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# Analysis of the current situation and the path to improve the subjective well-being of higher vocational students in Zhejiang Province in the context of information technology

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***Abstract***

*This paper describes the evaluation steps of hierarchical analysis and fuzzy comprehensive evaluation method, and firstly constructs the set of indicators for the evaluation object. The AHP-fuzzy comprehensive evaluation system is constructed by selecting the appropriate affiliation function to get the judgment matrix, fuzzy computing the weights with the weight vectors of the fuzzy judgment matrix, and normalizing the results. Then, the happiness of higher vocational students was evaluated by the constructed evaluation indexes in terms of grade, gender and place of origin. The happiness index score of senior vocational students in Zhejiang is 6.05±1.295, with the highest score of 9 and the lowest score of 1. The overall level of happiness is still not high. In terms of life satisfaction, urban students are 0.2 higher than urban students. class activities, teacher-student relationship, school identity, psychological quality and academic performance all affect students' happiness and are positively correlated, for example, psychologically healthy students have 1.1 and 2.27 higher life satisfaction and positive emotion index than students with bad psychological status. The construction of students' happiness is of great significance to students' growth and needs to attract the attention of schools and society.*

***Keywords:*** *informatization, higher education, subjective well-being, AHP-fuzzy comprehensive evaluation method.*

## Introduction

With the development of society and the reform of the economic system, people have achieved great material level satisfaction, while their spiritual pursuit has become higher and higher, and living a happy or unhappy life has become one of the important criteria for them to measure their living standard (J. Yang, Liu, & Zhang, 2019). Subjective well-being, as a core concept of positive psychology, is structurally divided into three main dimensions: life satisfaction, positive emotion and negative emotion (Attar, 2017) (Adler, Dolan, & Kavetsos, 2017). As a special part of the adolescent group, secondary school students have different mental health problems than -average adolescents, which leads to different levels of their subjective well-being (González, Varela, Sánchez, Venegas, & De Tezanos-Pinto, 2021) (Y. Yang, 2022). Therefore, it is important to study the subjective well-being of higher vocational students for their development and growth.

The literature (Bruni, De Rosa, & Smerilli, 2021) proposed that people's happiness index is related to and determined by the number of happy events experienced in their lives, and if people have no

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or very few events that make them happy, pleasant, and delighted, then they are highly susceptible to depression and depressed moods, leading to their depression or autism. The literature (Demirli, Türkmen, & Arık, 2015) suggested that not only is there a correlation between subjective well-being and personality, but that personality is an important predictor of subjective well-being. The literature (Renshaw & Bolognino, 2016) suggested that the availability of assistance or access to some support for individuals influences the degree of subjective well-being. The literature (Buck, Kevin Summers, Smith, & Harwell, 2018) found that three of the Big Five personality factors, neuroticism, extraversion, and rigor, were associated with well-being, and that the degree of two factors, extraversion and rigor, determined the degree of well-being. The literature (Gashi & Mojsoska-Blazevski, 2016) states that secondary school students do not have very high levels of well-being and that many of them have negative emotions that affect their personality formation. The literature (Alatartseva & Barysheva, 2016) suggests that modern happiness has gone beyond the realm of psychology into the zeitgeist goal of focusing on contemporary human existence and development is to promote the growth of personal happiness and the prosperity of human beings. The literature (Heikkilä, Lonka, Nieminen, & Niemivirta, 2012) analyzed the current situation of subjective well-being of higher education students, analyzed the factors affecting their own subjective well-being and put forward targeted suggestions. The literature (Zhang & Zhang, 2015) analyzed the factors of lower subjective well-being of higher vocational students from special student groups and families in higher vocational institutions. The literature (I, 2019) found that higher vocational students with more engaged mentor leadership behaviors, better classroom climate and higher academic satisfaction had higher subjective well-being.

The literature (Wang Y 2019) found that there were differences between male and female students in terms of self-satisfaction and no significant differences in other areas, with male students being significantly more self-satisfied than female students. Life satisfaction also differed among junior high school students in different grades. The literature (S, 2017) suggested that there is a significant difference in subjective well-being between male and female students, the level of subjective well-being of male students is higher than that of female students, and there is no significant difference in subjective well-being of students in different grades. The literature (Gao C S 2018) suggested that the subjective well-being of rural senior students was moderate, and the subjective well-being of secondary school students from high-income families was significantly higher than that of senior students with low income. The differences in subjective well-being levels of secondary school students by gender and grade were not significant. The literature (H) showed that the overall health level of college students was at a moderate level, and in general, college students tended to experience happiness, but not very much, and there were significant differences in the subjective of college students in terms of happiness level, sleep, and exercise time, which had a significant effect on the subjective well-being of college students. The literature (Channa, 2021) studied the relationship between college students' resilient personality and subjective well-being and found that resilient personality has a direct predictive effect on college students' subjective well-being, i.e., the

higher the level of individual resilience, the higher the level of subjective well-being.

This paper uses hierarchical analysis and fuzzy comprehensive evaluation method to evaluate the happiness of higher education students in Zhejiang Province, analyze the influencing factors and propose reasonable suggestions to improve the happiness of students. The first part of this paper introduces the calculation steps of hierarchical analysis method, which first constructs a hierarchy of steps, then constructs a comparison matrix to calculate the relative weights of each level, and finally calculates the combined weights. The second part describes the evaluation steps of the fuzzy comprehensive evaluation method, firstly determining the evaluation object and the evaluation index set, determining the evaluation level and the weight vector $A$, establishing the fuzzy evaluation matrix R, conducting the comprehensive evaluation of multiple indicators, and finally analyzing the evaluation results. The third part establishes the AHP-fuzzy comprehensive evaluation model, takes the happiness of senior students as the object of evaluation, and uses the AHP-fuzzy comprehensive evaluation method to evaluate the happiness of senior students through the constructed happiness evaluation indexes in terms of grade, gender, place of origin, class activities, school identity, and relationship with classmates.

