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# Development of an Autism Student Behavior Management Module for Malaysian School Counselors: A Fuzzy Delphi Method

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**Abstract**
This study aims to develop a behavior management module for school counselors to support students with Autism Spectrum Disorder (ASD). Autism presents challenges in emotional regulation and social interaction, affecting students' academic success and integration. In Malaysia, limited training leaves counselors unprepared to address these issues. The module provides evidence-based strategies to enhance counselors' capacity and emphasizes collaboration with teachers, parents, and administrators for cohesive support. Culturally sensitive approaches ensure its relevance to the Malaysian context. This study seeks to strengthen inclusive education by equipping counselors to manage autistic students' behavior, promoting successful integration into mainstream educational settings.

Keywords: Autism, Behavior Management, School Counselors, Fuzzy Delphi Method.


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## 1.0 Background of the Study

Autism Spectrum Disorder (ASD) can be described as a neurological developmental disorder that is gaining more and more attention in education systems around the world. Students with ASD often face challenges in behavior and social interaction, which can affect their academic performance and adjustment in school (American Psychiatric Association, 2022). In the Malaysian context, increased awareness of the special needs of autistic students has led to the need to increase the support given to them in the education system (Mohd Zuri Ghani et al., 2021). This study aims to develop an Autism Student Behavior Management Module for School Counselors, guided by expert consensus and evidence-based strategies. The development of this module is essential to enhance school counselors' preparedness for supporting autistic students in Malaysia, focusing on equipping them with the necessary skills and knowledge for planning and implementing effective behavioral interventions.

### *1.1 Background of the Study*

Autism Spectrum Disorder (ASD) can be described as a neurological developmental disorder that requires significant attention in education systems worldwide. In Malaysia, despite growing awareness of autistic students' needs (Mohd Zuri Ghani et al., 2021), there remains a critical gap in providing structured support for these students, particularly in managing behavioral and social challenges that


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affect their academic performance (American Psychiatric Association, 2022). This study aims to develop an Autism Student Behavior Management Module for School Counselors, addressing the pressing need for evidence-based, culturally appropriate interventions in the Malaysian education system.

*1.2 Role of School Counselor and Current Challenges*

School counselors play a vital role in supporting children's social and emotional development, yet research reveals a significant preparation gap. Goodman-Scott et al. (2023) identified that many school counselors feel inadequately prepared to manage autistic students' unique characteristics due to limited training. This finding is particularly significant as Lee et al. (2020) demonstrated that counselors with specialized training showed markedly improved confidence and effectiveness in supporting autistic students, highlighting a clear pathway for professional development.

*1.3 Justification of Module Requirements*

Current research points to several critical gaps that this module will address. Suhana et al. (2022) emphasized counselors' unique position for providing consistent support, while Wong et al. (2021) highlighted the need for better stakeholder coordination. The module responds to these findings by incorporating evidence-based interventions that Chen et al. (2024) proved effective in improving social behavior and reducing problematic behaviors.

Additionally, it addresses the cultural sensitivity requirements identified by Normah et al. (2022) specific to the Malaysian context. Hassan et al. (2023) and Lim et al. (2021) further support the module's approach by emphasizing the need for ongoing professional development and structured support systems. By targeting these identified gaps, the module will enhance counselors' capacity to support autistic students effectively while relieving the documented stress on special education teachers (Aziah et al., 2023)

**.2.0 Objectives of the study**

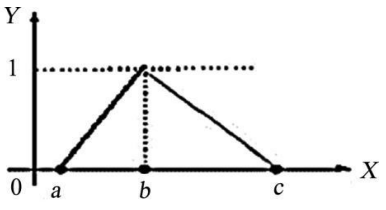
The objectives are stated but could be clearer and more detailed, improving alignment with the overall aim.

