

Predicting preschool moral development with school climate: Fuzzy Delphi approach

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ABSTRACT

Education is vital for a person's development, especially from an Islamic perspective, where the first goal is to foster a servant attitude, talent, personality, and outlook on life. Preschool education is crucial in nurturing a child's nature, emotions, and cognitive and social skills in the first five years. However, the significance of a good school environment, particularly in moral formation, varies among institutions. Therefore, this article aims to build consensus among experts on the role of school environment and classroom management in preschoolers' moral development. Eleven-panel members validated the survey instrument with items and analyzed it using the Fuzzy Delphi method (FDM). According to the study, the experts agree that the physical school environment and classroom management are essential for promoting healthy moral development. Expert consensus was obtained on 19 out of 20 items in the physical school environment and classroom management dimension with an expert agreement level greater than 75% with an average (d) value less than 0.2. The undeniable consensus is that the school environment and classroom management play a crucial role in fostering the moral development of preschool children.

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1. INTRODUCTION

Education plays a role in shaping an individual's growth and development. According to the Islamic perspective, the primary objective of education is to foster a mindset, nurture talents, and shape one's personality and worldview. This aligns with the message of Prophet Muhammad and the purpose of Islamic teachings. Moral education begins with neuroeducation. Thus, coordination with caregiver attitudes, behaviors, and community support is essential [1]. Early life experiences, including stress during pregnancy and early childhood, can have long-term effects on neurobiological systems as individuals adapt their biology based on their experiences [2]. By the time children reach school age, their neurobiology has already established the foundations for morality and sociality. Teachers are faced with students who have developed subconscious filters for social interactions and learning, which can be challenging.

According to Chowdhury [3], early development of qualities related to spiritual and moral development is crucial for long-term success. As children grow and learn, schools and formal education significantly shape their spiritual and moral growth. Therefore, parents and teachers should recognize the importance of prioritizing formal education, starting from the preschool stage. In today's complex ethical

dilemmas, religious school climate and classroom management are crucial in promoting moral development [4]. Religious educational institutions offer a unique approach that goes beyond traditional education by emphasizing the holistic growth of individuals through the integration of faith and values. These schools create a nurturing environment where moral knowledge, emotions, behavior, and qualities are cultivated, deeply emphasizing spiritual growth and character development. The development of children's moral values is closely connected to their religiosity and spirituality and significantly impacts shaping children's moral values [4]. To effectively foster spiritual development in moral values, it is essential to integrate these aspects into the learning process and align them with desired educational objectives. This integration can be reflected through the content and values embedded in instructional materials and the school environment [5].

Creating a positive school climate depends on building healthy relationships within the school. Building connections and fostering a sense of belonging are vital in any community, including schools [6]. Within a school community, everyone must interact and engage with each other, be it teachers, students, administrators, support staff, or other stakeholders who play roles in the school's functioning. These interactions impact behavior decision-making processes and participation in school-related activities. Thus, nurturing relationships is essential to create an environment conducive to learning. Various models and frameworks that examine the school environment consider factors such as teacher-student relationships [7], [8] parent community relationships [9], [10] and interpersonal dynamics among groups within the school [11], [12]. An influential theory in this field is ecological systems theory (EST), which emphasizes that human development is influenced by characteristics and contextual factors [13].

In the Malaysian context, as a Muslim country, parents' duties to their children include instilling strong morals in their children and preventing the latter from being neglected and left entirely to educational institutions [14]. This duty is undertaken due to a change in the orientation and structure of the family, which are undergoing significant changes due to globalization. This situation thus requires a high level of commitment from parents to meet the demands of the family. Parents' responsibilities include inculcating a solid moral character in children neglected and abandoned in school. Parents have become focused on work, resulting in less time with their children [14], [15]. Thus, schools, by right, should share this responsibility. At the same time, most school personnel need to consider the social atmosphere of learning environments, which can significantly impact children due to the difficulty in measuring a qualitative aspect, such as social climate [16]. Furthermore, even in Islamic-based schooling, teachers and administrators may only partially value the importance of social climate due to their emphasis on academic performance rather than moral environment. Thus, this study is crucial to address critical aspects of school climate, specifically regarding the school environment and classroom management to foster children's moral education.