## Analysis model of higher vocational students' happiness

### *Hierarchical analysis method*

The first step of AHP hierarchical analysis is required to decompose the complex problem into several elements and divide these elements into several groups according to different attributes to form a hierarchy. The elements of the same level as a first-level indicator layer have a dominant effect on some elements of the next level, and at the same time it is governed by the elements of the previous level. Different elements in the same level have relatively independent relationships, while for the sub-elements under each element, conceptually they have the relationship of containing and being contained, and its typical hierarchical analysis model is shown in Figure 1.

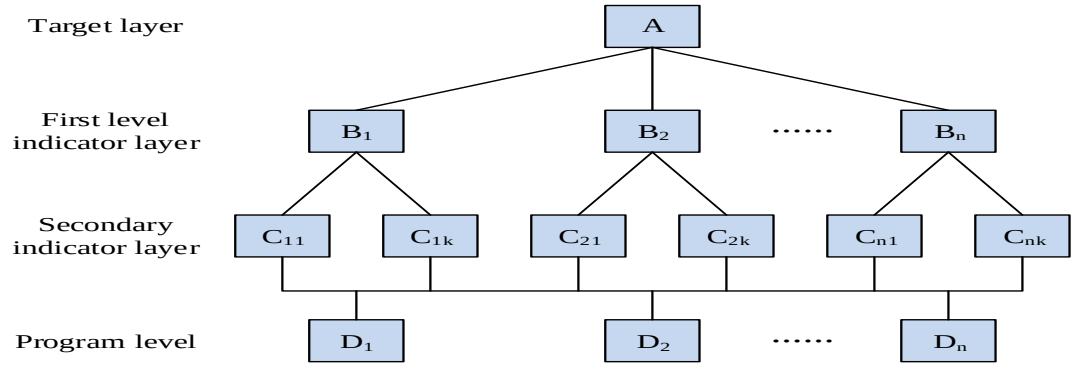


**Figure 1.** Schematic diagram of the AHP hierarchical analysis model structure

This phase focuses on constructing a hierarchical structure, dividing the entire structure into a

target layer, a criterion layer and a solution layer. Where the target layer contains one element and the rest of the layers contain two or more elements. Elements that have equal status in the same layer are grouped into different layers if they do not differ much.

The judgment matrix is constructed by comparing two elements of the same layer. The specific value is the importance of the two elements of the same layer relative to the elements of the previous layer. The specific judgment matrix is:

$$B=\begin{bmatrix} b_{11} & b_{12} & \cdots & b_{1n} \\ b_{21} & b_{22} & \cdots & b_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ b_{n1} & b_{n2} & \cdots & b_{nn} \end{bmatrix} \quad (1)$$

$b_{ij}$ in Eq. (1) indicates the importance of elements $P_i$ and $P_j$ with respect to the upper element $C_k$. And for quantitative calculations, the 19 scale method is usually used to express the importance of the elements (Rodríguez, Oré, & Esenarro, 2021).

The judgment matrix $B$ should have the following properties:

$$b_{ii}=1; b_{ij}=\frac{1}{b_{ji}}(i,j=1,2,\ldots,n); b_{ij}=\frac{b_{ik}}{b_{jk}}(i,j,k=1,2,\ldots,n) \quad (2)$$

The most important feature of AHP compared to other methods is that it provides a consistency test. Through this test, it is possible to find out whether the design of the indexes meets the relevant requirements and whether there is a conflict in the design of the indexes. After completing the consistency test, the geometric square method is applied to solve the judgment matrix.

(1) Calculate the consistency index:

$$CI=\frac{\lambda_{\max}-n}{n-1} \quad (3)$$

(2) Calculate the relative consistency index:

$$CR=CI/RI \quad (4)$$

where RI denotes the average random consistency index. The RI values for stages 1 to 10 are shown in Table 1.

**Table 1.** Average random consistency indicators

| Matrix Order | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| RI | 0 | 0 | 0.58 | 0.90 | 1.12 | 1.24 | 1.32 | 1.41 | 1.45 | 1.49 |

The AHP steps are represented in Figure 2.

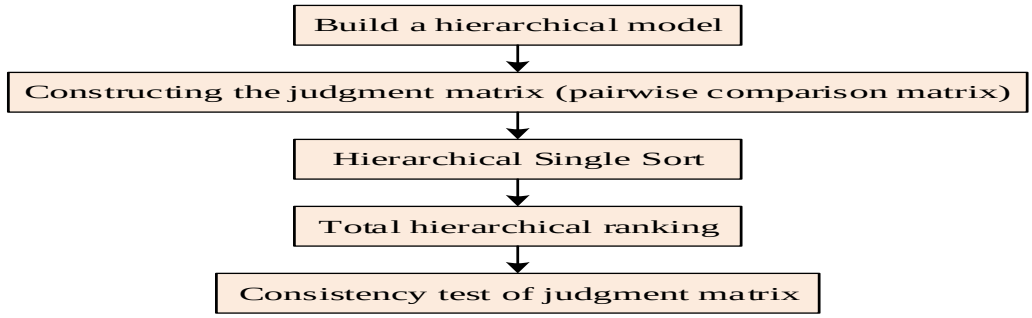


**Figure 2.** Steps of the hierarchical analysis method

The solution of the weights can be done by various methods. In this paper, the geometric mean method is mainly used. The specific solution is as follows.