## 3.0 Methodology

This study employs the Fuzzy Delphi method. A method for fuzzy Delphi: It incorporates the characteristics of both the conventional Delphi technique and the theory of fuzzy sets and has been used in a broad spectrum of disciplines. In a case where a panel of experts is required to contribute to making a decision because the study goes deep, then this method is useful. Additionally, according to Jani *et al.* (2018), the Fuzzy Delphi technique was an appealing method through which to obtain a group decision on ambiguous ideas when choosing the best option from the experts. In comparison with the pure Delphi approach, where the number of evaluation rounds is unlimited until the majority of the experts agree, the new Fuzzy Delphi. It makes it possible to have more survey replies in a shorter amount of time and for less money. It could be comprehended to maintain the exhaustiveness and uniformity of the opinion and to eliminate the distortion of truthful replies of the experts (Noh *et al.,* 2013). In this inquiry, the Fuzzy Delphi technique was chosen as the main review method because of several advantages over the standard Delphi method. An expert questionnaire is an excellent tool for data collection if the Delphi method and the process of interviewing individuals are not possible due to constraints in time or group composition (Dalkey & Helmer, 1963).

The Fuzzy Delphi Method involves several steps. FDM steps are as follows:

Table 1: Criteria.

| Criteria | Step |
|---|---|
| 1. Experts' selection | Choosing the Right Expert: This Investigation Involved Seven Different Experts. We assembled an expert panel to dissect the significance of language variables to determine how much weight each component gave to the assessment criteria. |
| 2. Determining the linguistic scale | Triangular fuzzy numbers, a kind of fuzzy logic, are used to represent all grammar factors in the decision-making process. Hsieh, Lu, & Tzeng (2004) note that fuzzy numbers have also been applied to linguistic variables. Triangle fuzzy numbers (m1, m2, m3) represent M1, M2, and M3. At the very bottom, we have a minimum (m1), and at the very top, we have a maximum (m3). By applying the Fuzzy Scale, which is built from regular fuzzy numbers, the original linguistic variables are transformed into fuzzy numbers. |
| | $\mu_A(x)=\begin{cases}0, & x\le a\\ \frac{x-a}{b-a}, & a<x\le b\\ 1, & x=b\\ \frac{c-x}{c-b}, & b<x\le c\\ 0, & x\ge c.\end{cases}$   |
| 3. The Determination of Linguistic Variables and Average Responses | The researcher must change all Likert scales to Fuzzy scales after receiving a response from the chosen expert. Identifying the average reaction of each fuzzy number is another name for this approach (Benitez, Martin & Roman, 2007). |

| Response | Triangular fuzzy | Likert Scale |
|---|---|---|
| Strongly disagree | 0.00, 0.00, 0.20 | 1 |
| Disagree | 0.00, 0.20, 0.40 | 2 |
| Moderate Agree | 0.20, 0.40, 0.60 | 3 |
| Agree | 0.40, 0.60, 0.80 | 4 |
| Strongly agree | 0.60, 0.80, 1.00 | 5 |

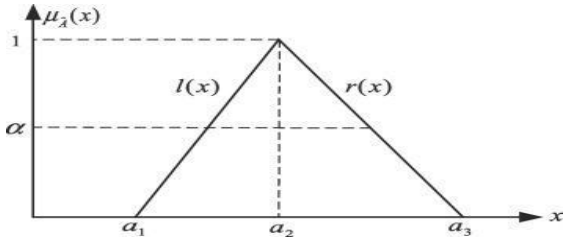
4. The determination of threshold value "d"

How to find the value of "d" when it's really important: A threshold value must be defined to ascertain the extent to which experts agree (Thomaidis, Nikitakos, & Dounias, 2006). To find the distance between two fuzzy integers, use the following formulas.

$$d(\overline{m},\overline{n}) = \sqrt{\frac{1}{2}\left[(m1-n1)^2 + (m2-n2)^2 + (m3-n3)^2\right]}$$

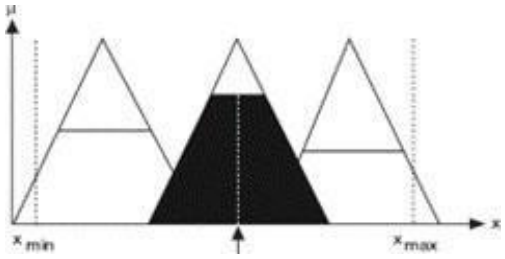
5. Identify the alpha cut the aggregate level of fuzzy assessment

The moment if every single expert agrees on an ill-defined grade for everything (Mustapha & Darussalam, 2018). When working with fuzzy numbers, the following equation is useful: The area that can be used at most is (4m1 + (2m2) m3).




