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E-B
Environment - Behaviour
Proceedings Journal

ISSEC-24
https://sites.google.com/view/issec-2024/home
International Social Science & Educational Conference 2024
Virtual conference, 07-08 Dec 2024
Organised by: CLM Publishing Resources, Malaysia

e-IPH
e-International
Publishing House Ltd.,
United Kingdom

Utilizing the Fuzzy Delphi Method to Identify Key Factors influencing Disciplinary Problems among Secondary Students

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Abstract
This study utilized the Fuzzy Delphi Method (FDM) to identify and prioritize key factors contributing to disciplinary problems among secondary students, particularly within Asian contexts. By engaging expert panels, the study systematically evaluated various factors such as academic pressure, peer influence, and family dynamics. Through defuzzification, consensus was reached on most items, highlighting the method's effectiveness in addressing complex behavioral issues. The findings provide valuable insights for educators and policymakers to implement targeted interventions, thereby improving school climate and reducing misbehavior.

Keywords: Fuzzy Delphi Method, disciplinary problems, secondary students, behavioral interventions

DOI: https://doi.org/10.21834/e-bpj.v10iSI24.6354

1.0 Introduction

Disciplinary problems among secondary school students have increasingly become a significant concern in the education sector. These issues range from minor infractions, such as tardiness or non-compliance with rules, to severe violations, like bullying or fighting. Such disciplinary problems can hinder both the learning environment and the well-being of students. Addressing these issues is crucial because they disrupt the learning process and may lead to further negative consequences for both students and educators. Failure to control these issues can contribute to a decline in academic performance, psychological well-being, and the overall school climate (Limone & Toto, 2022). Understanding the key factors that contribute to disciplinary problems is essential for developing effective interventions. This issue is pervasive across the globe, affecting schools in both urban and rural areas. In particular, schools located in socio-economically disadvantaged areas tend to experience higher rates of disciplinary issues due to various underlying factors such as limited resources and community dynamics (Hwang et al., 2022). Over the past decade, and particularly after the COVID-19 pandemic, there has been a noticeable increase in the frequency and intensity of disciplinary problems. The shift in learning environments, from physical to remote and back again, has led to increased stress and behavioural issues among students (De Coninck et al., 2020). Secondary students are at the centre of this issue, being in a crucial developmental stage characterized by significant emotional and social changes. Teachers, parents, and the broader community are also affected, as they play important roles in shaping student behaviour and addressing disciplinary issues (Huang et al., 2023). Hence, this study aims to explore the key factors contributing

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DOI: https://doi.org/10.21834/e-bpj.v10iSI24.6354

to disciplinary problems among secondary school students by employing the Fuzzy Delphi Method. This method involves gathering expert opinions to reach a consensus on the most influential factors, allowing for a more structured approach in understanding and mitigating this issue.

2.0 Objectives of the Study

To achieve the aim of this study, the following objectives have been outlined:

a) To identify the key factors contributing to disciplinary problems among secondary school students.
b) To prioritize these factors using the Fuzzy Delphi Method (FDM).

3.0 Literature Review

Disciplinary problems among secondary students are shaped by various factors including individual, family, school, socio-economic backgrounds, and cultural expectations. Understanding the key factors contributing to disciplinary problems is way more important than simply punishing them. These factors play a distinct role in shaping students' behaviours, as evidenced by past studies and recent statistical findings. Individual traits such as impulsivity, low self-concept, and lack of emotional regulation have been linked to higher incidences of disciplinary issues. Research conducted by Radzak et al. (2023) found that students with lower levels of self-concept are more likely to engage in disruptive behaviour. These personal characteristics often manifest as having social anxiety, difficulty following rules or reacting aggressively when challenged. Family factors also play a substantial role in influencing student behaviour. Studies have demonstrated that students from families with inconsistent parenting styles, or low parental involvement are more likely to display disciplinary issues (Brown & Wang, 2023, Lin & Guo, 2024, Muna, 2020). For example, student who are being abused by their family members most likely to break school rules as complying with them are considered as 'submit' themselves which they view as weakness. Moreover, Muna (2020) noted that adolescents from economically challenged families are at higher risk of disciplinary problems.