(1) Calculate the product of the elements of each row of judgment matrix A:

$$m_i = \prod_{i=1}^{n} a_{ij} (i = 1, 2, \ldots, n) \quad (5)$$

(2) Calculate the $n$ nd root of $m_i$:

$$\omega_i = \sqrt[n]{m_i} \quad (6)$$

(3) Calculate the weights:

$$\omega_i = \bar{\omega}_i / \sum_{j=1}^{n} \overline{\omega_j} \quad (7)$$

***Fuzzy integrated evaluation method***

Fuzzy comprehensive evaluation method is to combine the affiliation function in fuzzy mathematics with the real evaluation problem, and evaluate the qualitative problem which is not well described before by quantitative way. The principle is: Firstly, the set of indicators of the evaluation object is constructed. Secondly, the weights of each indicator and its affiliation vector are determined, and a suitable affiliation function is selected to obtain the judgment matrix. Finally, the weights are fuzzily operated with the weight vectors of the fuzzy judgment matrix and the results are normalized. And the purpose of comprehensive evaluation is to select the superior object in the object set, so in the subsequent comprehensive evaluation, the results also need to be ranked.

The specific evaluation steps of the method can be divided into the following steps.

(1) Determine the evaluation object as well as the evaluation index set.

The object of the evaluation is $P$, and the set of evaluation indicators for hypothesis $P$ is

$U=\{u_1,u_2,\ldots,u_n\},n$ denoted as the number of evaluation factors, and $u_i$ is the value corresponding to each indicator.

(2) Determine the evaluation level of the evaluation object.

Determine the evaluation level $v=\{v_1,v_2,\ldots,v_m\}$, where $m$ is expressed as the number of levels of each index, and $v_j$ is the evaluation level of the corresponding $u_i$, such as V={Excellent, Good, Medium, Poor}.

(3) Determine the weight vector $A$ of the evaluation index.

Determining the importance of different indicators in the index, denoted by $A=\{a_1,a_2,\ldots,a_n\}$, where $a_i$ denotes the corresponding weight of each indicator and satisfies $\sum_{i=1}^{n}a_i=1, A=\{a_1,a_2,\ldots,a_n\}$, reflects the importance of different indicators relative to the target level.

(4) Establish the fuzzy evaluation matrix R.

In each element of $U$, a fuzzy judgment is made based on the evaluation level $V$ in the judgment set to obtain the judgment matrix.

$$R=\begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1m} \\ r_{21} & \cdots & \cdots & r_{2m} \\ \cdots & \cdots & \cdots & \cdots \\ r_{n1} & \cdots & \cdots & r_{nm} \end{bmatrix} \quad (8)$$

where $r_{ij}$ is the degree of affiliation of the evaluation object from the perspective of evaluation index $u_i$, which is relative to the evaluation level $v_j$. where $\sum r_{ij}=1$.

(5) Comprehensive evaluation of multiple indicators.

In this part, the focus is on the fuzzy synthesis operator, which synthesizes the fuzzy weight vector $A$ with the evaluation matrix $\mathrm{R}$ to obtain the fuzzy comprehensive evaluation result of the evaluation object, denoted by $B$:

$$B=A\bullet R=\{b_1,b_2,\ldots..,b_m\} \quad (9)$$

Where, $b_m$ is the affiliation degree of each layer evaluation index. For multi-level evaluation sources, the evaluation results of the lower level are used as the input of the upper level for layer-by-layer calculation on the basis of single-layer fuzzy comprehensive evaluation, and finally the comprehensive index scores are obtained, and then the results of fuzzy comprehensive evaluation are obtained.

(6) Analysis of evaluation results.

The final grade of the evaluation of the evaluation object P is determined according to the score.

The steps of the fuzzy comprehensive evaluation method are shown in Figure 3.

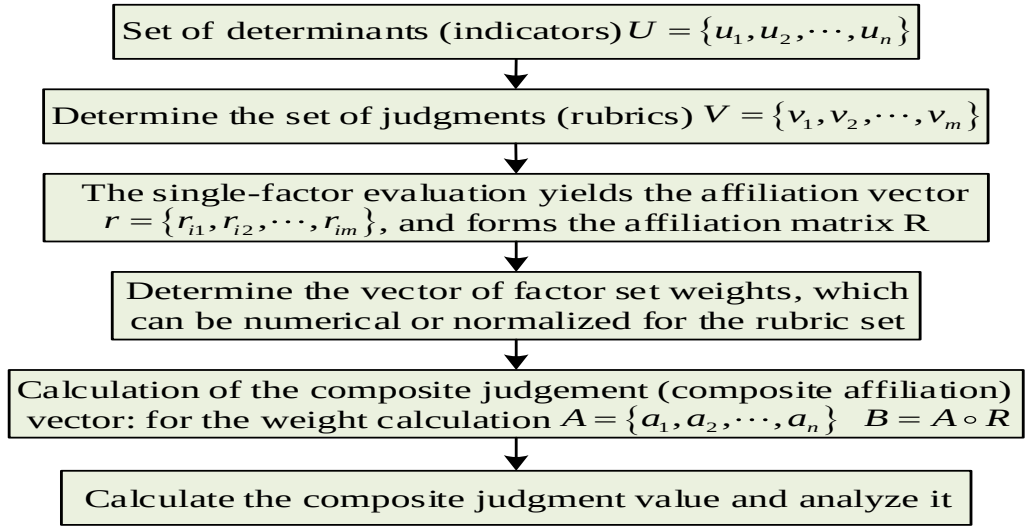


**Figure 3.** Steps of the fuzzy integrated evaluation method

***AHP-Fuzzy Comprehensive Evaluation Model***

Based on the above analysis of the principles of hierarchical analysis and fuzzy evaluation method, the overall process of AHP-fuzzy comprehensive evaluation is obtained. In this paper, the happiness of higher vocational students is taken as the object of evaluation, through the constructed happiness evaluation index, and then the AHP-fuzzy comprehensive evaluation method is applied to evaluate. The specific process is as follows.

