

The Cause of Student Dropout from TVET at Malaysia Industrial Training Institute

Rodzidah Mohd Rodzi¹, Noor Ezlin Ahmad Basri², Zulkifli Mohd
Nopiah³

¹Manpower Department, Ministry of Human Resources Malaysia, ²Department of Civil Engineering, Faculty of Engineering and Built Environment, The National University of Malaysia, ³Department of Engineering Education, Faculty of Engineering and Built Environment, The National University of Malaysia
Corresponding Author Email: rodzidah@mohr.gov.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v14-i9/22740> DOI:10.6007/IJARBSS/v14-i9/22740

Published Date: 20 September 2024

Abstract

In Malaysia, Technical and Vocational Education and Training (TVET) serves as a catalyst for efforts to produce a highly skilled workforce. The government has invested in various incentives with industry collaboration to provide TVET opportunities, specifically for the youth. However, there are some issues related to students dropping out of TVET programmes. The problem is that the government continues funding without realising that the enthusiasm for TVET programmes would gradually withdraw. The purpose of this study was to determine the causes of TVET programme dropouts. The study sample consisted of 461 students from an industrial training institution managed by the Ministry of Human Resources Malaysia. This study employed a qualitative method with in-depth semi-structured interviews. The results revealed that the causes of student dropout from TVET programmes dominated by not being interested (38%), followed by job offers (25%), personal problems (16%), study offers (14%), and health issues (7%). The current TVET system is progressively losing relevance and does not meet the expectations of today's youth. The study proposes thorough scrutiny of TVET programmes to ensure they are relevant and cutting-edge. Furthermore, lecturers are encouraged to polish their teaching techniques to enhance students' comprehension and competency.

Keywords: Dropout, Empirical Data, Malaysia, Student, TVET

Introduction

The Malaysian government is taking proactive actions to leverage the Technical Education and Vocational Training (TVET) sector in order to reduce unemployment and dependency on foreign workers (Amin et al., 2023). The goal of TVET is to meet the needs of industrial workers and contribute to economic growth (Halik Bassah, 2021). According to

Najib et al. (Mohd Najib et al., 2022), through TVET, individuals are given the opportunity to qualify their skills, which are necessary for their career and expertise.

TVET is a job-oriented training approach that emphasises industrial practices to produce a competent workforce in specific fields (Mohd Najib et al., 2022). Various incentives, subsidies, and grants are spent on TVET students to promote TVET learning that covers post-school education, industry worker upskilling, and professional development purposes (Hanafi et al., 2023). Currently, Malaysia has 1,345 government and private TVET institutes, offering 250,000 places for applicants (Jamaludin et al., 2023). Despite this, TVET students are still dropping out. As a result of inefficient investment, both the government and business sectors will experience economic losses (Hamid et al., 2023). Certificate-level study and hostel accommodation fees are complimentary, as they are fully funded by the government (Syed Chear & Arifin, 2024). Additionally, students also receive a monthly allowance in their personal bank accounts. The government also subsidises diploma students, who pay significantly less than at private institutes (Hamid & Othman, 2024).

Dropouts are regarded as an urgent issue for two reasons. First, dropout rates reduce the number of people who successfully finish TVET programmes (Ponce et al., 2022). To achieve economic growth and poverty reduction, candidates must complete the study rather than simply attend it (Korumaz & Ekşioğlu, 2022). Second, if the dropout among TVET students persists, the public sector and industry would suffer financial losses (Wangmo & Tshewang, 2021). Wasted educational investment, coupled with a lack of returns, exacerbates the labour market crisis (Bahat et al., 2023). The problem is that the government continues funding the initiatives without realizing that the enthusiasm for TVET programmes is gradually withdraw.

The motivation to conduct this study was to increase understanding of social change phenomena among dropped out students. The intended outcomes benefit Malaysian TVET institutions by reducing student dropouts and improving decision-making precision. This student dropout scenario implies that, if uncurbed, the current TVET system will progressively lose relevance and not meet the expectations of today's youth. To resolve this issue, it is crucial to tackle the factors that accentuate the constraints.