6. Defuzzification

The formula Amax = (1)⁄4 (a1 + 2 am + a3) is employed in this procedure. Scores can be anything from zero to one when researchers employ average responses or average fuzzy numbers. The following three formulae are involved in this procedure: i. A = 1/3 * (m1+ m2 + m3), or ii. A = 1/4 * (m1 + 2m2 + m3), or iii. A = 1/6 * (m1 + 4m2 + m3). The median value for '0' and '1' equals half of the A-cut value, which is calculated as (0 + 1) divided by 2. We will reject the item since it does not reflect expert agreement if the resultant A value is less than the α-cut value = 0.5. The alpha cutoff value ought to be more than 0.5, as stated by Bojdanova (2006). Tang and Wu (2010) provided evidence for the idea that the α-cut value needs to be greater than 0.5.




$$x^* = \frac{\sum_{i=1}^{n} x_i \mu(x_i)}{\sum_{i=1}^{n} \mu(x_i)}$$

7. Ranking

Elements are selected using a ranking system that takes defuzzification values determined by expert consensus. The highest-valued item is given the top place in the ranking (Fortemps & Roubens, 1996).

## 4.0 Sampling

Purposive sampling was employed in this research. Due to the researcher's need for a unified viewpoint and conclusion, this approach is optimal. Hasson, Keeney, and McKenna (2000) state that deliberate sampling is the best strategy for FDM. At the same time, this study included the participation of seven experts. Table 2 details the participating experts. Their extensive background and mastery in their respective domains are the deciding factors in their expert selection. Assuming all experts are the same, this study finds that 5–10 specialists are necessary. As per Adler and Ziglio (1996), if there is a certain degree of homogeneity, the Delphi approach calls for a group of 10–15 experts. If the sample is homogeneous and adequate, the recommended sample size for FDM is 8–12, according to Sforza & Ortolano (1984), while according to Philip (2000), the recommended sample size for experts is 7–12. Nevertheless, due to the time constraints and difficulty in obtaining expert responses, a total of seven experts were consulted for this study. To get information and consensus among experts, nevertheless, 7 samples are more than enough.

Table 2: List of experts.

| No | Experts | No of experts | Field of expertise | Institution |
|---|---|---|---|---|
| 1 | Counsellor | 9 | Guidance and counseling | Primary school and secondary school |

## 5.0 Experts Criteria

According to Booker and McNamara (2004), experts are individuals who have dedicated themselves to obtaining the necessary credentials, including adequate education, training, experience, professional affiliation, and endorsement from peers (Nikolopoulos, 2004; Perera *et al.,* 2012). According to Cantrill, Sibbald, & Buetow (1996) and Mullen (2003), an "expert" is someone who has extensive knowledge and expertise in a certain field. A key component of Fuzzy Delphi investigations is the selection of experts. The credibility, validity, and reliability of the study can be assured by selecting experts with care according to predetermined criteria (Mustapha & Darussalam, 2018). As stated by Kaynak and Macauley (1984) there is a prerequisite that acknowledged specialists should be acquainted with the presented material or be capable of explaining it. Experts are selected by the researcher based on rigorous criteria. For instance, the experts must have a minimum of seven years of experience. Such experts must also be at the correct level of skill and expertise for the study.

## 6.0 Instrumentation

The researcher used literature during the development of the Fuzzy Delphi methodology. Skulmoski *et al.* (2007) opined that the researchers could use their experiences, pilot studies, and prior research to create the questionnaire items. As highlighted by Mustapha and Darussalam (2018), the questions adopted in the application of the Fuzzy Delphi technique were derived by reviewing the literature and carrying out interviews and group discussions. Okoli and Pawlowski (2004) noted that a literature review and data collection should be conducted before constructing study items and content. The researcher focuses on literature that can be relevant and suggests that a partnership be formed to define factors and elements related to this study. Following that, we employ a fuzzy scale with seven points to develop questions for the experts. Additional scales also boosted results, and a 7-point scale was developed (Chen & Chen, 2014). To make the development of the questionnaire easily understandable to the specialists, the researcher replaced the fuzzy value 0.34 with the scale value from the scale value of 1 to 7 mentioned in Table 3.

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) |

## 7.0 Data Analysis

To analyze the findings of this study, the researcher used FUDELO 1.0 software (Fuzzy Delphi Logic Software), which was specifically designed to analyze FDM data.