Sometimes their lack of interest in studying or coming late to school is the result of being tired from their part time work. School climate, including the quality of peer influence, and student-teacher relationships, significantly affects student engagement in disciplinary issues. For instance, students usually followed their friend's bad behaviour in order be accepted and belongs in the peer circle. In addition, the negative attitude of some teachers towards students at school also causes them to feel unappreciated and left out. Community influences are also shown to engage student in disciplinary problems. In the UK, societal attitudes towards authority and individualism have been linked to a rise in disciplinary issues among teenagers (Brown & Wang, 2023). This can be seen through a study by Muna (2020), in which a few minorities migrant student from neighbouring countries experience avoidance from other native students due to their culture's differences. This review concludes that disciplinary issues in secondary schools are the result of a complex interaction between students' personal characteristics, family dynamics, school environment, and sociocultural factors. These provides a theoretical basis for determining which factors are most influential. Understanding Malaysia's socioeconomic and cultural diversity is crucial to creating focused treatments that may successfully lower disciplinary issues and enhance student performance.

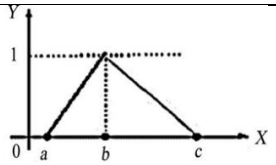
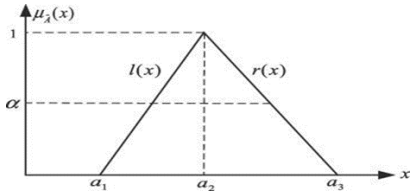
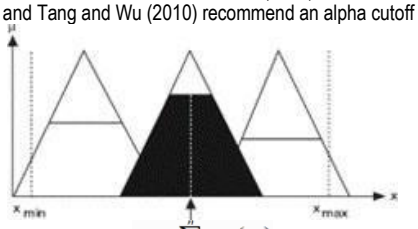
Given how interconnected these elements are, a one-size-fits-all approach to punishment would not be sufficient to address the underlying reasons of behavioural problems. While earlier studies have discovered various factors that influenced student discipline, they have not clarified which factors are more significance in Malaysia schools. Current studies often analyse one or two factors alone, which complicates the understanding of how these components interact collectively. Additionally, due to the complexity of student behaviour and its varied interpretations, conventional research methods often face challenges in delivering definitive conclusions. This study employs the Fuzzy Delphi Method to enable experts to collaboratively and systematically rank these factors, while considering the uncertainty in measuring behaviour, especially in Malaysia's diverse school environment. If disciplinary problems among secondary students are not adequately addressed, the implications could be severe, affecting both individual students and society at large. Research by Nadzriah Ahmad (2023), indicates that if their behavioural issues remain unresolved, these students are more likely to commit crimes in the future. These possible consequences highlight the urgency of identifying and prioritizing the key factors contributing to disciplinary problems in Malaysian secondary schools.

4.0 Methodology

The Fuzzy Delphi Method (FDM) combines traditional Delphi and fuzzy set theory, making it effective for gaining expert consensus on ambiguous topics. It reduces the number of rounds compared to the traditional Delphi method, saving time and costs while maintaining accuracy (Jani et al., 2018). This study used FDM to assess language variables, with expert questionnaires as the primary data collection tool, ideal for situations where direct interviews are not feasible (Dalkey & Helmer, 1963). The FDM process involves several key steps, as follows:

Table 1: Fuzzy Step

Criteria	Step
1. Expert's selection	Five experts were selected to evaluate language variables and assess their importance. Triangular fuzzy numbers and a specific type of fuzzy logic were used to quantify these language factors. Triangular fuzzy numbers offer a structured way to represent linguistic variables in decision-making by capturing minimum, median, and maximum values, denoted as (m1, m2) and (m3). The lowest point, (m1), represents the minimum, while (m3) represents the maximum.
2. Determining linguistic scale	Fuzzy numbers are applied to linguistic variables to allow a more nuanced interpretation. The fuzzy scale standardizes and analyses language expressions within a structured fuzzy framework.