The first step in preventing student dropouts is to understand what causes them (Banaag et al., 2024). Therefore, the research question for this study is, "What factors influence students' decisions to drop out of the TVET programmes?". The objective of this study was to identify the causes of student dropout from TVET programmes. The scope of this study targets students of industrial training institutions managed by the Manpower Department, generally known as *Institusi Latihan Jabatan Tenaga Manusia* (ILJTM). Respondents encompassed students at the Certificate, Diploma, and Advanced Diploma levels. The courses offered are classified into ten major fields, namely welding, manufacturing, transportation, engineering services, electronics, electrical maintenance, printing, construction, production, and Information and Communication Technologies (ICT).

Method

This study was conducted in three stages, commenced on November 10, 2023, and ended on June 20, 2024.

Research Design

The first step was to obtain the most recent statistics on graduating students. This will provide valuable insights into trends and areas for improvement. The procedure began by requesting permission from the Manpower Department to conduct the study and ensuring all necessary ethical approvals were in place. The researcher subsequently acquired the most recent dropout student statistics, which pertained to the batch that was verified during the Senate confirmation meeting on September 19, 2023. Based on the information received, students were passed, suspended, dropped out, or dismissed. The scope of this study was limited to students who dropped out.

The second stage involved gathering personal information about the student to be contacted. These details were gathered from the ILJTM Student Management Division of each branch of the 33 institutes. In the third stage, students were interviewed, and their feedback was recorded as key informants. A consensus qualitative research (CQR) method was employed during the interview process to gain an in-depth understanding of the subjective experiential causes that contributed to the TVET student's dropout (Coates et al., 2021), (Hill & Knox, 2021).

The saturation phase consisted of first defining saturation, followed by reviewing previous research on estimating saturation and sample sizes for in-depth interviews. We then provided an overview of the few empirically-based methods proposed to operationalize and evaluate saturation, as well as addressed the problems of applying these approaches to real-life research contexts, particularly those that employ inductive thematic analyses.

Sampling

Respondents were selected using purposive sampling, which is non-probabilistic because it allows researchers to choose targeted participants who meet certain criteria. According to the data, the total number of students is 3913 and the population of the study consists of 461 dropouts. Purposive sampling has been used by several previous researchers in their dropout studies (Nemtcan et al., 2020), (López-Pernas et al., 2022), (Bilar et al., n.d.).

The ILJTM operates 33 TVET institute branches across the country. The Industrial Training Institute, also known as *Institut Latihan Perindustrian* (ILP), offers certificate-level programmes. There are 24 ILPs in Malaysia. The Advanced Technology Centre (ADTEC) offers diploma and advanced diploma programmes. ILJTM owns eight ADTECs. Meanwhile, the Japan-Malaysia Technical Institute, or JMTI, offers Diploma and Advanced Diploma programmes. There is only one JMTI in Bukit Mertajam, Penang.

Instrument

The instruments used for collecting research data were semi-structured interviews (Böhn & Deutscher, 2022). Data collection is supported by detailed records of responses from respondents via phone conversations or emails. The researcher collected contact information

for the students who dropped out from each institute's Student Management Department such as phone numbers and email addresses.

Next, the researcher called the student's phone numbers and informed the participants that the study would only look into the causes of student dropouts from TVET programmes (Azeem et al., 2022). Interviewees were informed that their names would be kept solely for research purposes before taking notes. If the student could not be reached, an official email was sent to the student.

Data Analysis

The data were analysed qualitatively. Qualitative analysis is a method that involves conducting interviews and comprehension to answer questions such as what, why, and how. This method analyses data in the form of text or narratives (Wydra-Somaggio, 2021). Data analysis in qualitative research was performed after data collection using thematic analysis techniques (Mansi Choudhari et al., 2024). The themes in this study were study offer, job offer, not interested, health issues, and personal problems (Esau & Daniels, 2022). Thematic analysis methods are also used by other researchers in qualitative studies (Tungkunan, 2020), (Mohd Nasir et al., 2022). A percentage is a fraction or ratio that has 100 in its denominator (Srairi, 2021). The fractional percentage was calculated by dividing the numerator by the denominator and multiplying by 100, as shown in Equation 1 below.

$$(1) \quad \text{Percentage} = \left(\frac{\text{number of students}}{\text{total whole student}} \right) \times 100\%$$

Where, numerator = number of students for each theme, denominator = total whole students.

The data were analysed thematically using a three-step research process requiring documentation and archiving, understanding of meaning, and interpretation (Guddin et al., 2022). The thematic, three-step research process was chosen because this study was not a comparative study and the researcher wanted to learn about the documentation and interpretation processes of qualitative research.

