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My Say: What makes graduates employable — the case in Penang

In today's competitive labour market, graduate employability has become an important assessment for educational outcomes. Penang Institute recently conducted a study investigating graduate employability within the state's labour market. This was based on a survey of 396 graduates from Penang's higher education institutions. Of these, three-quarters were employed at the time of the survey in 2021 while nearly a quarter were still unemployed. It is suggested that the findings are generally applicable to the national situation as well.

It was found that STEM (science, technology, engineering and mathematics) graduates were generally more employable than graduates from non-STEM backgrounds (See Figure 1). A majority of STEM graduates work in high-tech manufacturing sectors such as electrical and electronics (E&E), and machinery and equipment (M&E). Furthermore, over 90% of them gained employment within six months after graduation.

Across the STEM disciplines, however, applied and pure sciences graduates showed the lowest level of employability. Although more than 75% of these found employment during the survey period, nearly half of them took more than six months to get a job.

Among non-STEM graduates, over 80% from accounting and finance, and business and administration, gained employment within the first six months of graduation, while those from mass communication, arts and social sciences showed a comparatively lower employment rate.

On the whole, fields of study (FOS) played a significant role. The logistics regression results showed that computer science offered the highest odds of being employed (14.6 times), followed by accounting and finance (4.6 times), engineering (3.5 times) and business and administration (3.5 times).

Talent retention versus brain drain

Most graduates from Penang's institutes of higher learning (IHLs) are more likely to work in the state after graduation. Out of 298 respondents, about 72% found jobs in Penang. Those who secured a job outside Penang had non-STEM backgrounds, with job functions centring on accounting and auditing, advertising and marketing, and finance, investment and credit.

Of those working in Penang, the study found that a majority who rated the job outlook of their industries in Penang positively are working in engineering-related jobs, and in accounting and audit.

Of 98 graduates unemployed at the time of the survey, most were from the social sciences, applied sciences, arts and pure sciences. Half of them had not been able to find a job in Penang, and about 16% of them were exploring job opportunities in Kuala Lumpur and Singapore, followed by Australia, China and the US.

Some engineering, as well as accounting and finance graduates with excellent academic grades, were more inclined to explore job opportunities in Singapore. Two branches of talent brain drain emerge. First are the graduates who cannot find a suitable job locally. Second are the highly skilled who are not willing to stay in the country.

<u>Structural mismatches</u>

Skills mismatch has been a prevailing concern raised by industries as the university curricula are not able to keep abreast of industry requirements.

While most computer science graduates felt that they were employed in a job that matched their education level, nearly a quarter of them considered they were underqualified for their job and in need of extra training. Employers have often noted that the computer software and tools students use for learning in our universities are not up to date.

Furthermore, according to the **Department of Statistics Malaysia** in 2021, underemployment in Malaysia's labour market is a structural and long-standing problem, and was faced by employed graduates even before Covid-19.

From our survey, skill-based underemployment among graduates is especially critical for pure sciences graduates. Half of them reported being underemployed, followed by those from applied sciences (42.9%) and social sciences (30.8%), on top of their already low employment rates (Figure 2). Some diploma-level positions were filled by degree holders.

This mismatch was severe across the manufacturing industries, something repeatedly highlighted by industry practitioners. Graduates employed in the E&E and M&E sectors also perceived themselves as underqualified. Some said that their work was either of limited relevance to their academic backgrounds or that the skills they now require were not learnt or acquired in their studies.

This is consistent with the fact that 21.5% of unemployed graduates cited lack of skills needed by the market as a concern while 18.3% felt underqualified for the jobs, as depicted in Table 1. These were most strongly felt by engineering graduates.

This is also proven by job-skill relevancy that measures the share of contribution to Penang's GDP. Graduates employed in the electrical, electronics and optical industry had below-average rating in job-skill relevancy.

In this connection, the mismatch most cited by employers was the lack of soft skills; these comprise communication skills, problem solving, critical thinking, presentation/public speaking and command of English. Lack of technical competency was the next top issue raised by employers, followed closely by insufficiently relevant knowledge learnt in university.

<u>The need for upskilling</u>

Skills required in today's labour market have grown more complex and graduates are required to possess knowledge of both hard and soft skills.

In essence, the needed skills converge across occupations and sectors with the advent of multifunctional technologies. For example, digital literacy is important for both STEM and non-STEM graduates. As such, it is important for universities to provide compulsory digital literacy programmes across all disciplines. Meanwhile, communication is the main transversal skill needed by all graduates.

Employers also play a part in providing skill training to their employees. Over 80% of employed graduates in our survey received training on technical skills on the job while about 42% had training on various transversal skills.

<u>The phenomenon of overeducation</u>

It is important to note that of the 396 respondents in our survey, nearly 20% held at least a master's degree, and this latter group recorded significantly lower employment rates than non-postgraduates.

This may be due to the lack of quality jobs for graduates in Malaysia, which resulted in little difference in average monthly salaries between postgraduates and undergraduates. This raises questions on the return on investment for postgraduate studies.

Compared to undergraduates, postgraduates are more likely to work in a job requiring lower requirements than their educational qualifications. About 35% of postgraduates were underemployed, compared to 19.9% of undergraduates. The top three reasons for unemployment were lack of jobs relevant to the field of study; being overqualified for available jobs; and intention to work outside Penang.

Graduates' wish list

Five requests made by the graduates were:

i. Diversification in economic activities and technological development with some proposing electronics, renewable energy, biotechnology, and information technology industries as areas of focus for development.

ii. Government support for upskilling/reskilling opportunities with more practical training in IHL courses relevant to industry requirements.

iii. Improvements in the education system, curriculum content and skills training.

iv. Digital tracking and monitoring of graduates' employability. This would assist policymakers in facilitating labour mobility and career progress, and tracking industry trend changes.

v. Government support for relevant internship programmes that benefit graduates in their job search.

Suggestions to improve graduate employability
The survey led to three key suggestions for improving graduate employment:

a. Improving job-skill relevancy

A unified database should be developed to allow job seekers to identify suitable initiatives. This can also reduce duplication and ensure the efficiency of resources.

- Career counselling and handholding initiatives for graduates who have difficulty finding a job.

- Apprenticeship programmes targeting hard-to-fill critical positions that help fill the skills gap.

- A skill monitoring committee and an implementing unit for skill and re-skilling initiatives.

b. Preparing a future-ready workforce

- Universities should establish partnerships with companies and industry partners to narrow the skills gap.

- Industry associations and companies should be offered the chance to contribute in industry advisory panels (IAP) in module development.

- Open synergistic platforms and avenues should be established for companies to access IHL's target pool of talent; allow more partnerships; shared labs and equipment collaboration; and industry-initiated research projects (which helps to increase patenting).

c. Improving institutional roles

- Training programmes and recruitment initiatives should be promoted regularly in IHLs. A searchable and interactive functional job portal and real-time career advice, and relevant training programmes should be incorporated into the portal to make it accessible to employers, students and alumni.

- Qualified career advisers should be recruited to build a career-ready talent pipeline for students, beginning from the first university year. The career services websites of selected universities should be assessed based on the services and support provided on the portal.

- University-industry collaboration should be enhanced in curriculum content design, teaching and learning process and career advisory. Lecturers' teaching methods should be innovative, with the focus on student-centred learning and periodical assessment by students, peers and industry.

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