<table>
<tr><td></td><td>$$\mu_A(x)=\begin{cases}0, & x\le a\\ \frac{x-a}{b-a}, & a<x\le b\\ 1, & x=b\\ \frac{c-x}{c-b}, & b<x\le c\\ 0, & x\ge c.\end{cases}$$  </td></tr>
<tr><td>3. The Determination of Linguistic Variables and Average Responses</td><td>After collecting expert responses, Likert scales are converted into fuzzy scales to capture nuances in feedback (Benitez et al., 2007). Averaging these fuzzy numbers provides a more flexible and refined interpretation of expert opinions, aligning with the fuzzy logic framework used in the study.
<table>
<tr><th>Response</th><th>Triangular fuzzy</th><th>Likert Scale</th></tr>
<tr><td>Strongly disagree</td><td>0.00, 0.00, 0.20</td><td>1</td></tr>
<tr><td>Disagree</td><td>0.00, 0.20, 0.40</td><td>2</td></tr>
<tr><td>Moderate Agree</td><td>0.20, 0.40, 0.60</td><td>3</td></tr>
<tr><td>Agree</td><td>0.40, 0.60, 0.80</td><td>4</td></tr>
<tr><td>Strongly agree</td><td>0.60, 0.80, 1.00</td><td>5</td></tr>
</table></td></tr>
<tr><td>4. The determination of threshold value “d”</td><td>Establishing the threshold value, "d," is crucial for measuring expert consensus (Thomaidis et al., 2006). This value gauges the closeness of opinions by calculating the distance between two fuzzy numbers using specific formulas. These calculations help assess the alignment between experts, enabling a clearer interpretation of consensus in fuzzy decision-making.
$$d(\bar{m},\bar{n})=\sqrt{\frac{1}{2}\left[(m1-n1)^2+(m2-n2)^2+(m3-n3)^2\right]}$$</td></tr>
<tr><td>5. Identify the alpha cut, the aggregate level of fuzzy assessment.</td><td>When experts reach consensus on a vague or approximate rating, the formula (4m1 + (2m2) m3), is used to determine the maximum area for fuzzy assessments (Mustapha & Darussalam, 2018). This formula quantifies consensus by using fuzzy numbers to represent varying levels of agreement among experts.

</td></tr>
<tr><td>6. Defuzzification</td><td>Defuzzification is carried out using the formula Amax = 1/4 (a1 + 2am + a3) is used. This process involves calculating average fuzzy numbers using three possible formulas:
1. A = 1/3 (m1 + m2 + m3)
2. A = 1/4 (m1 + 2m2 + m3)
3. A = 1/6 (m1 + 4m2 + m3)
The median between ‘0’ and ‘1’ is calculated as the A-cut value, calculated as (0 + 1) / 2. If the A value is below 0.5, it is discarded, as expert agreement is insufficient. Bojdanova (2006) and Tang and Wu (2010) recommend an alpha cutoff above 0.5 for reliable consensus.


$$x^*=\frac{\sum_{i=1}^{n}x_i\mu(x_i)}{\sum_{i=1}^{n}\mu(x_i)}$$</td></tr>
<tr><td>7. Ranking</td><td>Items ranked by their defuzzification value (Fortemps & Roubens, 1996).</td></tr>
</table>

4.1 Sampling

Purposive sampling was used in this study. Five experts were selected based on their specialized knowledge. While some studies suggest larger panels, a group of 5–10 experts are often sufficient for specialized FDM studies (Mustapha et al., 2018; Rowe & Wright, 2011). Time constraints and expert availability led to the selection of five experts, providing enough insight for consensus.

Table 2: List of experts

No	Experts	No of experts	Field of expertise	Institution
1	Counsellor	4	Counselling	Private Institute
2	Counsellor	1	Islamic Counselling	Institute of Teacher Training

4.2 Experts Criteria

Experts were selected based on at least three years of experience and relevant qualifications. They were chosen for their deep knowledge and professional recognition, ensuring reliable and credible results (Booker & McNamara, 2004; Mustapha & Darussalam, 2018).