The first step is to review the interview information individually to ensure consistency between the information recorded in the document and the information in the student's academic record. The transcription must be done word for word and necessitates careful understanding several times for precise wording. The interview transcript was then analysed to ensure consistency and grouping according to both main and sub-issues (Motseki & Luneta, 2024). The main issues were sorted by frequency and then evaluated by percentage. The sub-issues were addressed and interpreted using content analysis methods.

Results

The findings of the study started with a percentage rate of 3,913 students in the TVET sample, of which 461 dropped out. In other words, 11.78% of the participants dropped out before graduating.

Dropout Composition

The overall results of the analysis of interview results with 461 key informants represented in data visualisation are shown in Figure 1. The percentage composition of the dropout students in the ILJTM is illustrated by the fraction bar chart. There were five themes: 1) study offer, 2) job offer, 3) not interested, 4) health issues, and 5) personal problems, with corresponding numbers and percentages of students. The highest percentage of dropouts is caused by not being interested. The dropout percentage comprised approximately 38% of those not interested, followed by job offers, personal problems, study offers, and health issues with percentages of 25%, 16%, 14%, and 7%, respectively. The reason for not being interested (38%) was a dominant contributor to the dropout rates.

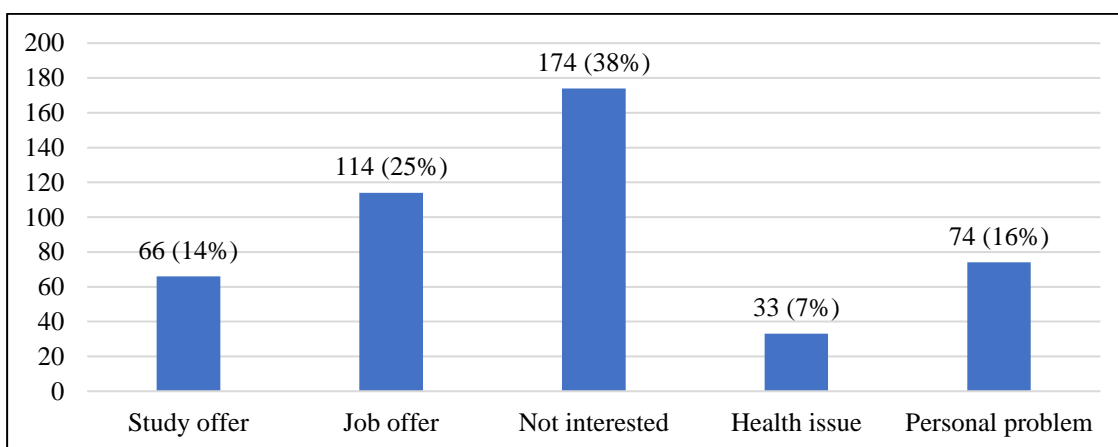


Figure 1. Percentage of TVET dropout causes

Empirical Data

The researcher compiled the empirical data by sorting and selecting significant feedback from the interview (Krötz, 2024). This empirical data provides extensive information through an in-depth analysis of the causes of dropout among students (Krötz & Deutscher, 2022). The interview results will be classified into five groups, as follows:

Table 1

Causes of study offer

Number	Information
1	I got an offer to study at Teknologi Maju College, Johor.
2	I got an offer to study at Selangor Islamic University.
3	I continue studying at GIAT MARA Kulim.
4	I study at Community College, Sungai Petani.
5	I got an offer to study for a diploma at UNISEL.
6	Part-time study at GIAT MARA Pasir Mas and working.
7	Work while studying at Fajar College, Miri.
8	I got an offer to study at GIAT MARA Wangsa Maju. ILP Ipoh is far from home.
9	I study at UniKL.
10	I am now studying at GIAT MARA Sabak Bernam.
11	I enrolled in the electrical competency course at IKM Kota Kinabalu.
12	I am pursuing my Form 6 STPM studies at SMK Ranau.
13	I am now studying at Jelebu Community College.

14	I quit because Nilai Polytechnic offers me a diploma.
15	I am now studying in the computer field at the Perak Institute of Technology.