2. RESEARCH METHOD

2.1. Research design

A design and development research method (DDR) is utilized to create a school environment that fosters the moral growth of children [17]. In this study, the Fuzzy Delphi method (FDM) using the quantitative method was used to establish consensus among experts to validate and determine items. This study is one of three major study phases to form a model of children's moral development. Before this development phase begins, the needs analysis phase looks at this model's development needs through meetings with teachers and experts qualitatively. The findings from the experts and teachers interviewed, then an instrument specifications form was built to look at the agreement and priority of items in this effort used in the current study. The results of this phase will be used to see the usability of this module by experienced teachers in the third phase.

According to Wang and Hannafin [18], this technique tests and validates theoretical procedures. It is also used to create and develop programs, instructional techniques, resources, products, and systems to address complex instructional challenges and improve our understanding of intervention characteristics and design processes [19]. This methodical and adaptable technique aims to improve educational practice through iterative analysis, design, development, and implementation [18].

2.2. Sampling method

The study employed purposive sampling to obtain FDM consensus. According to Clayton [20], five to ten experts are already sufficient if a mixture of experts with different expertise is used (heterogeneous). Thus, eleven experts were selected based on their knowledge, abilities, and years of experience in their respective disciplines for this study. Six experts are from early childhood education, and the remaining five are from Islamic education. The list of experts, therefore, consisted of lecturers and practitioners in the field. Table 1 provides the background of the FDM experts.

Table 1. Background of FDM experts

Expertise	Institution	Education level	Total (n)
Early childhood education	Public University	Doctoral degree	4
Islamic education	IKIM public University	Doctoral degree	2
Child education trainer	School	Doctoral degree	2
Islamic education trainer	School	Bachelor's degree	3

2.3. Data collection procedure

The objective of this study was to obtain the consensus of a group of qualified experts on the components of character formation that have been formed based on the initial phase's literature research and interview. The primary step in the data collection research was the collection of consensus data from qualified experts through a development survey containing a set of seven-point questions form. The researcher used a 1 to 7 scale for the Fuzzy value to simplify the questionnaire. Furthermore, to make it easier to locate the sources of theory, models, and assumptions for each item produced, the researchers designed an Instrument Specification Table that defines the researcher's limits and outlines the scope of the study. This research employed a seven-point scale since the greater the scale, the more precise the data [21]. In order to simplify the questionnaire, the researcher converted the Fuzzy value with a 1 to 7 scale value, as indicated in Table 2 for the following 7-point linguistic scale.

Table 2. Fuzzy 7-point agreement and scale

Linguistic variables	Fuzzy scale	Likert scale
Strongly disagree	(0.0, 0.0, 0.1)	1
Really disagree	(0.0, 0.1, 0.3)	2
Disagree	(0.1, 0.3, 0.5)	3
Not sure	(0.3, 0.5, 0.7)	4
Agree	(0.5, 0.7, 0.9)	5
Really agree	(0.7, 0.9, 1.0)	6
Strongly agree	(0.9, 1.0, 1.0)	7

2.4. Data analysis

Microsoft Excel software was used for the data analysis of the model development survey formed in this study [17]. To ensure that the outcomes of the Fuzzy Delphi analysis may be accepted as an aspect and item of the developed preschool children's moral development model, three requirements must be met: i) threshold value $d \leq 0.2$. The obtained items and constructs must have a threshold value (d) that is less than or equal to 0.2 [21], [22]; ii) Expert agreement value $> 75\%$. Acceptance of an item is defined as having the expert agreement of at least 75% [21], [23]; and iii) value α -cut as threshold value. The standard value of 0.5 as the median between the ambiguous numbers between 0 and 1 is the basis for the requirements for the α -cut value as a threshold value [17], [24]. The measured items or constructs are accepted by experts if the average value of the Fuzzy number is larger than 0.5.