4.3 Instrumentation

The questionnaire was developed using literature, pilot studies, and expert feedback, as supported by Okoli & Pawlowski (2004), Skulmoski et al. (2007), and Mustapha & Darussalam (2018). A seven-point fuzzy scale was simplified to a 1–7 scale to ensure ease of use for experts.

Table 3: Fuzzy scale

Item	Fuzzy Scale
Strongly disagree	(0.0, 0.0, 0.1)
Disagree	(0.0, 0.1, 0.3)
Somewhat Disagree	(0.1, 0.3, 0.5)
Neutral	(0,3, 0.5, 0.7)
Somewhat agree	(0.5, 0.7, 0.9)
Agree	(0.7, 0.9, 1.0)
Strongly agree	(0.9, 1.0, 1.0)

4.4 Data Analysis

Data were analysed using FUDELO 1.0 (Fuzzy Delphi Logic Software), a tool designed specifically for FDM studies.

5.0 Findings

Data from the FDM session was analysed to reach a consensus on key disciplinary factors, based on expert insights.

Table 4: Defuzzification Report

Results	Item1	Item2	Item3	Item4	Item5	Item6	Item7	Item8	Item9	Item10	Item11	Item12	Item13	Item14	Item15
Expert1	0.01155	0.26558	0.12702	0.02309	0.04619	0.05774	0.11547	0.02309	0	0.1963	0.05774	0.03464	0.05774	0.05774	0.01155
Expert2	0.04619	0.20785	0.24249	0.03464	0.12702	0.28868	0.05774	0.03464	0.11547	0.08083	0.05774	0.03464	0	0.05774	0.01155
Expert3	0.01155	0.02309	0.01155	0.02309	0.04619	0.05774	0.11547	0.02309	0.05774	0.1963	0.05774	0.03464	0	0.05774	0.12702
Expert4	0.01155	0.13856	0.10392	0.03464	0.01155	0.05774	0.28868	0.03464	0	0.15011	0.28868	0.1963	0.11547	0.05774	0.33486
Expert5	0.01155	0.31177	0.27713	0.02309	0.04619	0.23094	0.11547	0.02309	0.05774	0.32332	0.11547	0.09238	0.05774	0.11547	0.18475
Statistics	Item1	Item2	Item3	Item4	Item5	Item6	Item7	Item8	Item9	Item10	Item11	Item12	Item13	Item14	Item15
Value of the item	0.01848	0.18937	0.15242	0.02771	0.05543	0.13857	0.13857	0.02771	0.04619	0.18937	0.11547	0.07852	0.04619	0.06929	0.13395
Value of the construct															0.09515
Item < 0.2	5	2	3	5	5	3	4	5	5	4	4	5	5	5	4
% of item < 0.2	100%	40%	60%	100%	100%	60%	80%	100%	100%	80%	80%	100%	100%	100%	80%
Average of % consensus															85
Defuzzification	0.98	0.54	0.48	0.96	0.92	0.4	0.8	0.96	0.9	0.56	0.8	0.84	0.9	0.8	0.68
Ranking	1	9	10	2	3	11	6	2	4	8	6	5	4	6	7
Status	Accept	Accept	Reject	Accept	Accept	Reject	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept

The findings show strong expert agreement on several factors affecting student discipline. Item 1, with the highest defuzzied score of 0.98, was identified as a key factor, along with Items 4 (0.96) and 5 (0.92), which also received high scores, reinforcing their importance. However, Items 3 (0.48) and 6 (0.40), with lower scores, lacked consensus, suggesting the need for further review. The 12 accepted items represent critical intervention targets for educators and policymakers, focusing on factors experts agree are essential for improving school discipline. Rejected items or those with low consensus may require additional analysis or re-evaluation to better align with expert views. Overall, the FDM process successfully gathered expert input, providing a systematic approach to identifying key disciplinary factors. These results offer valuable insights for developing evidence-based strategies aimed at addressing disciplinary issues and fostering improved school environments.