Table 2

Causes of job offer

Number	Information
1	Drop out because of working in the government military.
2	I got a job offer in Negeri Sembilan.
3	I joined the Royal Malaysian Navy in Lumut, Perak.
4	I got a job as a policeman in Kuala Lumpur.
5	I was selected as the final military candidate.
6	I got a job at a welding company.
7	I received a job offer in Singapore, with my friend.
8	Working with the Malaysian Armed Forces.
9	I prefer working to help the family economy.
10	I received a job offer near my parents' home.
11	I left because I wanted to work. Outings are restricted if you stay in the hostel.
12	I don't want to study. I prefer to earn a living to help my family.
13	I have to work. My responsibility is to take care of my grandmother and siblings.
14	I refuse to study because it takes a long time. I work to help my parents.
15	I don't want to study. I want to work. Final projects and online classes cost money. I spent a lot of my mom's money.

Table 3

Causes of not interested

Number	Information
1	I had a hard time understanding online classes, especially the skill subjects.
2	There were too many assignments and homework.
3	I was not interested in graphic subject classes.
4	I applied for mechatronics. But when I was in the class, I wasn't interested.
5	I received an offer in the ceramics programme but was not interested.
6	I had a hard time focusing on learning skills in online classes.
7	Problems concentrating on learning practical sessions.
8	The final project needed money.
9	I was not interested in learning theory; I'm only interested in skills.
10	Learning environment. I feel discouraged.
11	I was not interested in staying at the hostel.
12	I was not interested in studying because I had to take out a loan.
13	I didn't understand the air conditioner class.
14	I could not follow the syllabus for the electrical field.
15	Mechanical maintenance was very difficult for me.
16	I had a challenging time following the mechanical CADD class.
17	I had difficulty going through on-the-job training in the industry.
18	I refused to stay in the hostel because the warden was very strict.
19	I was not interested in the discipline system and tight daily schedule.

Table 4

Causes of health issues

Number	Information
1	Because I had an accident. Broken elbow, damaged lung.
2	My medical checkup failed. I have thyroid disease.
3	I went to a psychiatric hospital. Because of personal problems.
4	Because I have cancer. Undergoing treatment in the hospital.
5	I have a skin disorder.
6	I have leg pain and can't attend class.

Table 5

Causes of personal problems

Number	Information
1	A male student kept mentally bothering me.
2	I was taking care of a family member who fell ill due to COVID-19.
3	My family has a low income. Financial problem.
4	My father died. I am the only son who must work to help my family.
5	I want to study near my parents' house.
6	I have a debt. Need to work.
7	I am helping my mother with the food business.

Discussion

Based on the dataset collected from ILJTM, we found that the dropout rate among the 19 September 2023 batch in TVET is 11.78%. The dropout rate at our TVET institution sample is substantial. In other words, 461 students dropped out before graduating. The findings of this study revealed that 38% students dropped out because they were not interested, followed by getting job offers (25%), having personal problems (16%), receiving study offers (14%), and facing health issues (7%).

The highest cause of TVET dropping out is not interested, as shown in Table 3. Empirical data analysis revealed that students dropped out because they were not interested in the course they were taking. Although students applied for the field, after studying, they quit and changed to another institute. In terms of the learning session, lecturers play an important role by delivering knowledge, concepts, or skills that enable students to grasp, process, and engage with the subject matter (Al-Tameemi et al., 2023). In addition, students were not interested in the TVET training system because they have to live in hostels. They were bound by disciplinary rules and had limited permission to go out. Research by Kareem et al. (Kareem Al-Tae & Mat Sulaiman, 2021) found that some students have health-related allergies to indoor air. Visible mold, fungus odors, and bacterial pollutants can all combine to create an environment receptive to allergens and irritation. Students also decided to withdraw since they could not keep up with online skill classes. Adhikari et al. (Adhikari et al.,

2023) stated that students did not feel motivated to study if the learning session was not exciting for them.

The second cause is the students received job offers as shown in Table 2. Several students left because they were offered attractive jobs, such as serving in government. This finding was consistent with empirical data from students who were appointed as navy, military, and police officers. Nurmalitasari et al. (Nurmalitasari et al., 2023) explained that some students prefer to work instead of studying for financial reasons, even if it might hinder their educational achievement. On top of that, students chose to work to support their families. Some young people are responsible for taking care of their families and siblings. Bester (Bester, 2023) suggests that the institution allows students to work while studying in order to earn income and gain work experience.