3. RESULTS

3.1. Classroom management aspect

According to Table 3, items SCCM 1, SCCM 2, SCCM 3, SCCM 4, SCCM 5; SCCM 6, SCCM 7, and SCCM 8 for the aspect of classroom management have a threshold (d) of ≤ 0.2 , which is 0.135 for 92% with 90% of completions. This indicates that experts accepted these items. All items have thresholds (d) ≤ 0.2 , i.e., SCCM 1 (0.092); SCCM 2 (0.081); SCCM 3 (0.081); SCCM 5 (0.172); SCCM 6 (0.071); SCCM 7 (0.092), with the exception of SCCM item 4 (0.337), and SCCM 8 (0.299).

Table 3. Fuzzy Delphi analysis for classroom management aspect

Code	Item	'd' value	% Expert consensus	Defuzzification value	Item rank	Overall status
SCCM 1	Well managed by the teacher	0.092	90.9%	0.924	4	Accept
SCCM 2	Has clear routines and guidelines	0.081	90.9%	0.933	1	Accept
SCCM 3	Fair and equitable children's behavior management	0.081	90.9%	0.933	1	Accept
SCCM 4	Giving children the opportunity to build influence	0.337	81.8 %	0.764	8	Accept
SCCM 5	Encourages children to share their opinions on a topic	0.172	90.9%	0.870	6	Accept
SCCM 6	Inspires children to organize class activities.	0.071	100%	0.930	3	Accept
SCCM 7	It has a small number of children per class	0.092	90.9%	0.924	4	Accept
SCCM 8	Promotes a culture of counselling among children	0.299	81.8 %	0.806	7	Accept

Meanwhile, all items have a percentage of 75% agreement from the experts on SCCM 1 (90.9%); SCCM 2 (90.9%); SCCM 3 (90.9%); SCCM 4 (81.8%); SCCM 5 (90.9%); SCCM 6 (100%); SCCM 7 (90.9%), and SCCM 8 (81.8%). Although SCCM 4 (0.337) and SCCM 8 (0.299) have a value above the threshold ($d \leq 0.2$), both items have an expert percentage of 81.8%; these SCCM 4 and SCCM 8 are thus also accepted as aspects of classroom management.

3.2. School environment aspect

Table 4 shows that the experts agree on aspects of the school environment. All items of the physical school aspect have thresholds ($d \leq 0.2$, i.e., SCSE 1 (0.025); SCSE 2 (0.000); SCSE 3 (0.000); SCSE 4 (0.045); SCSE 6 (0.131); SCSE 8 (0.186); SCSE 9 (0.099); SCSE 10 (0.131); SCSE 11 (0.127); and SCSE 12 (0.133), except for items SCSE 5 (0.371), and SCSE 7 (0.372). Meanwhile, all items have a percentage of 75% agreement of experts SCSE 1 (100%); SCSE 2 (100%); SCSE 3 (100%); SCSE 4 (100%); SCSE 5 (81.8%); SCSE 6 (90.9%); SCSE 8 (90.9%); SCSE 9 (90.9%); SCSE 10 (90.9%); SCSE 11(100%), and SCSE 12 (90.9%), except for SCSE 7 with 72.7% agreement.

For SCSE 5, although this item has a greater value than the threshold ($d \leq 0.2$, which is 0.371, this item has the agreement of the experts as it has a 75% agreement rate of 81.8%. Therefore, this item is accepted as the representative of this aspect. The analysis showed that SCSE 7 items with a threshold (d) of 0.372 with a percentage of 72.7% were rejected because did not meet the criteria for item acceptance, based on the fuzzy triangle numbering associated with a threshold ($d \leq 0.2$, and a percentage expert consensus above 75% [17].

Table 4. Fuzzy Delphi analysis for the school environment aspect

Code	Item	'd' value	% Expert consensus	Defuzzification value	Item rank	Overall status
SCSE 1	Clean and fun	0.025	100 %	0.958	3	Accept
SCSE 2	Provides a sense of security to children	0.000	100 %	0.967	1	Accept
SCSE 3	Loving and supporting	0.000	100 %	0.967	1	Accept
SCSE 4	Positive and respectful	0.045	100%	0.948	4	Accept
SCSE 5	Has a mentor-mentee program	0.371	81.8%	0.806	11	Accept
SCSE 6	Provides a standard of study that fits the reality of a child's life	0.131	90.9%	0.906	6	Accept
SCSE 7	Encourages children's involvement in community activities	0.372	72.7%	0.773	12	Reject
SCSE 8	To seek the pleasure of God.	0.186	90.9%	0.858	10	Accept
SCSE 9	Make the headmaster and teacher as missionary agents.	0.099	90.9%	0.915	5	Accept
SCSE 10	Emphasizing the concept of <i>muraqabah</i> that God is always watching	0.131	90.9%	0.906	6	Accept
SCSE 11	Emphasize the concept of <i>Ihsan</i> min children	0.127	100%	0.900	8	Accept
SCSE 12	Make teachers as role models	0.133	90.9%	0.888	9	Accept

