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Kindergarten teachers' psychological harmony's influence research

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ABSTRACT

With nation gradually increasing requirements on Chinese early childhood education, kindergarten teachers existing psychological stress is also gradually increasing, psychological problems not only cause self physical and psychological harm, but also will cause bad impacts on child students growth and development, kindergarten teachers education on the child is an important link for child to set up correct ethics and good morality, therefore kindergarten teachers take important positions, therefore establish teachers well psychological consulting, propelling to teachers friendly relations and superior and subordinate management relations are very necessary. Analyze kindergarten teachers' psychology, and meanwhile the paper gets kindergarten teachers' communication ways, kindergarten teachers working time distribution, kindergarten teachers' psychological attention, kindergarten teachers' psychological education each aspect evaluation set, and analyze on their psychological status.

KEYWORDS

Kindergarten teachers; Psychological harmony; Fuzzy evaluation; Mathematical model; Psychological education.



INTRODUCTION

By TABLE 1, it is clear that kindergarten teachers abilities are uneven, for excellent kindergarten teachers, they should have constant learning consciousness and ability, good education consciousness, make research on child development, own good education ability, organizing ability, preferred ability, own strong theoretical utilization ability and practical ability.

TABLE 1 : Kindergarten teachers' professional level evaluation level

Proportions	Have constant learning consciousness and ability	Have good education consciousness, make research on child development,	Own good education ability, organizing ability, and referred ability	Own strong theoretical utilization ability and practical ability
Very good	30%	16%	5%	9%
Good	60%	32%	23%	26%
Normal	8%	42%	42%	26%
To be improved	2%	20%	30%	59%

TABLE 2 : Kindergarten teachers' growth path analysis

Path	Proportion
Open class, class preparation, Seminar	100%
Go outside and listen to lecture	76%
Professional staff guiding	67%
Self-learning, researching	67%
Participate in subject study	56%
Collaborative learning	33%
Self-examination	31%

By statistics, it gets for kindergarten teachers' growth experiences, they should possess TABLE 2 described process and paths, by above paths; it has good effects on promoting kindergarten teachers' professional ability and cultivating good psychological environment.

MODEL ESTABLISHMENTS

Fuzzy comprehensive evaluation model

Utilize fuzzy comprehensive evaluation, steps are as following:

(1) Establish factor set U , $U = (U_1 \ U_2 \ \dots \ U_k)$

(2) Establish judgment set V (evaluation set), $V = (V_1 \ V_2 \ \dots \ V_n)$

According to general evaluation system, define evaluation grade domain:

$$V = \{V_1, V_2, V_3, V_4\}$$

$$= \{ \text{Very good, good, normal, bad} \}$$

(3) Establish judgment matrix fuzzy mapping from U to V , it gets fuzzy relation as following matrix shows:

$$R = \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1n} \\ r_{21} & r_{22} & \cdots & r_{2n} \\ \vdots & \vdots & & \vdots \\ r_{m1} & r_{m2} & \cdots & r_{mn} \end{bmatrix}$$

(4) Establish weight set, $A = (a_1, a_2, \dots, a_n)$, it meets conditions:

$$\sum_{i=1}^n a_i = 1 \quad a_i \geq 0$$

(5) Fuzzy relation R every line reflects the line influence factors to object judgment extent, and meanwhile, R every column reflects the column influence factors to object judgment extent.

$$\sum_{i=1}^n r_{ij} \quad j = 1, 2, 3, \dots, m$$

$$B = A \cdot R$$

$$= (a_1, a_2, a_3, \dots, a_n) \cdot \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1n} \\ r_{21} & r_{22} & \cdots & r_{2n} \\ \vdots & \vdots & & \vdots \\ r_{m1} & r_{m2} & \cdots & r_{mn} \end{bmatrix}$$

$$= (b_1, b_2, b_3, \dots, b_n)$$

In V , fuzzy combination is evaluation set B . Based on above described facts, actual change model is:

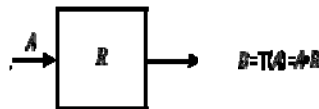


Figure 1 : Change model

As Figure 1 show, it gets fuzzy comprehensive evaluation change model, and can establish corresponding every factor grade evaluation transformation function, evaluation factors u_1, u_2, u_3, u_4, u_5 membership functions can be expressed as following:

$$\begin{aligned}
 u_{v_1}(u_i) &= \begin{cases} 0.5(1 + \frac{u_i - k_1}{u_i - k_2}), & u_i \geq k_1 \\ 0.5(1 - \frac{k_1 - u_i}{k_1 - k_2}), & k_2 \leq u_i < k_1 \\ 0, & u_i < k_2 \end{cases} \\
 u_{v_2}(u_i) &= \begin{cases} 0.5(1 - \frac{u_i - k_1}{u_i - k_2}), & u_i \geq k_1 \\ 0.5(1 + \frac{k_1 - u_i}{k_1 - k_2}), & k_2 \leq u_i < k_1 \\ 0.5(1 - \frac{u_i - k_3}{k_2 - k_3}), & k_3 \leq u_i < k_2 \\ 0.5(1 - \frac{k_3 - u_i}{k_2 - u_i}), & u_i < k_3 \end{cases} \\
 u_{v_3}(u_i) &= \begin{cases} 0, & u_i \geq k_2 \\ 0.5(1 - \frac{k_1 - u_i}{k_2 - k_3}), & k_3 \leq u_i < k_2 \\ 0.5(1 + \frac{k_3 - u_i}{k_2 - u_i}), & u_i < k_3 \end{cases}
 \end{aligned}$$

Combine with fuzzy evaluation model to evaluate kindergarten teachers' psychology

TABLE 3 : Network psychological consulting effects influence factors

	Communication ways	Counselor professional standards	Counselor language skills	Consultant adaptability degree	Consultant issue nature
Total frequency number N	174	570	411	204	246
Total frequency%	16.7%	54%	39%	19.5%	23.5%

According to TABLE 3, establish factor set U , $U = (U_1 \ U_2 \ U_3 \ U_4)$. Among them, communication ways U_1 , kindergarten teachers working time distribution U_2 , kindergarten teachers' psychological attention U_3 , kindergarten teachers' psychological education U_4 , it gets TABLE 4.

TABLE 4: Kindergarten teachers' psychological evaluation indicator system

Communication ways U_1	Kindergarten teachers working time distribution U_2	Kindergarten teachers' psychological attention U_3	Kindergarten teachers' psychological education U_4
Communication with students' parents u_{11}	Management on child u_{21}	Related news and current events u_{31}	Psychological education course u_{41}
Communication with colleagues and leaders u_{12}	Communication and instruction on child u_{22}	Psychological course u_{32}	Psychological guiding network psychology u_{42}
Communication with child student u_{13}	Get along with colleagues u_{23}	Education bureau attention u_{33}	Kindergarten teachers' psychological learning status u_{43}
Else u_{14}	Others used time u_{24}	Network monitoring inside school u_{34}	

Network u_{15}

By TABLE 4 listed factors, it gets evaluation sets.

$$U_1 = \{u_{11}, u_{12}, u_{13}, u_{14}, u_{15}\}$$

$$U_2 = \{u_{21}, u_{22}, u_{23}, u_{24}\}$$

$$U_3 = \{u_{31}, u_{32}, u_{33}, u_{34}\}$$

$$U_4 = \{u_{41}, u_{42}, u_{43}\}$$

By collecting data and analyzing, it gets four kinds of factors importance degrees ranking statistics, as TABLE 5 shows.

By TABLE 5 sorting, it gets communication ways, kindergarten teachers working time distribution, kindergarten teachers' psychological attention, kindergarten teachers' psychological education four aspects ranking matrixes.