## 8.0 Findings

In this section, the researcher will give an account of the findings of the study and the findings of data analysis using FDM. After highlighting the literature and matching it with research theory, the researcher formulates methods that can be used to face mental health problems. After analyzing the literature, the researcher formulated some elements or guidelines that can be used to build items for the autism student behavior management module for school counselors. Aspects of the guidelines are as follows:

Table 4: Defuzzification Report.

| Results | Item1 | Item2 | Item3 |
|---|---|---|---|
| Expert1 | 0.04491 | 0.05774 | 0.04491 |
| Expert2 | 0.07057 | 0.05774 | 0.04491 |
| Expert3 | 0.04491 | 0.05774 | 0.1283 |
| Expert4 | 0.1283 | 0 | 0.04491 |
| Expert5 | 0.04491 | 0.11547 | 0.01283 |
| Expert6 | 0.07057 | 0.11547 | 0.04491 |
| Expert7 | 0.04491 | 0 | 0.1283 |
| Expert8 | 0.04491 | 0.05774 | 0.04491 |
| Expert9 | 0.04491 | 0 | 0.04491 |
| Statistics | Item1 | Item2 | Item3 |
| Value of the item | 0.05988 | 0.05132 | 0.05988 |
| Value of the construct | | | 0.05703 |
| Item < 0.2 | 9 | 9 | 9 |
| % of item < 0.2 | 100% | 100% | 100% |
| Average of % consensus | | | 100 |
| Defuzzification | 0.22222 | 0.9 | 0.92222 |
| Ranking | 3 | 2 | 1 |
| Status | Reject | Accept | Accept |

The "Defuzzification Report" analyzes the input of nine experts to evaluate three different items. Each expert provided scores for the items, and these scores were subsequently processed using a defuzzification method. The results showed a wide range of item scores, with Item 2 receiving the highest individual scores of 0.1283 from two experts (Expert 3 and Expert 5). Meanwhile, Item 1 and Item 3 received lower and more varied scores across the experts.

In terms of overall statistical evaluation, all items had values less than 0.2, indicating strong agreement among the experts. This resulted in a 100% consensus for all items, demonstrating that the expert opinions were consistent. Through the defuzzification process, Item 3 emerged with the highest defuzzified value (0.92222), followed by Item 2 (0.9), and finally, Item 1 (0.22222). This ranking guided the acceptance and rejection decisions for the items, where Items 2 and 3 were accepted, and Item 1 was rejected.

## 9.0 Discussion, Conclusion & Further Research

### *9.1 Discussion*

The systematic development of the Autism Student Behavior Management Module for School Counselors using the Fuzzy Delphi Method (FDM) has provided valuable insights into the needs and expectations of school counselors in addressing students with Autism Spectrum Disorder (ASD). A 100% consensus among experts regarding all items indicates the significance and validity of the proposed module components, ensuring its relevance in addressing deficiencies in autism support within school counseling. This consensus highlights the module's capacity to adequately cover areas of need and promote evidence-based practices.

The outcomes of the defuzzification process, which accepted Items 2 and 3 and rejected Item 1, were instrumental in prioritizing content for the module. Such prioritization ensures that the module incorporates only the most critical and effective components, enhancing its practical value. Furthermore, situating the study within the Malaysian educational context aligns with the findings of Normah et al. (2022) regarding the importance of culturally sensitive approaches. This cultural alignment strengthens the module's potential impact and feasibility within local school systems.

The development of this module directly addresses the challenges identified by Goodman-Scott et al. (2023), particularly the lack of preparedness among school counselors in managing the unique needs of students with ASD. By providing structured training and materials, the module bridges the knowledge and skills gap, equipping counselors with strategies to enhance emotional regulation and behavior management. The emphasis on stakeholder engagement, as discussed by Wong et al. (2021), is another key feature of the module. It acknowledges the complexities of supporting students with ASD and promotes collaboration among counselors, teachers, parents, and administrators to provide holistic support.

Behavioral interventions based on Chen et al.'s (2024) meta-analysis further validate the module's content. These interventions focus on improving social skills and reducing maladaptive behaviors, ensuring that the module employs evidence-based practices. Additionally, integrating the module into existing school counseling practices addresses systemic gaps in support for autistic students while relieving the burden on special education teachers. Beyond the current research, several implications for practices, policies, and future studies emerge. Post-implementation studies are recommended to evaluate the module's impact on counselor competencies and student outcomes in Malaysian schools. Longitudinal studies could assess sustained improvements in students with ASD, including their academic performance, social participation, and well-being.