4. DISCUSSION

The experts reached a consensus on all items in the aspects of classroom management. This is aligned with the findings of several research [1], [12], who discovered that teacher-addressed classroom factors substantially influenced social, cognitive, and developmental growth. Therefore, a teacher who can effectively manage the classroom may foster positive relationships with children and encourage them to engage more actively in the learning process [25]. For classroom management, the items fair and equitable children's behavior management is high on the item's priority list. One of the critical elements in establishing trust between teachers and students is the consistent and fair application of rules, irrespective of a student's socioeconomic status or cultural background. By adopting this approach, teachers effectively communicate to their students that they recognize and appreciate each student's diverse background, fostering mutual understanding and trust. Teachers who implement this approach convey to their students that they acknowledge and value every student's unique background, promoting mutual understanding and trust [26]. By doing so, trust is fostered among children. Incorporating anti-bias approaches into curricular activities can further aid in achieving equity goals within classrooms and may effectively reduce instances of aggression or violence among children at school [27].

In addition, a clear routine for handling children's behavior is crucial to classroom management. Clear routines and guidelines play a crucial role in fostering moral development in children and assist children in acknowledging the moral righteousness of their actions [28]–[30]. This is because a child mindful of adults' expectations is more likely to comply with them. With consistent boundaries, children learn about cause-and-effect relationships and develop self-discipline early on. This can lead to better decision-making

skills later in life and more positive outcomes. Predictable rules also teach empathy by modelling behaviors like respecting others' feelings or need while maintaining personal boundaries. All these things are necessary for building healthy social connections throughout life. Children's moral thought is mainly based on what is best for them, focusing on avoiding punishment and looking for rewards [31]. Their sense of right and wrong is limited, and they tend to care more about their survival and getting what they want right now than about adopting broader moral standards or caring about the wellbeing of others [1]. This can be achieved by providing loving and supportive ways more likely to grow morally through clear routines and fair and equitable rules. From there, children can create a more complex moral system beyond self-interest, including social norms, empathy, and genuine care for others [1]. They also show that they understand and follow social rules and know how crucial ethical behavior is for keeping relationships peaceful [31].

In addition, social interaction between teachers and children is crucial for developing a constructive learning environment [7], [8]. Teachers should attempt to use a variety of instructional approaches, such as reward strategies for positive behavior and punishment strategies, to promote favorable attitudes. Aside from this, instructors who are aware of their responsibilities will make school a platform for preaching by creating an environment of partnerships and respect for other children, indirectly fostering a safe environment. This can help children avoid uncomfortable moments of ridicule and rejection [32]. In classrooms with fewer children, pupils develop stronger connections with their teachers [33], [34]. Teachers in such classrooms are more likely to spend time connecting with each child, have better teaching skills, and remain emotionally stable. They may also feel less stressed and overwhelmed than their peers teaching larger groups, enabling them to create engaging lesson plans and foster positive relationships with their pupils.

Conversely, children in smaller classes are more inclined to build social relationships with their peers, work collaboratively on projects, and be less concerned about classroom behavioral issues [34]. Such teachers can identify each child's unique needs, strengths, and weaknesses, allowing them to tailor their instruction accordingly. Thus, effective classroom management, which includes fair and equitable behavior management, clear routines, and anti-bias approaches, fosters positive relationships and trust between teachers and students [31]. Smaller class sizes contribute to stronger teacher-student connections, better teaching, and reduced behavioral issues, enhancing the overall learning environment.