Table 5 shows the cause of having personal problems. The results indicated that a female student was psychologically disturbed by a male peer. Research by Moyo et al. (Moyo et al., 2021) proposed that the institution needed to be attentive against bullying and student discipline, especially towards females, to provide a conducive environment. Today's students are more likely to be physically bullied or subjected to cyber harassment (Abaido, 2020). Variables related to social integration, notably peers and educational support, acted as moderators (Bernardo et al., 2020). There was also a student who dropped out because she was caring for a family member infected with COVID-19. The Malaysian Ministry of Education has implemented online distance learning for students since the pandemic outbreak, which prohibited any face-to-face interaction (Othman et al., 2022). Hamida et al. (Hamida & Amal, 2022) argued that students should be allowed to attend online classes if they are caring for sick people at home. Other than that, because of their low household income, the students were responsible for working to support their families. Most students who dropped out due to personal problems preferred to stay near their families. Onyango et al. (Onyango et al., 2022) reported that 52.8% of students drop out of their TVET training because they were unable to pay college fees. The coronavirus outbreak has left a devastating socioeconomic impact; 114 million jobs were lost in 2020, with nearly half (49%) of those who lost wages during the pandemic still earning less than they did previously (Zakaria et al., 2023). Job loss can be devastating for low-income families, especially those who rely on a single income (Chaturvedi et al., 2021).

The other cause is getting an offer to study. Based on Table 1 dropout students preferred to study at institutions governed by the Ministry of Education. Among them are public universities and *Majlis Amanah Rakyat* (MARA) institutions. As stated in Sani et al. (Sani et al., 2023) survey, MARA offers education loans to Malay indigenous peoples (*Bumiputera*) for diploma and first-degree courses, while ILJTM only provides programmes for certificates, diplomas, and advanced diplomas. Several students changed fields and continue their studies at a private university. There were also students pursuing a pre-university examination, Malaysian Higher School Certificate or *Sijil Tinggi Persekolahan Malaysia* (STPM). Students considered changing their academic programme due to a lack of interest, as pushing to study something that does not pique someone's interest could lead to feeling worn out (Marangell & D'Orazi, 2023).

The last cause is facing health issue. The findings in Table 4 indicate that one student dropped out due to an accident, had issues during medical screening and underwent scheduled treatments due to having cancer and skin diseases. Baalman (Baalman, 2024) claimed that poor physical and mental health might undermine their self-confidence in their ability to perform and imperil their perception of the chances of successfully completing their education. The data also revealed that one student ended the study due to admission to a psychiatric hospital. Buthelezi et al. (Buthelezi & Hlalele, 2024) proved that teenagers and youth tended to have worse mental health, higher levels of anxiety, and depression than all other age groups.

Conclusion

TVET students contribute skilled human capital to the country's economic development. Dropping out of TVET can lead to government and financial losses. If viewed in terms of long-term consequences, the dropout issue has an impact on youths, making it difficult to get jobs with a steady income. Moreover, the country faces a shortage of highly trained and skilled workers. The discontinuation of courses in TVET institutions due to lack of student demand poses a challenging issue. TVET institutions must either plan or make adjustments. Otherwise, the learning process becomes dull and bland.

This study is significant because it indicates the critical factors of student dropout from the TVET educational system. It demonstrates the persistence of failures in direction, transition, adaptation, and student learning processes. The outcomes of this study can be applied to future research on predicting student dropout. The data from this study can be used by other researchers when developing research questions or carrying out hypothesis testing. Aside from that, the education sector could use the research findings to devise potential solutions to make TVET programmes more enticing and appealing. The study recommends thorough scrutiny of TVET programmes to ensure they are relevant and cutting-edge. Furthermore, lecturers are encouraged to polish their teaching techniques to enhance students' comprehension and competency.

Acknowledgements

The authors would like to thank the Manpower Department, Ministry of Human Resources Malaysia and The National University of Malaysia for their support.