6.0 Discussion

Overall, the findings address the research goal by identifying key factors driving disciplinary issues among secondary school students. Experts widely agreed on emotional and psychological struggles (Item 1), peer influence (Item 4), and limited parental engagement (Item 5), as top priorities for addressing disciplinary issues. This finding is in line with the study conducted by Radzak et al., (2023) which state that emotional challenges such as anxiety, depression, and somatic symptoms strongly influence behavioural issues among students. These issues often stem from poor self-concept and social stressors, leading to withdrawal, rule-breaking, and aggression. Similarly, Lin et al., (2024) note that mental abuse and emotional neglect exacerbate such struggles, increasing the likelihood of risky behaviours like substance use and truancy. In addition, our findings also revealed that peer influence has a great impact on student engagement in discipline behaviour. Peers actually play a dual role in shaping student behaviour, acting as both a support system and a source of negative influence. Radzak et al. (2023) noted that peer socialization significantly affects behaviour, with negative peer influences being linked to delinquent activities such as truancy.

Similarly, Siraj et al., (2021) found that adolescents often adopt risky behaviours—such as substance abuse and aggression—to gain social acceptance or cope with peer pressure. Muna (2020) supported these findings, emphasizing that peer influence is particularly impactful during adolescence, as students are highly sensitive to social norms and validation. Parental involvement acts as a buffer against behavioural problems, with its absence increasing vulnerability. Radzak et al. (2023) identified weak parent-child relationships as a significant predictor of behavioural issues, noting that inadequate parental communication and support often lead to aggressive or rule-breaking behaviours. Lin et al., (2024) corroborated this by showing that adolescents from families with poor emotional connections were more likely to engage in high-risk behaviours. Muna (2020) highlighted the role of family dynamics, emphasizing that strong parental engagement fosters better emotional regulation and reduces the likelihood of delinquency. Conversely, lower academic performance (Item 3) and family socio-economic (Item 6) struggles showed less expert agreement. This result is contrary with past studies where it is found that family socioeconomic struggles does influence student's behaviour.

According to Muna (2020), it is found that most parents were unemployed and lived of the government benefits. This act lead toward student's participation in part-time work in order to support themselves and their families. Sometimes the student late of arrivals at school, or a lack of interest in academic activities is resulted from being tired of work. On teacher's perspective who is unaware of the student's condition might misinterpreted their attitude as an act of misbehaviour. Moreover, the study by Pereyra et al. (2020) implies that while academic performance is one of the factors, it is not enough to conclude that disciplinary problem arises solely from low academic achievement. This could explain why both factors are less emphasized in expert discussions as a direct behavioural determinant. Although this study focuses on the Malaysian context, the factors identified are universal. However, given Malaysia's socio-economic and cultural diversity, these factors may not be fully applicable to students living in rural areas or FELDA settlements, where unique challenges exist. In research conducted by Wang et. al., (2022), it is found that lower family socio-economic status leads to poorer academic performance and more peer conflict, which in turn increases internalizing problem behaviour among students who lives in rural areas. This indicate that lower academic performances and family socioeconomics background need additional exploration to understand their role better especially among rural context.

7.0 Conclusion & Recommendations

7.1 Conclusion

In conclusion, the defuzzification report met the research objective by identifying and ranking key factors contributing to disciplinary challenges among secondary school students. It highlighted emotional and psychological struggles, peer influence, and limited parental engagement as top priorities for intervention. These findings provide educators and school administrators with a clear focus for targeted interventions to foster positive environments and reduce disciplinary issues. For an example, the identification of emotional and psychological struggles as top key contributors to disciplinary issues underscores the need for the integration of mental health support as a core component of school programs (Wiedermann et al., 2023). These factors, strengthened by expert consensus, emerged as pivotal in addressing student discipline issues. In contrast, elements like academic performance and socioeconomic background received less agreement, indicating a more complex or less clear-cut role in student behaviour. This may suggest that these factors require additional investigation. By learning which factors contribute more into student's misbehaviour, this can help the educators to grasp a better understanding regarding students' behavioural issues.