The classroom teacher alone does not have the power to influence the moral development of students directly. As social beings, children are influenced by their peers, particularly older students in the school and the system around them [13]. By experiencing and observing acts of kindness, generosity, respect, compassion, forgiveness, humility, and courage from fellow students, children are inspired to follow the same virtuous path. Experts agreed on 11 out of 12 school environment characteristics, with safety being the foremost concern. In a world filled with uncertainty, where threats to personal safety and emotional well-being abound, it becomes imperative to create an environment that nurtures these fundamental needs of our young ones. At the core of this concept lies the understanding that when children feel safe and protected, they are better equipped to explore their surroundings, engage in meaningful interactions, and develop cognitively and morally [35]. Although schools are typically safe places for children, they may also be vulnerable to inappropriate behavior that could harm them [32], [36]. If not appropriately addressed, negative experiences such as bullying can have long-term effects on a child's mental health and academic performance. However, fostering healthy interactions among children, such as mutual respect, can strengthen school safety [25].

According to the Islamic perspective, school administrators must take proactive steps toward promoting and implementing the principles of their religion [37]. This can significantly contribute to fostering moral growth and development among children. By instilling a sense of religious values in the minds of young children, schools can create a safe space for children where they feel secure and protected. Schools must prioritize the teaching and practice of Islamic tenets as an integral component of their curriculum to promote a holistic approach toward education that encompasses both academic learning and spiritual development. One of these tenets is *muraqabah*, which is the conviction that God always observes and is responsible for every conduct [38]. If all children adopt this culture, the school environment will become safer for children. This notion relates to the idea of witnessing behavior established by Van Verveveld *et al.* [39] study, proving that adopting this tenet has helped reduce bullying incidences.

However, one item, SCSE 7, which promotes children's participation in community activities, was rejected by experts. This result contrasts with previous researches [40], [41], which suggests that children's involvement with social learning activities such as fieldwork might foster moral growth. Community service activities are offer children a unique way of learning that cannot be obtained in the traditional classroom setting [40], [41]. This contradiction may happen due to children's cognitive and emotional capacities still developing, making it difficult for them to grasp the complex social contexts underlying community service initiatives. With deep understanding, children may be able to see the tangible results of their efforts or fully appreciate the significance of their contributions. As a result, they may miss out on the moral growth that comes from actively making a difference in the lives of others. In conclusion, creating a safe and nurturing

environment in schools and incorporating religious values like *muraqabah* can provide the foundation for moral development by promoting empathy, compassion, and ethical behavior among children [31].

4.1. Research implications and recommendation

The school's physical environment and classroom management have proven necessary to enhance children's moral development. This study, thus, offers several practical implications. Teachers should focus on implementing clear routines and policies and fair and just behavior management strategies. Applying rules and expectations consistently helps build trust and mutual understanding among students, regardless of socioeconomic status or cultural background. Teachers should also incorporate religious and spiritual values into the curriculum, promoting moral growth and character development. Positive social interactions such as respect and collaboration contribute to a constructive learning environment. Teachers also should strive to be responsive to each child's situation and develop instruction based on their needs, strengths, and weaknesses. School administration should emphasize the importance of creating safe and inclusive school environments, stressing moral development and values education. To address this, school administration should be put in place to provide ongoing training programs that empower teachers to develop their professional skills, particularly in areas such as classroom management and creating culturally sensitive environments to cater to each child's individual needs. Professional development opportunities should focus on enhancing existing skills and introducing new techniques specifically designed for this purpose.

The study points to the need for further research to examine the effectiveness of specific classroom management strategies and their impact on moral development. Future research could examine the long-term effects of explicit routines and guidelines on student decision-making and ethical behavior. In addition, research could examine the role of spirituality and religious belief in shaping moral values and the effectiveness of religious schools in promoting moral growth. Examining the link between community service activities and moral development provides insight into the benefits of experiential learning. Comparative studies of different cultural backgrounds can also reveal the influence of environmental factors on educational methods and moral development.

5. CONCLUSION




Recognizing and nurturing the potential of children while instilling values are crucial for their holistic growth and personal development. Schools have a role in fostering these qualities by implementing policies and practices led by thoughtful and committed educators who create supportive and respectful atmospheres. These initiatives contribute to molding children as individuals who can benefit from and contribute to society in the future.

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