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

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 \( U \), \( U = \{U_1, U_2, \ldots, U_k\} \)

(2) Establish judgment set \( V \) (evaluation set), \( V = \{V_1, V_2, \ldots, V_n\} \)

According to general evaluation system, define evaluation grade domain:

\[ V = \{V_1, V_2, V_3, V_4\} \]

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

(3) Establish judgment matrix fuzzy mapping from \( U \) to \( V \), it gets fuzzy relation as following matrix shows:
(4) Establish weight set, \( A = (a_1, a_2, \cdots, a_n) \), 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.

\[
\sum_{j=1}^{m} r_{ij} = 1, \quad i = 1, 2, 3, \cdots, n, \quad j = 1, 2, 3, \cdots, m
\]

\[
B = A \cdot R = \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1n} \\ r_{21} & r_{22} & \cdots & r_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ r_{m1} & r_{m2} & \cdots & r_{mn} \end{bmatrix} = (b_1, b_2, b_3, \cdots, b_n)
\]

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

![Figure 1: Change model](image)

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:
Combine with fuzzy evaluation model to evaluate kindergarten teachers’ psychology

**TABLE 3**: Network psychological consulting effects influence factors

<table>
<thead>
<tr>
<th>Communication ways</th>
<th>Counselor professional standards</th>
<th>Counselor language skills</th>
<th>Consultant adaptability degree</th>
<th>Consultant issue nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total frequency number N</td>
<td>174</td>
<td>570</td>
<td>411</td>
<td>204</td>
</tr>
<tr>
<td>Total frequency%</td>
<td>16.7%</td>
<td>54%</td>
<td>39%</td>
<td>19.5%</td>
</tr>
</tbody>
</table>

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

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

$$u_i(u) = \begin{cases} 
0.5(1 + \frac{u - k_i}{u_i - k_i}), & u_i \geq k_i \\
0.5(1 - \frac{k_i - u}{k_i - k_2}), & k_i \leq u_i < k_1 \\
0, & u_i < k_i \\
0.5(1 + \frac{k_i - u}{k_i - k_2}), & k_i \leq u_i < k_1 \\
0.5(1 - \frac{k_i - u}{k_i - k_3}), & k_i \leq u_i < k_2 \\
0.5(1 - \frac{k_i - u}{k_i - u}), & u_i < k_i \\
\end{cases}$$
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**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Rank 1</th>
<th>Rank 2</th>
<th>Rank 3</th>
<th>Rank 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication ways ( U_1 )</td>
<td>25</td>
<td>7</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Kindergarten teachers working time distribution ( U_2 )</td>
<td>7</td>
<td>20</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Kindergarten teachers’ psychological attention ( U_3 )</td>
<td>0</td>
<td>11</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Kindergarten teachers’ psychological education ( U_4 )</td>
<td>4</td>
<td>0</td>
<td>10</td>
<td>21</td>
</tr>
</tbody>
</table>

\[ U_2 = \{25, 7, 5, 0\} \]

\[ U_2 = \{7, 20, 9, 0\} \]

\[ U_3 = \{0, 11, 13, 13\} \]

\[ U_4 = \{4, 0, 10, 22\} \]

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

$A = (0.35 \ 0.3 \ 0.2 \ 0.15)$

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

**TABLE 6 : Remarks membership**

<table>
<thead>
<tr>
<th>Evaluation way</th>
<th>Set scores interval</th>
<th>Very good</th>
<th>Good</th>
<th>Normal</th>
<th>Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-60</td>
<td>0</td>
<td>0</td>
<td>0.05</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>60-80</td>
<td>0</td>
<td>0.05</td>
<td>0.9</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>80-90</td>
<td>0.05</td>
<td>0.9</td>
<td>0.05</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>90-100</td>
<td>0.95</td>
<td>0.05</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>Each layer indicator</th>
<th>Evaluation value</th>
<th>Each layer indicator</th>
<th>Evaluation value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication with students’ parents $u_{11}$</td>
<td>Very good</td>
<td>Related news and current events $u_{31}$</td>
<td>Very good</td>
</tr>
<tr>
<td>Communication with colleagues and leaders $u_{12}$</td>
<td>Very good</td>
<td>Psychological course $u_{32}$</td>
<td>Good</td>
</tr>
<tr>
<td>Communication with child student $u_{13}$</td>
<td>Normal</td>
<td>Education bureau attention $u_{33}$</td>
<td>Good</td>
</tr>
<tr>
<td>Else $u_{14}$</td>
<td>Normal</td>
<td>Network monitoring inside school $u_{34}$</td>
<td>Normal</td>
</tr>
<tr>
<td>Network $u_{15}$</td>
<td>Normal</td>
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<td>Good</td>
</tr>
<tr>
<td>Management on child $u_{21}$</td>
<td>Very good</td>
<td>Psychological guiding network psychology $u_{42}$</td>
<td>Very good</td>
</tr>
<tr>
<td>Communication and instruction on child $u_{22}$</td>
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<td>Normal</td>
</tr>
<tr>
<td>Get along with colleagues $u_{23}$</td>
<td>Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others used time $u_{24}$</td>
<td>Good</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

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

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

$U_4^* = \{u_{41}, u_{42}, u_{43}\} = \{0.3 \ 0.4 \ 0.3\}$
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.

Communication ways
\[
U_1 = \begin{pmatrix}
0 & 0 & 0.05 & 0.95 \\
0 & 0 & 0.05 & 0.95 \\
0 & 0.05 & 0.95 & 0.05 \\
0 & 0.05 & 0.95 & 0.05 \\
0 & 0.05 & 0.95 & 0.05 \\
\end{pmatrix}
\]

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

Kindergarten teachers’ psychological attention
\[
U_3 = \begin{pmatrix}
0 & 0 & 0.05 & 0.95 \\
0 & 0.05 & 0.9 & 0.05 \\
0 & 0.05 & 0.9 & 0.05 \\
0.05 & 0.9 & 0.05 & 0 \\
\end{pmatrix}
\]

Kindergarten teachers’ psychological education
\[
U_4 = \begin{pmatrix}
0 & 0 & 0.05 & 0.95 \\
0 & 0.05 & 0.9 & 0.05 \\
0 & 0.05 & 0.9 & 0.05 \\
0 & 0.05 & 0.9 & 0.05 \\
\end{pmatrix}
\]

\[ B_i = A_i \cdot R_i \]

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

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

The paper gets comprehensive evaluation value:

\[ Z = U' \cdot \overline{B} = (0.28 \ 0.32 \ 0.21 \ 0.18) \]

**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**