Construct the set of index factors for the evaluation.

Constructing the rubric set and the value set.

And in the construction of the rubric set, the evaluation set is divided into four levels: excellent, good, moderate and poor, while the values assigned to the four levels are shown in Table 2.

**Table 2.** Assessment level scores

| Grade | Excellent | Good | Moderate | Poor |
|---|---|---|---|---|
| Number of marks | 5 | 4 | 3 | 2 |

Determine the weights of different indicators according to the AHP hierarchical analysis.

Construct the affiliation degree set.

Establish the set of target assignment weights. The weights of indicators of each level in the duty of confidentiality obtained by the AHP method.

Synthesize the weights and the affiliation degree set, and then get the comprehensive evaluation results.

$$Z = w \bullet r \quad (10)$$

Calculate the final score and classify the grade of this enterprise's HR information management system.

## Results and Analysis

In this study, the AHP-fuzzy comprehensive evaluation method was used to evaluate the well-being of higher vocational students. And the whole-group sampling method was used to draw subjects, and a sample of students from two vocational schools in Zhejiang Province was surveyed in August 2020. A total of 320 questionnaires were distributed in the two vocational schools, and after collecting and sorting them, 16 questionnaires with incomplete or invalid information were excluded, and finally 304 valid questionnaires were obtained, with a valid recovery rate of 95.15%. The sample consisted of 132 male students (43.42%), 172 female students (56.58%), 90 senior first-year students (29.61%), 113 senior second-year students (37.17%), 101 senior third-year students (33.22%): 36 senior students from cities (11.84%), 94 senior students from towns (30.92%), and 174 (57.24%) senior students from rural areas. The details are shown in Table 3.

**Table 3.** Survey respondents

| Variables | Variable Meaning | Number of people | Percentage/% |
|---|---|---|---|
| Gender | Male | 132 | 43.42 |
| | Female | 172 | 56.58 |
| Grade | Senior Year | 90 | 29.61 |
| | Upper second year | 113 | 37.17 |
| | Senior Year 3 | 101 | 33.22 |
| Place of origin | Urban | 36 | 11.84 |
| | Urban | 94 | 30.92 |
| | Rural | 174 | 57.24 |

The questionnaire selected for the survey of this study is a multi-perspective, multi-measurement,

multi-functional, localized scale for measuring happiness status constructed on the basis of a comprehensive theoretical framework and measurement indicators of happiness index, subjective well-being and psychological well-being.

It includes one index (happiness index), two modules (subjective well-being and psychological well-being), and nine dimensions (life satisfaction, positive and negative emotions, health concerns, life vitality, self-worth, personality growth, friendly relationships, and altruistic behavior), of which the nine dimensions are rated on a 7-point scale with a total of 50 items, and the happiness index is rated on a 9-point scale.

The scale has been widely used in the adolescent population and has good reliability and validity.

***The current situation of happiness level of higher vocational students***

Figure 4 shows the current situation of happiness of higher vocational students. The happiness index score of senior vocational students in Zhejiang is 6.05±1.295, with the highest score of 9 and the lowest score of 1. Among them, 1.2% of senior vocational students think they are very miserable, 0.4% think they are very miserable: 6% think they are especially miserable. 11% think they are miserable. 6% think they are somewhat miserable, 20% think they are in the middle, 10% think they are somewhat happy.

13% think they are happy. 8% of senior students think they are very happy, and 6% of senior students think they are very happy. In general, 54% of the students reported that their happiness is above the midpoint (including the midpoint), which means that the overall happiness level of higher vocational students is medium.

At the same time, according to the statistics, we can find that only a small proportion of the students feel miserable, and the majority of them feel happy, but the level of happiness is not very high, especially those who feel "very happy" or "very happy".

There are very few higher vocational students. In other words, although the overall happiness level of contemporary vocational students is medium, very few of them can experience a strong sense of happiness.

In view of the fact that the material foundation of contemporary vocational students is quite good, basically there is no lack of food and clothing, and they are at an age full of vitality and hope, they should have a strong sense of happiness, i.e. those who choose to feel "very happy" or "very happy" should be the majority.

However, the majority of senior vocational students choose to feel "in the middle", "somewhat happy" and "happy" when they describe their overall happiness level. From the survey data, although most of the higher vocational students feel happy, the overall level of happiness is still not high, and there is still room for further improvement of the happiness level of higher vocational students.

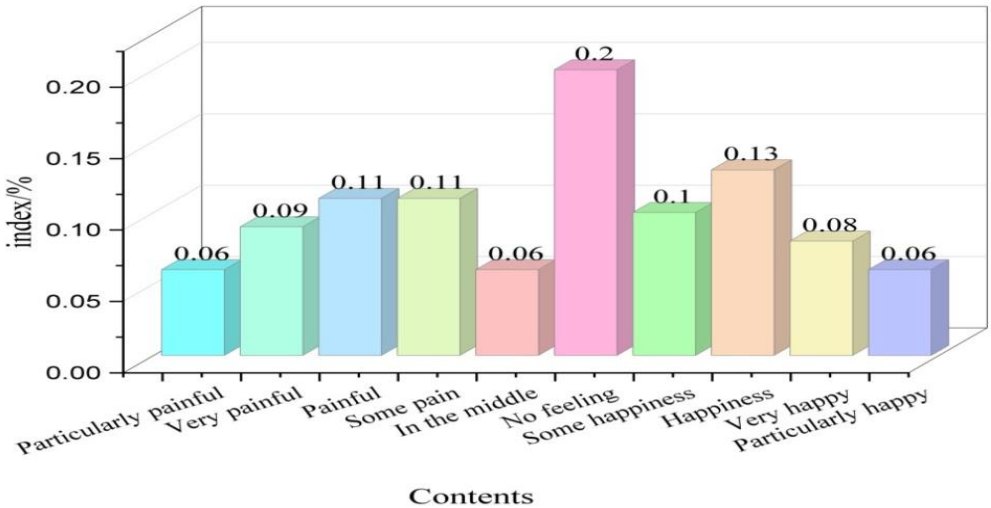


**Figure 4.** Current state of well-being

The mean scores of the nine dimensions of well-being of higher vocational students were: life satisfaction, positive emotion, negative emotion, life vitality, health concern, altruistic behavior, self-worth, friendly relationship, and personality growth. The mean scores of the nine dimensions of well-being were: health concern > friendly relationship > self-worth > altruistic behavior > life vitality > personality growth > life satisfaction > positive emotion > negative emotion.