References

- Abaido, G. M. (2020). Cyberbullying on social media platforms among university students in the United Arab Emirates. *International Journal of Adolescence and Youth, 25*(1), 407–420. <https://doi.org/10.1080/02673843.2019.1669059>
- Abd Hamid, H., Piahat, M. T., Azwan Haris, N. A. L., & Hassan, M. F. (2023). Shades of gray TVET in Malaysia: Issues and challenges. *International Journal of Academic Research in Business and Social Sciences, 13*(6), 2152–2167. <https://doi.org/10.6007/ijarbss/v13-i6/16747>
- Abd Hamid, H. S., & Othman, M. (2024). Predicting behavioural intention to enrol at a TVET institution. *Sains Humanika, 16*(2), 1–8. <https://doi.org/10.11113/sh.v16n2.2085>

- Adhikari, R., Adhikari, S. R., Upreti, D. R., & Adhikari, K. P. (2023). Effectiveness of TVET in Nepal. *Journal of Technical and Vocational Education and Training*, 17(1), 35–48. <https://doi.org/10.3126/tvet.v17i1.52413>
- Al-Tameemi, R. A. N., Johnson, C., Gitay, R., Abdel-Salam, A. S. G., Hazaa, K. Al, BenSaid, A., & Romanowski, M. H. (2023). Determinants of poor academic performance among undergraduate students—A systematic literature review. *International Journal of Educational Research Open*, 4, 1–13. <https://doi.org/10.1016/j.ijedro.2023.100232>
- Amin, S. M., Ahmad Suhaimi, S. S., & Nazuri, N. S. (2023). The present and future of Malaysian technical and vocational education and training (TVET). *International Journal of Academic Research in Business and Social Sciences*, 13(18), 107–117. <https://doi.org/10.6007/ijarbss/v13-i18/19952>
- Azeem, N., Omar, M. K., Rashid, A. M., & Abdullah, A. (2022). The secondary school students' interest toward the TVET programs: demographic differences. *International Journal of Learning, Teaching and Educational Research*, 21(4), 80–96. <https://doi.org/10.26803/ijlter.21.4.5>
- Baalmann, T. (2024). Health-related quality of life, success probability and students' dropout intentions: Evidence from a German longitudinal study. *Research in Higher Education*, 65(1), 153–180. <https://doi.org/10.1007/s11162-023-09738-7>
- Bahat, İ., Ernas, S., & Işık, M. (2023). The phenomenon of voluntary dropout: An investigation into management information systems students. *Pegem Journal of Education and Instruction*, 13(4), 330–343. <https://doi.org/10.47750/pegegog.13.04.38>
- Banaag, R., Sumodevilla, J. L., & Potane, J. (2024). Factors affecting student drop out behavior: A systematic review. *International Journal of Educational Management and Innovation*, 5(1), 53–70. <https://doi.org/10.12928/ijemi.v5i1.9396>
- Bernardo, A. B., Tuero, E., Cervero, A., Dobarro, A., & Galve-González, C. (2020). Bullying and cyberbullying: Variables that influence university dropout. *Comunicar*, 28(64), 61–69. <https://doi.org/10.3916/C64-2020-06>
- Bester, S. (2023). Exploring inclusive leadership and strategic visioning as pathways to well-being in TVET colleges. *Journal of Vocational, Adult and Continuing Education and Training*, 6(1), 108–126. <https://doi.org/10.14426/jovacet.v6i1.316>
- Bilar, E. A., A Montañez, M. C., Aguitong Bilar Jr, E., & Cristilina Aradillos Montañez, M. (n.d.). Understanding student dropout risk: A qualitative study. *HCMCOUJS-Social Sciences*, 14(2), 18–34. <https://doi.org/10.46223/HCMCOUJS>
- Böhn, S., & Deutscher, V. (2022). Dropout from initial vocational training – A meta-synthesis of reasons from the apprentice's point of view. *Educational Research Review*, 35, 1–14. <https://doi.org/10.1016/j.edurev.2021.100414>
- Buthelezi, M. M., & Hlalele, D. J. (2024). Assessing students' experiences of psychosocial support for sustainable learning at a South African TVET college. *E-Journal of Humanities, Arts and Social Sciences*, 5(5), 735–750. <https://doi.org/10.38159/ehass.20245513>
- Chaturvedi, K., Vishwakarma, D. K., & Singh, N. (2021). COVID-19 and its impact on education, social life and mental health of students: A survey. *Children and Youth Services Review*, 121, 1–6. <https://doi.org/10.1016/j.childyouth.2020.105866>
- Coates, W. C., Jordan, J., & Clarke, S. O. (2021). A practical guide for conducting qualitative research in medical education: Part 2—Coding and thematic analysis. *AEM Education and Training*, 5(4), 1–7. <https://doi.org/10.1002/aet2.10645>

