	F	Sig.
Between Groups	2	1.426	5.090	.006
Within Groups	524	.280		
Total	526			

Table 4 shows that there was a statistically significant difference at the  $p < 0.05$  level in the score for the three types of polytechnics on Flexibility and Adaptability skills elements  $F(2, 524) = 5.09, p = 0.006$ . Post-hoc comparison using Tukey HSD test (refer Table 5) indicated that the mean between Premier and Conventional and METrO score were found to have significant different. Conventional polytechnic did not differ significantly with Premier and METrO polytechnic in flexibility and adaptability skills dimension.

Table 5. Post-Hoc Test Using Tukey Hsd for Flexibility And Adaptability Skills Variable (I)

Type of polytechnic	(J) Type of polytechnic	Mean Difference (I-J)	Std. Error	Sig.
PREMIER	CONVENTIONAL	.12058*	.04331	.015
	METRO	.16768*	.06154	.018
CONVENTIONAL	PREMIER	-.12058*	.04331	.015
	METRO	.04710	.05518	.670
METRO	PREMIER	-.16768*	.06154	.018
	CONVENTIONAL	-.04710	.05518	.670

*Is there any difference between the Initiative and Self-direction skills possessed by the students in different types of polytechnics?*

Table 6. Descriptive Table for Initiative and Self-Direction

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Premier	195	4.3803	.54354	.03716	4.3070	4.4535	2.88	5.88
Conventional	223	4.3299	.57268	.02577	4.2792	4.3805	2.18	6.00
Metro	109	4.3011	.55629	.05233	4.1974	4.4048	3.29	6.00
Total	527	4.3390	.56292	.01965	4.3005	4.3776	2.18	6.00

Table 7. Test of Homogeneity of Variances for Initiative and Self-Direction

Levene Statistic	df1	df2	Sig.
.209	2	524	.812

Table 8. Anova Table for Initiative and Self-Direction Variable

	df	Mean Square	F	Sig.
Between Groups	2	.284	.897	.408
Within Groups	524	.317		
Total	526			

For the Initiative and Self-direction and types of polytechnics variables, there was statistically no significant difference at the  $p > 0.05$  level in the score for the three types of polytechnics on Initiative and Self-direction:  $F(2, 524) = .897, p = 0.408$  as in Table 8. Levene's test for homogeneity of variance was conducted and the Sig. value is  $p = 0.812 > 0.05$  as in Table 7. Therefore, the homogeneity of variance assumption is not

violated. The null hypothesis for homogeneity assumption is failed to be rejected and can be concluded that there is no significant difference between the group's variances. Post-hoc test is not necessary since there was no significant difference for the three types of polytechnic on Initiative and Self-direction variable.

*Is there any difference between the Social and Cross-cultural skills possessed by the students in different types of polytechnics?*

Levene's test for homogeneity of variance was conducted and the Sig. value was  $p = 0.458 > 0.05$  as in Table 9. Therefore, the homogeneity of variance assumption is not violated. The null hypothesis for homogeneity assumption is retained and can be concluded that there is no significant difference between the group's variances.

Table 9. Descriptive Table for Social And Cross-Cultural

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					Premier	195		
Conventional	223	4.4272	.61196	.02753	4.3731	4.4813	2.53	6.00
Metro	109	4.2856	.57716	.05429	4.1780	4.3932	3.41	5.88
Total	527	4.4048	.59330	.02071	4.3641	4.4454	2.53	6.00

Table 10. Test of Homogeneity Of Variances For Social And Cross-Cultural

Levene Statistic	df1	df2	Sig.
.782	2	524	.458

Table 11. Anova Table For Social And Cross-Cultural Variable

	df	Mean Square	F	Sig.
Between Groups	2	.940	2.681	0.69
Within Groups	524	.351		
Total	526			

For the Social and Cross-cultural skills and types of polytechnics variables, there was no statistically significant difference at the  $p > 0.05$  level in the score for the three types of polytechnics on Initiative and Self-direction:  $F(2, 524) = 2.681, p = 0.069$  as in Table 11. Therefore, post-hoc test is not necessary since there was no significant difference the three types of polytechnic on Social and Cross-cultural skills variable.