Except for negative affect, the scores of life satisfaction, personality growth and positive affect were in the last three places. The low life satisfaction and less experienced positive emotions indicate that current senior students do not have a strong perception of happiness and do not know how to actively experience happiness in their academic life.

The low score of personality growth indicates that the current higher vocational students' personality development is still a larger and potential factor affecting their happiness, and the personality of higher vocational students needs to be shaped and optimized.

***There are differences in the happiness of different grade groups of students***

As Figure 5 shows, the self-reported happiness indices of senior year 1, senior year 2 and senior year 3 students are 6.37, 5.86 and 6.03 respectively, which can be clearly seen that the happiness level of senior year 2 students is the lowest, and the happiness level of senior year 1 students is higher than that of senior year 3 students.

From the data of nine dimensions of senior students' well-being, we can find that more of them only have relatively small differences, especially on the three dimensions of positive affect, altruistic behavior, and health concern, which means that all three grades of senior students have low positive affect scores, but are willing to help others and are concerned about their physical health.

However, on the three evaluation dimensions of life satisfaction, negative affect and personality growth, compared to first-year and third-year senior students, second-year senior students experienced higher life satisfaction but also experienced higher negative affect and were not able to understand themselves correctly and accept themselves positively, which may be related to the fact that second-year senior students are at a critical stage of personality and emotional development. The first-year senior students experience lower life satisfaction, which may be related to the fact that senior students are not yet well adapted to the teaching mode and environment of senior schools.

These implications for vocational school education include: the need to strengthen guidance for first-year senior students to get familiar with the learning life of vocational school as soon as possible, and the need to pay more attention to and guide the psychological aspects of second-year senior students to shape and optimize their personalities, promote the formation of their positive personalities, unblock their negative emotions and experience positive emotions.

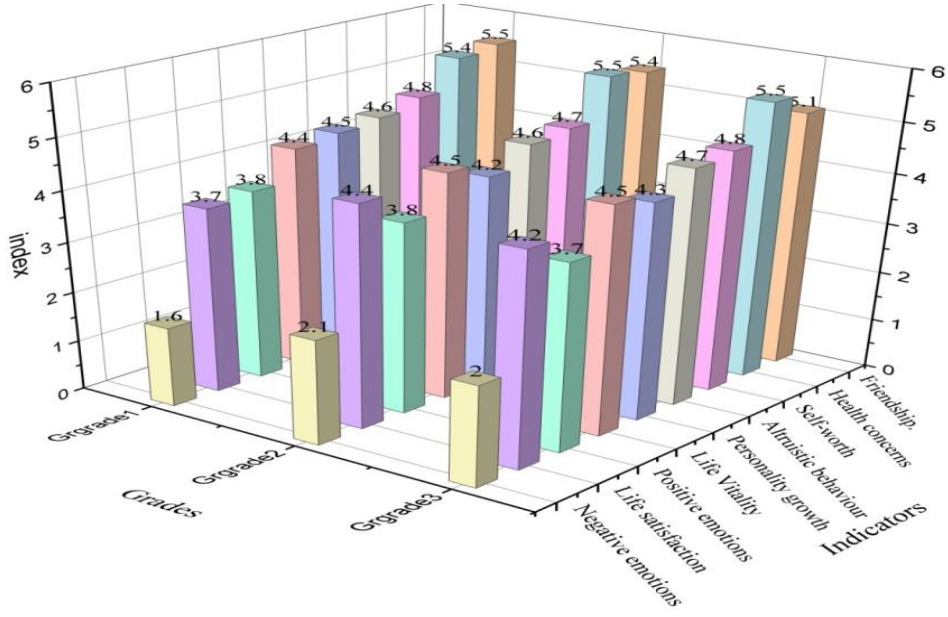


**Figure 5.** Well-being of students in different grades

***There is no significant gender difference in the happiness of higher vocational students***

Figure 6 shows the happiness study of students of different genders. This may be related to the fact that male students are more rational and female students are more emotional. This indicates that vocational schools need to pay attention to unblocking the negative emotions of higher vocational students, and pay special attention to the education of boys' emotions and feelings, such as love, gratitude, cheerfulness, optimism and other positive emotions and feelings, so as to enrich boys' emotional and affective experiences.