- Esau, J., & Daniels, D. (2022). From out-of-school-youth to TVET student: Exploring the funds in families and communities that facilitate second-chance learning. *Journal of Vocational, Adult and Continuing Education and Training*, 5(1), 24–40. <https://doi.org/10.14426/jovacet.v5i1.244>
- Guddin, S., Dr. R. N. Yadawad, & Dr. U.P. Kulkarni. (2022). Stream Processing for Performance Analysis of Identifying Dropout Students utilizing Different Decision Tree Based Methods. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology*, 8(4), 150–156. <https://doi.org/10.32628/cseit228417>
- Halik Bassah, N. 'Adnin S. H. B. (2021). The issues and challenges of TVET in Malaysia: from the perspective of industry experts. *TVET@Asia*, 1(18), 1–15. www.tvet-online.asia
- Hamida, A., & Amal, O. (2022). Online learning on students during the COVID-19 pandemic. *Clinical Medical Reviews and Case Reports*, 9(11). <https://doi.org/10.23937/2378-3656/1410412>
- Hanafi, A. G., Ahmad, H. H., Mansor, M. F., & Mustafa, W. A. (2023). An integrated approach in empowering technical and vocational education and training (TVET) for Malaysian asnaf in the IR4.0 era. *Journal of Advanced Research in Applied Sciences and Engineering Technology*, 30(2), 255–271. <https://doi.org/10.37934/araset.30.2.255271>
- Hill, C. E., & Knox, S. (2021). Conceptual foundations of consensual qualitative research. In *Essentials of Consensual Qualitative Research*. (pp. 3–10). American Psychological Association. <https://doi.org/10.1037/0000215-001>
- Jamaludin, R. B., Hamid, A. H. A., & Alias, B. S. (2023). Empowering technical and vocational education and training (TVET). *International Journal of Academic Research in Business and Social Sciences*, 13(12), 3072–3080. <https://doi.org/10.6007/ijarbss/v13-i12/20159>
- Kareem Al-Taee, Y. A., & Mat Sulaiman, M. K. A. (2021). Indoor environmental comfort in student hostel at Malaysia's public university: A literature review. *Jurnal Kejuruteraan*, 33(3), 487–501. [https://doi.org/10.17576/jkukm-2021-33\(3\)-11](https://doi.org/10.17576/jkukm-2021-33(3)-11)
- Korumaz, M., & Ekşioğlu, E. (2022). Why do students in vocational and technical education drop out? A qualitative case study. *International Journal of Contemporary Educational Research*, 9(1), 1–17.
- Krötz, M. (2024). Structuring the complexity of drop-out from VET: a theoretical framework guiding empirical research perspectives. *Empirical Research in Vocational Education and Training*, 16(1), 1–14. <https://doi.org/10.1186/s40461-023-00155-9>
- Krötz, M., & Deutscher, V. (2022). Drop-out in dual VET: why we should consider the drop-out direction when analysing drop-out. *Empirical Research in Vocational Education and Training*, 14(1), 1–26. <https://doi.org/10.1186/s40461-021-00127-x>
- López-Pernas, S., Kleimola, R., Väisänen, S., & Hirsto, L. (2022). Early detection of dropout factors in vocational education: A large-scale case study from Finland. *Proceedings of the Finnish Learning Analytics and Artificial Intelligence in Education Conference (FLAIEC22)*, 1, 1–7.
- Mansi Choudhari, Saloni Rangari, Pratham Badge, Pratham Chopde, & Atharva Paraskar. (2024). Review on educational academic performance analysis and dropout visualization by analyzing grades of student. *International Research Journal on Advanced Engineering and Management (IRJAEM)*, 2(05), 1408–1422. <https://doi.org/10.47392/irjaem.2024.0194>