Expanding the module's applicability to other cultural settings within Southeast Asia could identify universal components and adaptations required for different contexts. Exploring the integration of digital media and e-learning technologies within the module would enhance its accessibility and effectiveness. Researching interdisciplinary collaboration between counselors, special education teachers, and other professionals could highlight strategies for fostering cohesive support systems. The inclusion of parent training and family support in the module would offer a more comprehensive framework for supporting students with ASD. Additionally, examining the module's effectiveness across varying levels of ASD severity and other comorbidities could improve its adaptability. Investigating different delivery modes, such as face-to-face seminars, online classes, or hybrid approaches, would provide insights into optimizing professional development for counselors.

On a broader scale, analyzing the module's implications for educational policies and resource allocation in special needs education could contribute to systemic improvements in Malaysia. Furthermore, developing complementary programs that involve neurotypical peers in supporting autistic students, based on the principles of the counselor module, could foster inclusivity within school environments. These directions for research and practice underscore the module's potential to enhance not only counselor preparedness but also the overall support system for students with ASD. By addressing these gaps, the module contributes to fostering a more inclusive, effective, and supportive educational environment for autistic learners.

### *9.2 Conclusion*

The Autism Student Behavior Management Module for School Counselors is a move towards better-addressing students with ASD in the Malaysian education system. The study has been able to come up with a module that captures most of the crucial information in the Fuzzy Delphi Method while at the same time giving detailed guidelines to school counselors who are dealing with autistic learners. This high degree of consensus supports the content and organization of the module and implies its feasibility for meeting the problems outlined in earlier studies.

This module is intended not only to enhance the competence and confidence of counselors but also to ensure that student with ASD has a better environment for learning. The integration of Malaysian cultural practices into the module guarantees its effectiveness in the

context of Malaysian schools that serve students with disabilities, while filling the gap in students' support systems. By arming school counselors with specific knowledge and training, this module could markedly improve the education of students with ASD.

## Acknowledgment

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## Paper Contribution to Related Field of Study

This paper contributes to the field of educational support and counseling, particularly in managing autistic student behavior. The Fuzzy Delphi-based module aims to enhance school counselors' preparedness for supporting autistic students in Malaysia. It will help counselors become more competent in planning and implementing effective interventions. Ultimately, this promotes a more inclusive educational environment.

## References

American Psychiatric Association. (2022). Diagnostic and statistical manual of mental disorders (6th ed.). Washington, DC: Author.

Aziah, I., et al. (2023). Challenges faced by special education teachers in Malaysia: A qualitative study. Asian Journal of Special Education, 15(2), 45-60.

Chen, Y., et al. (2024). Effectiveness of behavioral interventions for students with autism: A meta-analysis. Journal of Autism and Developmental Disorders, 54(1), 123-145.

Goodman-Scott, E., et al. (2023). School counselors' preparedness for supporting students with autism: A national survey. Professional School Counseling, 26(1), 1-12.

Hassan, M., et al. (2023). Continuing professional development for school counselors: Needs and challenges. Malaysian Journal of Counseling, 18(2), 78-92.

Lee, J., et al. (2020). Impact of specialized training on school counselors' self-efficacy in supporting students with autism. Journal of School Counseling, 18(5), 1-20.

Lim, S. M., et al. (2021). Towards inclusive education: The role of school counselors in supporting students with autism. Education and Urban Society, 53(5), 555-573.

Mohd Zuri Ghani, et al. (2021). Autism awareness in Malaysian schools: Current status and future directions. Journal of Special Education in the Asia Pacific, 17(1), 33-48.

Normah, C. D., et al. (2022). Cultural adaptation of autism interventions in Malaysia: A systematic review. Asian Journal of Psychiatry, 68 , 102995.

Suhana, A., et al. (2022). The role of school counselors in supporting students with autism: Perspectives from Malaysian schools. International Journal of School & Educational Psychology, 10(3), 235-250.

Wong, P. L., et al. (2021). Collaboration between stakeholders in supporting students with autism: A case study in Malaysian schools. International Journal of Inclusive Education, 25 (7), 829-845.