TABLE 5 : Four kinds of factors importance degree ranking statistics

Classification	Rank 1	Rank 2	Rank3	Rank 4
Communication ways U_1	25	7	5	0
Kindergarten teachers working time distribution U_2	7	20	9	0
Kindergarten teachers' psychological attention U_3	0	11	13	13
Kindergarten teachers' psychological education U_4	4	0	10	21

$$U_2 = \{25, 7, 5, 0\}$$

$$U_2 = \{7, 20, 9, 0\}$$

$$U_3 = \{0, 11, 13, 13\}$$

$$U_4 = \{4, 0, 10, 22\}$$

Obtained weighted vector from rank 1 to rank 2

$$\beta = \{\beta_1, \beta_2, \beta_3, \beta_4\} = \{0.4, 0.3, 0.2, 0.1\}$$

$$U_i^* = U_i \cdot \beta^T$$

$$U_1^* = 12, U_2^* = 9.7, U_3^* = 6, U_4^* = 5$$

The paper takes normalization processing

$$U_1^* = 0.35, U_2^* = 0.3, U_3^* = 0.2, U_4^* = 0.15$$

It gets

$$\bar{A} = (0.35 \quad 0.3 \quad 0.2 \quad 0.15)$$

By kindergarten teachers' psychological evaluation test, the paper gets remarks membership as TABLE 6 shows.

TABLE 6 : Remarks membership

Evaluation way	Set scores interval			
	0-60	60-80	80-90	90-100
Very good	0	0	0.05	0.95
Good	0	0.05	0.9	0.05
Normal	0.05	0.9	0.05	0
Bad	0.95	0.05	0	0

By one kindergarten teachers psychological each indicator obtained evaluation, the paper gets TABLE 7.

TABLE 7 : One kindergarten teachers psychological each indicator obtained evaluation value

Each layer indicator	Evaluation value	Each layer indicator	Evaluation value
Communication with students' parents U_{11}	Very good	Related news and current events U_{31}	Very good
Communication with colleagues and leaders U_{12}	Very good	Psychological course U_{32}	Good
Communication with child student U_{13}	Normal	Education bureau attention U_{33}	Good
Else U_{14}	Normal	Network monitoring inside school U_{34}	Normal
Network U_{15}	Normal	Psychological education course U_{41}	Good
Management on child U_{21}	Very good	Psychological guiding network psychology U_{42}	Very good
Communication and instruction on child U_{22}	Very good	Kindergarten teachers' psychological learning status U_{43}	Normal
Get along with colleagues U_{23}	Good		
Others used time U_{24}	Good		

By above model, it gets single layer indicator weight factor fuzzy set is:

$$U_1^* = \{U_{11}, U_{12}, U_{13}, U_{14}, U_{15}\} = \{0.25 \quad 0.25 \quad 0.2 \quad 0.15 \quad 0.15\}$$

$$U_2^* = \{U_{21}, U_{22}, U_{23}, U_{24}\} = \{0.54 \quad 0.1 \quad 0.24 \quad 0.14\}$$

$$U_3^* = \{U_{31}, U_{32}, U_{33}, U_{34}\} = \{0.4 \quad 0.3 \quad 0.1 \quad 0.2\}$$

$$U_4^* = \{U_{41}, U_{42}, U_{43}\} = \{0.3 \quad 0.4 \quad 0.3\}$$

By TABLE 5, and combine with TABLE 3 remarks membership, it gets communication ways, kindergarten teachers working time distribution, kindergarten teachers' psychological attention, and kindergarten teachers' psychological education each aspect evaluation set.