7.2 Recommendations

Future study should focus on delving deeper into factors that received lower expert consensus. Exploring more about low academic performance and family socioeconomic conditions can gain a clearer understanding of how it impacts student behaviour. Since this study only consist of 5 experts from counselling background, future researcher might consider expanding the expert panel to include professionals with varied backgrounds and experiences to gather a broader range of perspectives that may uncover new insights. For example, including educators and school administrators in the expert panel is crucial because they bring firsthand experience with student behaviour and practical insights into school environments. Their involvement bridges the gap between theory and practice, enhancing the real-world applicability of the study. Conducting longitudinal studies would also be useful to track how these factors influence student behaviour over time and identify potential changes or trends. Furthermore, researchers might also consider implementing qualitative methods, such as in-depth interviews or focus groups with students, parents, and educators. By doing this, researchers could gain a valuable context and reveal underlying reasons for the limited agreement on these factors.

Acknowledgement

Acknowledgement to Ministry of Higher Education Malaysia for Fundamental Research Grant Scheme with Project Code: FRGS/1/2023/SS09/USM/03/4.

Paper Contribution to Related Field of Study

This paper contributes to educational research by using the Fuzzy Delphi Method to provide evidence-based insights into the complex dynamics of student behaviour within the Malaysian context. It offers educators and policymakers a nuanced approach to addressing disciplinary challenges.

References

Benitez, J. M., Martín, J. C., & Román, C. (2007). Using fuzzy numbers for measuring quality of service in the hotel industry. *Tourism Management, 28*, 544-555. https://doi.org/10.1016/j.tourman.2006.04.018

Brown, R., & Wang, J. (2023). Cultural influences on adolescent discipline in schools. *International Journal of Sociology and Education, 15*(2), 85-99.

Chen, M. Y., & Chen, B. T. (2014). Online fuzzy time series analysis based on entropy discretization and a fast Fourier trans form. *Applied Soft Computing, 14*, 156-166. https://doi.org/10.1016/j.asoc.2013.07.024

Dalkey, N., & Helmer, O. (1963). An experimental application of the Delphi methods to the use of experts. *Management Science, 9*, 458-467. https://doi.org/10.1287/mnsc.9.3.458

De Coninck, D., Matthijs, K., & Van Lancker, W. (2022). Distance Learning and School-Related Stress Among Belgian Adolescents During the COVID-19 Pandemic. *Frontiers in Education, 7*. https://doi.org/10.3389/feduc.2022.836123

Fortemps, P., & Roubens, M. (1996). Ranking and defuzzification methods based on area compensation. *Fuzzy Sets and Systems, 82,* 319-330. https://doi.org/10.1016/0165-0114(95)00273-1

Huang, C.-Q., Li, C., Zhao, F., Zhu, J., Wang, S., Yang, J., & Sun, G. (2023). Parental, Teacher and Peer Effects on the Social Behaviors of Chinese Adolescents: A Structural Equation Modeling Analysis. *Brain Science, 13*(2), 191–191. https://doi.org/10.3390/brainsci13020191

Hwang, N., Penner, E. K., Davison, M., Sanabria, T., Hanselman, P., Domina, T., & Penner, A. M. (2022). Reining in Punitive Discipline: Recent Trends in Exclusionary School Discipline Disparities. *Socius: Sociological Research for a Dynamic World, 8,* 237802312211030. https://doi.org/10.1177/23780231221103044

Jani, N. M., Zakaria, M. H., Maksom, Z., Haniff, M. S. M., & Mustapha, R. (2018). Validating antecedents of customer engagement in social networking sites using fuzzy Delphi analysis. *International Journal of Advanced Computer Science and Applications, 9*. https://doi.org/10.14569/IJACSA.2018.090939