- Marangell, S., & D'Orazzi, G. (2023). Students' changing conceptualizations of university internationalization in Australia. *Higher Education Research and Development*, 42(5), 1230–1246. <https://doi.org/10.1080/07294360.2023.2193725>
- Mohd Najib, I. Z., Mohd Nordin, R., Yunus, J., Ismail, Z., & Mat Nasir, N. (2022). Technical vocational education and training (TVET) capability approach framework [TVET-CAF]. *Online Journal for TVET Practitioners*, 7(2), 1–10. <https://doi.org/10.30880/ojtp.2022.07.02.001>
- Mohd Nasir, M. A., Alaudin, R. I., Ali, N. A., Ismail, S., & Mohd Faudzi, F. N. (2022). Dropout tendency in higher education: A qualitative study of international students in Malaysia. *Jurnal Personalia Pelajar*, 25(2), 119–132. <http://www.ukm.my/personalia/publication/a12-dis-2022/>
- Motseki, P., & Luneta, K. (2024). An error analysis of TVET students' responses to optimisation problems. *African Journal of Research in Mathematics, Science and Technology Education*, 28(1), 134–152. <https://doi.org/10.1080/18117295.2024.2341358>
- Moyo, A., Sankhulani, L., & Namalima, S. (2021). Socio-economic factors contributing to female students' dropout in community technical colleges in Thyolo and Phalombe districts: A case of Milonga and Naminjiwa technical colleges. *Journal of Education and Practice*, 5(4), 31–45. www.carijournals.org
- Nemtcan, E., Sæle, R. G., Gamst-Klaussen, T., & Svartdal, F. (2020). Drop-out and transfer-out intentions: The role of socio-cognitive factors. *Frontiers in Education*, 5, 1–14. <https://doi.org/10.3389/feduc.2020.606291>
- Nurmalitasari, Awang Long, Z., & Faizuddin Mohd Noor, M. (2023). Factors influencing dropout students in higher education. *Education Research International*, 2023, 1–13. <https://doi.org/10.1155/2023/7704142>
- Onyango, N. O., Sika, J. O., & Gogo, J. O. (2022). Challenges of the internal efficiency of science and technology education training programs in the TVET institutions in Nyanza Region, Kenya. *European Journal of Education Studies*, 9(6), 75–89. <https://doi.org/10.46827/ejes.v9i6.4326>
- Othman, I. W., Mokhtar, S., & Esa, M. S. (2022). The stages of national education system operation: Issues, rationale, and challenges for the Ministry of Education Malaysia (MOE) in facing post pandemic norms of COVID-19. *International Journal of Education, Psychology and Counseling*, 7(47), 616–638. <https://doi.org/10.35631/ijepc.747048>
- Ponce, O. A., Gómez-Galán, J., & Pagán-Maldonado, N. (2022). Qualitative research in education: revisiting its theories, practices and developments in a scientific-political era. *International Journal of Educational Research and Innovation*, 2022(18), 278–295. <https://doi.org/10.46661/ijeri.5917>
- Sani, F. M., Sumintono, B., & Abdullah, Z. (2023). The implementation of professional learning community: A study in TVET MARA college in Malaysia. *International Online Journal of Educational Leadership*, 7(1), 19–33.
- Srairi, S. (2021). An analysis of factors affecting student dropout: The case of Tunisian universities. *International Journal of Educational*, 1, 1–19. <https://doi.org/10.1177/10567879211023123>
- Syed Chear, S. L., & Arifin, M. (2024). Technical and vocational education and training prospect for higher learning institution. *Quantum Journal of Social Sciences and Humanities*, 5(3), 144–160. <https://doi.org/10.55197/qjssh.v5i3.377>

- Tungkunan, P. (2020). The causes of student dropout from dual vocational education (Dve): An empirical study in Thailand. *Journal of Technical Education and Training*, 12(3 Special Issue), 135–142. <https://doi.org/10.30880/jtet.2020.12.03.014>
- Wangmo, S., & Tshewang, S. (2021). Push, pull and falling out: Determinant factors of dropout in technical training institutes in Bhutan. *Journal of Bhutan Studies*, 44, 1–20.
- Wydra-Somaggio, G. (2021). Early termination of vocational training: dropout or stopout? *Empirical Research in Vocational Education and Training*, 13(1), 1–23. <https://doi.org/10.1186/s40461-021-00109-z>
- Zakaria, R. H., Sabri, M. F., Satar, N. M., & Magli, A. S. (2023). The immediate impacts of COVID-19 on low-income households: Evidence from Malaysia. *Sustainability (Switzerland)*, 15(10), 1–18. <https://doi.org/10.3390/su15108396>