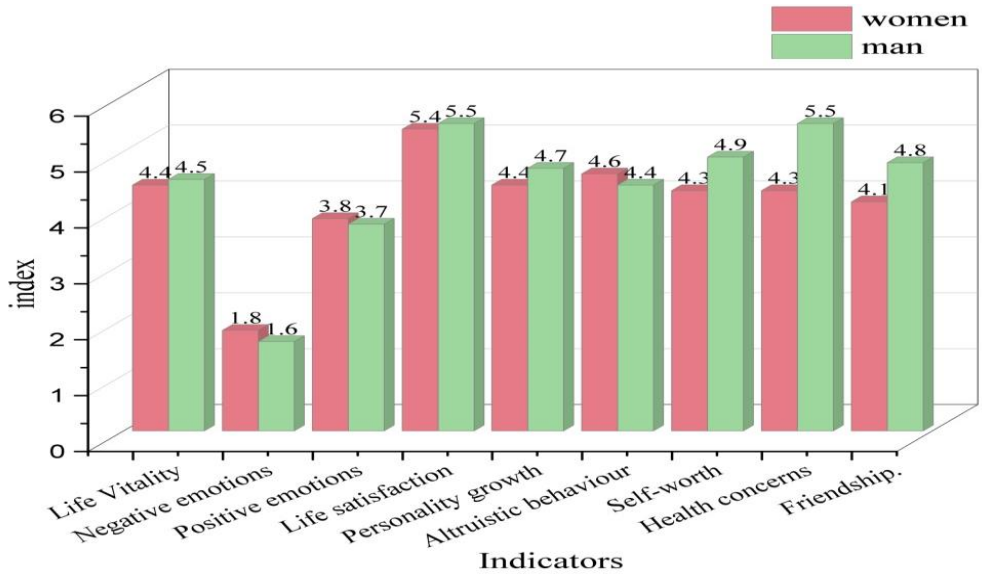


**Figure 6.** Well-being of students by gender

***There are significant differences in the happiness of higher vocational students depending on their place of origin***

The survey data show that the happiness of higher vocational students differs significantly depending on their places of origin. Table 4 shows the happiness of students from different places of origin: The happiness of higher vocational students from towns and villages is significantly higher than the happiness of higher vocational students from cities, and the subjective happiness experienced by higher vocational students from cities is lower than that of higher vocational students from towns.

The data of the nine evaluation dimensions of higher vocational students' happiness were analyzed, and it was found that the differences in the happiness of higher vocational students from different birthplaces were mainly reflected in three dimensions of life satisfaction, positive emotion and life vitality. Higher vocational students from rural and urban areas were significantly higher than those from urban areas in life satisfaction, positive emotion and life vitality, while rural higher vocational students also experienced more negative emotion than urban higher vocational students. Higher vocational students from rural areas experience more life satisfaction and also more negative emotions than those from urban areas. In addition, higher vocational students from rural areas and towns scored lower on the dimensions of health concerns and friendly relationships than higher vocational students from cities, which may be related to the environment they live in, where people who live in cities know more about health and know more interpersonal communication skills. Therefore, we need to pay attention to urban senior students' experience of life satisfaction, help them realize the advantageous conditions they are in and the conditions they have for a happy life, increase their perception and experience of happiness, and enrich their positive emotional

experience. For higher vocational students from rural and urban areas, we need to popularize their knowledge about health, help them eliminate negative emotions such as low self-esteem, anxiety and guilt, and teach them skills about interpersonal communication.

Table 4. well-being assessment for higher education students from different places of origin

| Indicators | Cities | Urban | Rural |
|---|---|---|---|
| Life satisfaction | 4.00 | 4.20 | 4.30 |
| Positive emotions | 3.57 | 3.71 | 3.70 |
| Negative emotions | 1.80 | 1.82 | 1.87 |
| Life Vitality | 4.43 | 4.65 | 4.42 |
| Health concerns. | 5.74 | 5.58 | 5.46 |
| Altruistic behaviour. | 4.45 | 4.82 | 4.68 |
| Self-esteem | 4.64 | 4.94 | 4.75 |
| Friendship | 6.09 | 5.44 | 5.37 |
| Personality growth. | 4.36 | 4.46 | 4.33 |

***The effect of classroom activities on well-being***

The mean scores of the dimensions of well-being of senior students with different class cultural and sports activities are shown in Figure 7. Senior students with moderate, more, and many cultural and sports activities scored higher on positive emotions, vitality of life, health concerns, and friendly relationships than the group with few class activities. Senior students with a lot of class cultural and sports activities have a better relationship with their classmates and are better able to find the goodness of the class. Students in classes with many cultural and sports activities had 0.34 more positive emotions, 0.44 more life vitality and 0.82 more friendly relationships than students in classes with few cultural and sports activities.

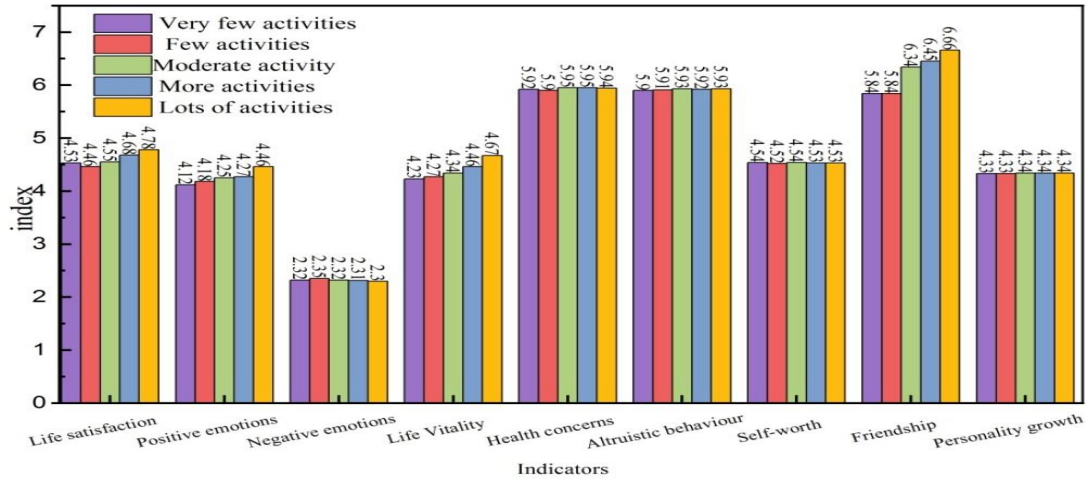


**Figure 7.** The impact of classroom cultural and sports activities on students' well-being

***The effect of school identity on the well-being of higher education students***

The mean happiness index scores of higher vocational students with different school identities are shown in Figure 8. School identities have an impact on higher vocational students' happiness index and their scores on specific dimensions of happiness. The higher the happiness index of the higher vocational students who are subject to more school identity, the higher the happiness index. The same trend was observed in the dimensions of positive affect, friendly relationship, and personality growth, i.e., the higher the score on these dimensions for the higher vocational students who received more school identification. For example, the positive emotion of students with low identification with school was only 3.79, while the positive emotion of students with average identification reached 4.29 and the positive emotion of students with high identification reached 4.58. The life vitality of students with low identification with school was only 4, while the life vitality of students with average identification reached 4.29 and the life vitality of students with high identification reached 4.83.