Kaynak, E., & Macaulay, J. A. (1984). The Delphi technique in the measurement of tourism market potential. *Tourism Management, 5*, 87-101. https://doi.org/10.1016/0261-5177(84)90056-6

Limone, P., & Toto, G. A. (2022). Psychological Strategies and Protocols for Promoting School Well-Being: A Systematic Review. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.914063

Lin, J., & Guo, W. (2024). The Research on Risk Factors for Adolescents' Mental Health. *Behavioral Sciences,* 14(4), 263. https://doi.org/10.3390/bs14040263

Mohd Ridhuan Mohd Jamil. (2016). Pembangunan model kurikulum latihan SkiVes bagi program pengajian kejuruteraan pembelajaran berasaskan kerja (PhD thesis). University of Malaya.

Muna, Fathimath. (2020). Factors Contributing to Disruptive Classroom Behaviour in Brunei Darussalam. 10.13140/RG.2.2.22567.16809.

Mustapha, R., & Darusalam, G. (2018). Aplikasi kaedah Fuzzy Delphi dalam penyelidikan sains sosial. *Universiti Malaya Press.*

Murray, T. J., Pipino, L. L., & Van Gigch, J. P. (1985). A pilot study of fuzzy set modification of Delphi. *Human Systems Management, 5*, 76-80. https://doi.org/10.3233/HSM-1985-5111

Nadzriah Ahmad. (2023). Teaching Criminal Law Procedure in Universities: Meeting the Needs of Juveniles in Criminal Legal Practice. *Malaysian Journal of Social Sciences and Humanities (MJSSH), 8*(1), e002068.https://doi.org/10.47405/mjssh.v8i1.2068

Okoli, C., & Pawlowski, S. D. (2004). The Delphi method as a research tool: An example, design considerations, and applications. *Information & Management, 42*, 15-29. https://doi.org/10.1016/j.im.2003.11.002

Pereyra, S. B., Bean, R. A., Ruiz, J. G., & Velasco, B. (2020). The impact of parents and teachers on externalizing behavior among latino/a adolescents via academic achievement: combining the mental health and educational perspectives. *The Family Journal, 28*(3), 290-299. https://doi.org/10.1177/1066480720926585

Radzak, S. A., Noor, A. M., Khir, A. M., & Azizul, M. D. A. (2023). Analisis Faktor Dominan Terhadap Tingkah Laku Pelajar Sekolah Menengah Di Selangor. *Jurnal Kemanusiaan, 21(2),* 1–8. https://doi.org/10.11113/jur.kemanusiaan.v21.445

Rowe, G., & Wright, G. (2011). The Delphi technique: Past, present, and future prospects – Introduction to the special issue. *Technological Forecasting and Social Change, 78*(9), 1487-1490.

Skulmoski, G. J., & Hartman, F. T. (2007). The Delphi method for graduate research. *Journal of Information Technology Education, 6*, 1-21. https://doi.org/10.28945/199

Siraj, R., Najam, B., & Ghazal, S. (2021). Sensation Seeking, Peer Influence, and Risk-Taking Behavior in Adolescents. *Education Research International, 2021*(1), 1–8. https://doi.org/10.1155/2021/8403024

Thomaidis, N. S., Nikitakos, N., & Dounias, G. D. (2006). The evaluation of information technology projects: A fuzzy multicriteria decisionmaking approach. *International Journal of Information Technology & Decision Making, 5,* 89-122.

Wang, Y., Xie, T., & Xu, J. (2022). Family Socioeconomic Status and Internalizing Problem Behavior Among Chinese Adolescents: The Chain Mediation Effect of Academic Performance and Peer Conflict. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.902545

Wiedermann, C. J., Barbieri, V., Plagg, B., Marino, P., Piccoliori, G., & Engl, A. (2023). Fortifying the foundations: A comprehensive approach to enhancing mental health support in educational policies amidst crises. *Healthcare, 11*(10), 1–11. https://doi.org/10.3390/healthcare1110142