*Is there any difference between the Productivity and Accountability skills possessed by the students in different types of polytechnics?*

Levene's test for homogeneity of variance was conducted and the Sig. value is  $p = 0.345 > 0.05$  as in Table 12. Therefore, the homogeneity of variance assumption is not violated. The null hypothesis for homogeneity assumption is retained and can be concluded that there is no significant difference between the group's variances.

Table 12. Descriptive Table For Productivity And Accountability

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					Premier	195		
Conventional	223	4.1546	.60994	.02744	4.1007	4.2085	2.40	6.00
Metro	109	4.1550	.56891	.05352	4.0490	4.2610	2.93	6.00
Total	527	4.1580	.58796	.02052	4.1177	4.1983	2.40	6.00

Table 13. Test Of Homogeneity Of Variances For Productivity And Accountability

Levene Statistic	df1	df2	Sig.
1.066	2	524	.345

Table 14. Anova Table for Productivity and Accountability Variable

	df	Mean Square	F	Sig.
Between Groups	2	.013	.037	.963
Within Groups	524	.347		
Total	526			

For the Productivity and Accountability skills and types of polytechnics variables, there was no statistically significant difference at the  $p > 0.05$  level in the score for the three types of polytechnics on Initiative and Self-direction:  $F(2, 524) = 0.037, p = 0.963$  as in Table 14. Therefore, a post-hoc test is not necessary since there was no significant difference between the three types of the polytechnic on the Productivity and Accountability skills variable.

*Is there any difference between the Responsibility and Leadership skills possessed by the students in different types of polytechnics?*

Levene's test for homogeneity of variance was conducted and the Sig. value is  $p = 0.486 > 0.05$  as in Table 15. Therefore, the homogeneity of variance assumption is not violated. The null hypothesis for the homogeneity assumption is retained and can be concluded that there is no significant difference between the group's variances.

Table 15. Descriptive Table for Responsibility And Leadership

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					Premier	195		
Conventional	223	4.1658	.56787	.02555	4.1156	4.2160	1.71	5.71
Metro	109	4.1106	.53784	.05060	4.0104	4.2109	2.57	5.71
Total	527	4.1654	.55429	.01934	4.1274	4.2034	1.71	5.86

Table 16. Test Of Homogeneity Of Variances For Responsibility And Leadership

Levene Statistic	df1	df2	Sig.
.723	2	524	.486

Table 17. Anova For Variable Responsibility And Leadership

	df	Mean Square	F	Sig.
Between Groups	2	.253	.824	.439
Within Groups	524	.307		
Total	526			

Table 17 shows that there was no statistically significant difference at the  $p > 0.05$  level in the score for the three types of polytechnics on Responsibility and Leadership skills

elements  $F(2, 524) = 0.824, p = 0.439$ . Therefore, the post-hoc test is not necessary since there was no significant difference between the three types of the polytechnic in the Responsibility and Leadership dimension.

## V. DISCUSSION AND CONCLUSIONS

The findings of this study show that TVET students in Premier polytechnics possessed the highest mean score for four out of five main elements of life and career skills compared to MeTrO and conventional polytechnic students. Life and Career skills Premier Polytechnic students in the order of the highest to lowest mean for each element were Initiative and Self-direction > Flexibility and Adaptability > Responsibility and Leadership > Productivity and Accountability. Meanwhile, TVET students in Conventional polytechnics possessed the highest mean score in the Social and Cross-Cultural skills compared to students in Premier and METrO polytechnics.

The results of this study show that Premier polytechnic students have more life and career skills than conventional polytechnic and METrO students in terms of Initiative and Self-direction, Flexibility, and Adaptability, Responsibility, and Leadership and Productivity and Accountability. Meanwhile, Conventional polytechnic students have higher social and Cross-Cultural skills compared to METrO and Premier polytechnic students. However, even though students in METrO polytechnics possessed almost the lowest in life and career skills, METrO polytechnics students do possess the Productivity and Accountability skill higher than conventional polytechnic students. This difference may be due to differences in early admission requirements for diploma programs between Premier, Conventional, and METrO polytechnics. Premier Polytechnic provides higher admission requirements than conventional and METrO, which have the same admission requirements for diploma programs (Department of Polytechnic Studies, 2014). This situation can affect the skills possessed by Premier polytechnic students higher than Conventional and METrO polytechnic students.