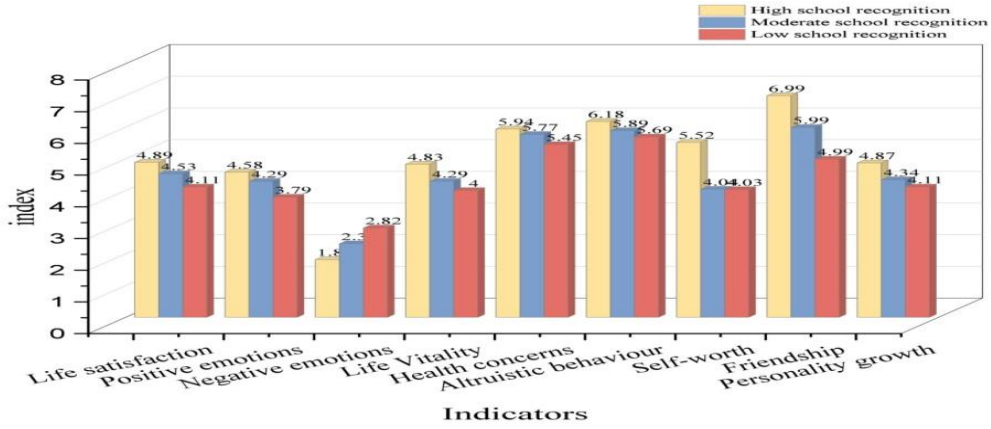


**Figure 8.** The effect of school identity on well-being

***The effect of relationship with fellow teachers on higher education students' happiness***

The mean happiness index scores of senior students with different teacher-student relationships are shown in Figure 9. Positive and constructive teacher-student relationships are highly correlated with student happiness. Students who perceive themselves to have good relationships with their teachers and classmates tend to report that they feel happy at school, make friends well, feel a sense of belonging, and are satisfied with school. Such students are also less likely to report that they feel lonely at school or that they feel awkward at school and like an outsider who has trouble fitting in. Good teacher-student relationships and good peer relationships increase students' well-being at school, such that students with good relationships with teachers and peers have a positive mood index of 5.9 compared to 4.5 for those with average relationships and 3.8 for those with poor relationships. Good relationships also affect students' life satisfaction and life vitality, with students with good relationships having a life satisfaction and life vitality index of the life satisfaction and

life vitality indices of students with good relationships were 5.56 and 5.5, while the indices of students with bad relationships were 4.2 and 4, respectively.

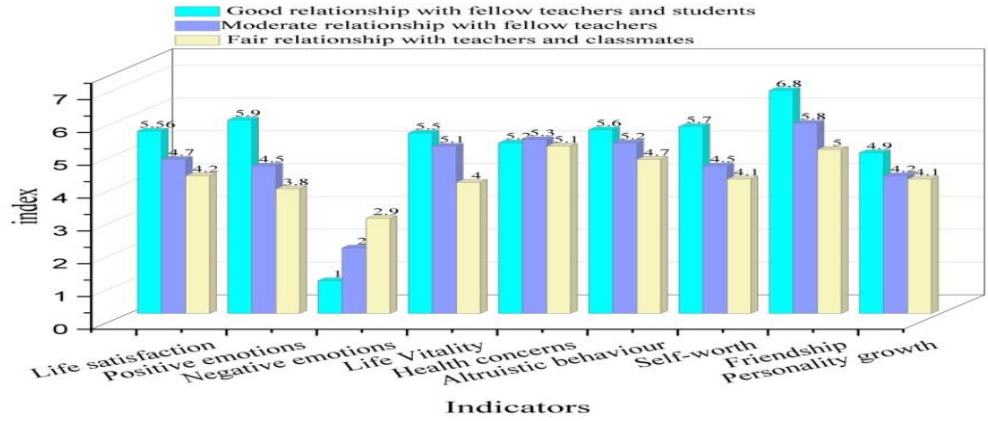


**Figure 9.** Effect of relationship with fellow teachers on well-being

***The effect of mental health on the well-being of higher education students***

The comparison of happiness dimensions of higher vocational students with different mental health conditions is shown in Table 5. Mental health has an effect on the happiness index of higher vocational students and their scores on specific dimensions of happiness. The better the psychological health is, the higher the happiness index of senior students. The same trend was observed in the dimensions of positive emotion, friendly relationship, and personality growth, i.e., the better the psychological health was, the higher the score of higher vocational students in these dimensions. For example, in terms of life satisfaction, students with good psychological condition have 4.9 life satisfaction, while students with bad psychological condition have only 3.8 life satisfaction. In terms of life vitality, students with good psychological condition have 4.1 life vitality index, while students with bad psychological condition have only 3.3 life vitality index.