$$\text{Communication ways } U_1 = \begin{pmatrix} 0 & 0 & 0.05 & 0.95 \\ 0 & 0 & 0.05 & 0.95 \\ 0 & 0.05 & 0.95 & 0.05 \\ 0 & 0.05 & 0.95 & 0.05 \\ 0 & 0.05 & 0.95 & 0.05 \end{pmatrix}$$

$$\text{Kindergarten teachers working time distribution } U_2 = \begin{pmatrix} 0 & 0 & 0.05 & 0.95 \\ 0 & 0 & 0.05 & 0.95 \\ 0 & 0 & 0.05 & 0.95 \\ 0 & 0.05 & 0.9 & 0.05 \end{pmatrix}$$

$$\text{Kindergarten teachers' psychological attention } U_3 = \begin{pmatrix} 0 & 0 & 0.05 & 0.95 \\ 0 & 0.05 & 0.9 & 0.05 \\ 0 & 0.05 & 0.9 & 0.05 \\ 0.05 & 0.9 & 0.05 & 0 \end{pmatrix}$$

$$\text{Kindergarten teachers' psychological education } U_4 = \begin{pmatrix} 0 & 0 & 0.05 & 0.95 \\ 0 & 0.05 & 0.9 & 0.05 \\ 0 & 0.05 & 0.9 & 0.05 \end{pmatrix}$$

$$B_i = A_i \cdot R_i$$

Make normalization processing with obtained B_i , it gets fuzzy evaluation matrix.

$$\bar{B} = \begin{pmatrix} B_1 \\ B_2 \\ B_3 \\ B_4 \end{pmatrix} = \begin{pmatrix} 0.06 & 0.27 & 0.13 & 0.54 \\ 0 & 0.1 & 0.5 & 0.4 \\ 0.08 & 0.46 & 0.35 & 0.05 \\ 0.17 & 0.21 & 0.31 & 0.32 \end{pmatrix}$$

The paper gets comprehensive evaluation value:

$$Z = U^* \cdot B = (0.28 \quad 0.32 \quad 0.21 \quad 0.18)$$

CONCLUSION

For excellent kindergarten teachers, they should have constant learning consciousness and ability, good education consciousness, make research on child development, own good education ability, organizing ability, preferred ability, own strong theoretical utilization ability and practical ability. On this basis, cultivate kindergarten teachers' psychological harmony is also particularly important; the paper analyzes kindergarten teachers psychological harmony status by fuzzy comprehensive evaluation. By analyzing evaluation value, it can get maximum value 0.32 stated evaluation value is normal that doesn't arrive at excellent level, therefore by far kindergarten teachers still have some psychological problems to be solved.

REFERENCES

- [1] Lu Chang-E, Wang Yong; Kindergarten teachers' working pressures and countermeasure ways, social supports relations. *Pre-school education research*, **2**, (2008).
- [2] Zhang Yan, Liu Yun-Yan; Kindergarten teachers' emotion adjustment ways and their impacts on working satisfaction index. *Pre-school education research*, **1**, (2008).
- [3] Yu Guo-Liang, Zeng Pan-Pan; Discuss on teachers mental health and its promotion [J]. *Journal of Beijing Normal University (Issue of humanity and social science)*, (2001).
- [4] Han Cheng-Hui, Liu Wen-Sheng; Application fuzzy comprehensive evaluation method in mine lot underground water's water quality evaluation [J]. *Mining industry safety and environment protection*, **05**, (2004).
- [5] Yu Hao, Liu Zhi-Bin, Wang Zhao-Jun; Grey clustering analysis-based mine water quality evaluation [J]. *Journal of Liaoning project Technology University*, **S1**, (2003).
- [6] Gu Chao-Jun, Pan Ying, Pan Ming-Jie; Application of Nemerow index method in underground water's water quality evaluation and existing problems [J]. *Environmental protection science*, **01**, (2002).
- [7] Ni Shen-Hai, Bai Yu-Hui; Application BP neural network model in underground water's water quality evaluation [J]. *Systems engineering theory and practice*, **08**, (2000).
- [8] Wang Xiao-Jun, Su Yang-Ping; Discussion on several problems in applying fuzzy comprehensive evaluation method in underground water's water quality evaluation [J]. *Henan geology*, **03**, (1992).