The second main findings for research question one found that the order of life and career skills elements between the three types of polytechnics were the same for Premier and Conventional polytechnics, but be different with METrO polytechnic. The list of the five-element possessed by TVET students in Premier and Conventional polytechnic were Social and Cross-cultural > Initiative and Self-direction > Flexibility and Adaptability > Responsibility and Leadership > Productivity and Accountability. Meanwhile, for METrO polytechnic, the order was Initiative and Self-direction > Social and Cross-cultural > Flexibility and Adaptability > Productivity and Accountability > Responsibility and Leadership skills. This finding shows that students in premier and conventional polytechnics were better at social and cross-

cultural skills.

This finding is supported by Mclachlan (2012), who found that students needed more skills in cross-cultural communication. Social and cultural differences require students to acquire the skills to enable them to compete either nationally or internationally (Mclachlan, 2012). This result is also supported by Trilling and Fadel (2009), stressing that social and cultural skills are the skills that every student needs to possess since the world of work does not limit the location of places in the 21st-century era. Technology can make many countries or region to collaborate and make things happen.

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## REFERENCES

- [1] Daniels, J., Brooker, J. Student identity development in higher education: implications for graduate attributes and work-readiness. *Educational Research*, 2014, 56 (1), 65–76. doi:10.1080/00131881.2013.874157.
- [2] Department of Polytechnic Studies. Student Admission Division Portal, Department of Polytechnic Studies. 2014. Retrieved from <http://www.politeknik.edu.my/portalbpp/index.asp?pg=program&kat=dp>.
- [3] Fong, L. L., Sidhu, G. K., Fook, C. Y. Exploring 21st Century Skills among Postgraduates in Malaysia. *Procedia - Social and Behavioral Sciences*, 2014, 123, 130–138. doi: 10.1016/j.sbspro.2014.01.1406.
- [4] Ismail, A., Kasman, Z., Sumarwati, S., Yunus, F. A. N., Samad, N. A. The development of job competency for skilled technical worker towards green technology. *International Journal of GEOMATE*, 2019, 17 (59): 216-221. DOI: <https://doi.org/10.21660/2019.59>.
- [5] Janet, B. B., Kimberly, A. G., & Ken, K. Up to the Challenge: The Role of Career and Technical Education and 21st Century Skills in College and Career Readiness. U. S.: Career Technical Education Consortium and Partnership for 21st Century Skills. 2010.
- [6] Levin, D., Ben-Jacob, T., Ben-Jacob, M. The learning environment of the 21st century. *AACE Journal*, 2000, 1(13), 8–12.
- [7] Mclachlan, K. (2012). A case study of 21st Century Skills Programs and Practices. University of Southern California: P.hD Thesis.
- [8] Ofori, G. Nature of the Construction Industry, Its Needs and Its Development: A Review of Four Decades of Research. *Journal of Construction in Developing Countries*, 2015, 20 (2), 115–135.
- [9] Osman, K., Soh, T. M. T., Arsad, N. M. Development and validation of the Malaysian 21st century skills instrument (M-21CSI) for science students. *Procedia - Social and Behavioral Sciences*, 2010, 9, 599–603. DOI: 10.1016/j.sbspro.2010.12.204.
- [10] Pool, L. D., Sewell, P. The key to employability: developing a practical model of graduate employability. *Education + Training*, 2007, 49 (4), 277–289. DOI: 10.1108/00400910710754435.
- [11] Robinson, J. P. What are employability skills. *The Workplace*, 2000, 1 (3), 1–3. Retrieved from <http://www.fremont.k12.ca.us/cms/lib04/CA01000848/Centricity/Domain/189/employability-skills.pdf>
- [12] Sumarwati, S., Yunus, J. M., Ibrahim, B. Transferable Skills for PhD Students to Complete the Journey. *Advanced Science Letters*, 2017, 23 (2), 968-971. DOI: <https://doi.org/10.1166/asl.2017.7459>.
- [13] Trilling, B., & Fadel, C. (2009). *21st Century Skills: Learning for Life in Our Times*. Jossey-Bass. John Wiley & Sons. Retrieved from <http://www.hrdcentral.com/21st-century-skills-learning-for-life-in-our-times.html/>.