**Table 5.** Impact of mental health on the well-being of higher education students

| Well-being dimensions | Average score | | |
|---|---|---|---|
| | Poor mental state | Average mental health | Mental state is very good |
| 1. Life satisfaction | 3.8 | 4.3 | 4.9 |
| 2. Positive emotions | 2.42 | 4.49 | 4.69 |
| 3. Negative emotions | 4.31 | 4.09 | 3.5 |
| 4. Life vitality. | 4.1 | 2.38 | 3.3 |
| 5. Health concerns | 3.9 | 4.32 | 4.31 |
| 6. Altruistic behaviour | 3.8 | 4.7 | 5.92 |
| 7. Self-worth | 4 | 4.9 | 5.4 |
| 8.Friendly relationships | 4.1 | 4.51 | 4.67 |
| 9. Personality growth | 4.2 | 5.1 | 5.99 |

***Academic performance affects the well-being of higher education students***

The comparison of nine happiness evaluation dimensions of higher vocational students with different academic status is shown in Table 6. the academic status of different higher vocational students has a significant influence on the level of happiness, and the level of happiness of higher vocational students shows a gradual decreasing trend according to the good or bad academic status, among which higher vocational students with better academic status experience higher happiness, which may be related to the fact that higher vocational students with very good academic status experience greater pressure. The data of nine evaluation dimensions of higher vocational students' happiness were analyzed, and it was found that the higher vocational students with good academic status were significantly higher in life satisfaction, positive emotion, self-worth and personality growth than those with bad academic status. For higher vocational students with good academic status, they generally have their own goals, understand what they want, and pay more attention to personal self-fulfillment, while higher vocational students with poor academic status will be aimless, have no correct self-cognition, are not clear about their strengths and potentials, and are suppressed for a long time, and their self-worth is not realized.

**Table 6.** Nine dimensions of well-being assessment for higher education students with different academic status

| Well-being dimensions | Very good | Better | Fair | Poor | very poor |
|---|---|---|---|---|---|
| Life satisfaction | 4.21 | 4.43 | 4.19 | 3.67 | 3.21 |
| Positive emotions | 3.67 | 3.76 | 3.65 | 3.35 | 3.15 |
| Negative emotions | 1.76 | 1.72 | 1.69 | 1.87 | 1.96 |
| Life Vitality | 4.64. | 4.72 | 4.52. | 4.23 | 4.12 |
| Health concerns | 5.54. | 5.53 | 5.47 | 5.45 | 5.54. |
| Altruistic behaviour | 4.63 | 4.67 | 4.78 | 4.63 | 4.59 |
| Self-worth | 4.89 | 4.78 | 4.65 | 4. 54 | 4.34. |
| Friendship | 5.64 | 5.67 | 5.63 | 5.70 | 5.69 |
| Personality growth | 4.56 | 4.54 | 4.45 | 4.38 | 4.29 |

***The path of higher vocational students' happiness enhancement***

(1) Targeted education on subjective well-being according to the characteristics of the higher vocational students

Targeted subjective well-being education is carried out according to the characteristics of senior students' groups. For higher vocational students with incomplete family structure, such as those from single-parent families, more attention and subjective happiness education will help these students feel more warmth and positive energy. To provide support and help to higher vocational students from poor families, let them realize that poverty cannot stop their pursuit of happiness, and help them to meet the challenges of life with more confidence and more vigorous attitude.

(2) Pay attention to the mental health of senior students, starting from cultivating and improving their subjective sense of well-being

Most of the researches are focused on the prevention of psychological problems of senior students, focusing on the physical and mental problems of senior students in school and family life. The purpose of solving these problems is to make senior students free from mental unhealthiness, but it does not mean that they can develop healthily.

(3) Schools should carry out a variety of activities to cultivate senior students' happiness awareness

Establish a happy school atmosphere, let senior students experience more positive emotions, let senior students feel the warmth of the school, the care of teachers, gradually internalize and improve the level of subjective happiness of senior students, senior students love their school, love their teachers, experience a meaningful and happy school life, then they will naturally work hard for their own happiness, slowly explore in the school Schools can try to carry out corresponding skill competitions to stimulate the interest and enthusiasm of senior students.

(4) Pay attention to the construction of family happiness atmosphere and introduce happiness elements in parent-child interaction

Efforts should be made to build the happiness atmosphere in the families of senior students, not only to make senior students realize the importance of happiness, but also to make their parents realize the importance of family happiness, so that parents can understand happiness and learn how to shape and enhance family happiness. The subjective well-being enhancement training class is not only for senior students, but the school can invite students' parents to participate in the process of subjective well-being enhancement training together, and enhance the subjective well-being of families in the process of interactive communication and mutual efforts of parents and students to promote each other, which can be an innovative way of teaching in school mental health class and should be the focus of society.

(5) Building good teacher-student relationship

Building a good teacher-student relationship requires teachers to put their minds at ease, and they need to value students' growth and treat them equally. In the face of children who are temporarily behind in grades, teachers should try to put their minds at ease and look at students with a developmental and inclusive perspective. Putting students' growth in the first place, taking love as a premise to focus on scores, care and concern for students, respecting them and caring for them

from the heart, is the only way to form a good teacher-student relationship.

## Conclusion

This paper uses the AHP-fuzzy integrated evaluation method to evaluate the happiness of students in two vocational schools in Zhejiang Province and analyze the factors that affect happiness, and the following conclusions are drawn:

1. The happiness index score of senior vocational students in Zhejiang is 6.05±1.295, with the highest score of 9 and the lowest score of 1. Although most of the higher vocational students are happy, the overall level of happiness is still not high, and the level of happiness of higher vocational students has room for further improvement.

2. There are differences in the happiness of student groups in different grades. The happiness level of senior second-year students is the lowest, and the happiness level of senior first-year students is higher than that of senior third-year students. The happiness of senior students from towns and villages is significantly higher than that of senior students from cities.

3. Class activities, school identity, relationship with teachers and classmates, psychological status, and academic performance all have a positive effect on students' well-being.

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