An In-depth Interpretation of Adolescent Anxiety Caused by Counseling Institutions in Anhui Province

Hongxia Ye[1], Mengying Chen[1], Hao Feng[1], Liang Gao[2], Yuxin Rao[3]

[1]School of Statistics and Applied Mathematics, Anhui University of Finance and Economics, Bengbu, Anhui 233030, China

[2]School of International Economics and Trade, Anhui University of Finance and Economics, Bengbu 233030, China

[3]School of Accounting, Anhui University of Finance and Economics, Bengbu 233030, China

Abstract

Research on the problems caused by adolescents' anxiety in counseling institutions. First of all, through the combination of online and offline research, we learned that the current anxiety of teenagers and the rise of counseling institutions has a great relationship, at the same time, we also investigated some problems existing in the market counseling institutions. Then, we collect relevant data through web crawler and other technologies, and establish the entropy-topSIS model to analyze the development of tutoring institutions at present. At the same time, the grey prediction model is used to predict the development of counseling institutions in the next ten years. Finally, we put forward some suggestions for the development of guidance institutions.

Keywords

Ounseling Institutions; Teenagers; Anxiety; Entropy-weight TOPSIS Model; Grey Forecasting Model.

1. Introduction

With the rapid development of The Times, social competition is more and more big, the corresponding people's pressure is more and more, students are no exception, especially primary and secondary school students. They have to face pressure to go to higher schools. With the fierce competition, they must do more homework and attend many tutoring institutions after class to improve their competitiveness and get better grades. Middle school students are under even greater pressure.

Long-term overload study pressure will inevitably lead to students' psychological diseases. In recent years, the incidence of mental illness among primary and middle school students has risen sharply. According to a survey by the relevant authorities in a municipality directly under the Central Government, 34% of middle school students have psychological disorders, 12.5% have psychological defects and 28.1% have psychological abnormalities. A survey in a province in northeast China showed that 35 percent of middle school students had psychological abnormalities, and 5.3 percent of them had mental diseases [1]. at the same time, in the fierce social competition, not to let children lose in the starting line has become the consensus of many parents. The intensification of social competition also gave birth to the abnormal development of education and training industry. In pursuit of profits, the training industry operates in violation of regulations and launches a variety of training courses, exacerbating social anxiety.

"Double reduction" means effectively reducing the burden of heavy homework and off-campus training for students in compulsory education[2].In order to fully implement the spirit of the 19th CPC National Congress and the fifth Plenary Session of the 19th CPC Central Committee,

effectively improve the level of education in schools, continue to standardize off-campus training (including online and offline training), and effectively reduce the burden of heavy homework and off-campus training for students in compulsory education. On July 24, 2021, the General Offices of the CPC Central Committee and The State Council issued the Guidelines on Further Reducing the Burden of Homework and Off-campus Training for Students in Compulsory Education, requiring all localities and departments to earnestly implement the guidelines in light of actual conditions. In August of the same year, the Office of the Education Supervision Committee of The State Council issued a special notice to inform provinces of the implementation progress of the "double reduction" work every two months. Under the influence of the national "burden reduction" policy, primary and secondary school students have more spare time, and their demand for extracurricular training classes also increases. Moreover, the current education advocates individuality rather than collectivization, so the industry of primary and secondary education and training institutions has great development prospects and huge consumer demand.

2. Research Objectives

With the gradual increase of social competition, students are under more and more pressure. According to the survey, the number of primary and middle school students with psychological anxiety is on the rise in recent years. To some extent, the increase of student pressure is related to the rise of tutoring institutions. However, this does not mean that the existence of counseling institutions is a mistake. For example, students who do not understand in class or do not have a firm grasp of knowledge points can be further deepened in the counseling institutions. At the same time, different teachers have different teaching styles, which can broaden students' horizons and improve their adaptability to some extent. Through the research of this paper, we can not only intuitively feel the impact of the rise of counseling institutions on students, on the other hand, we can also analyze the current development status and existing problems of counseling institutions. In view of these problems, we can improve it and put forward suggestions to the relevant departments, which is not only conducive to the development of education, but also conducive to relieve the pressure of students and promote the healthy development of students.

3. Survey Methods

This paper adopts the method of questionnaire survey, field survey and literature survey.

Questionnaire survey method: use uniform questionnaire to understand the situation of the respondents. we used a self-filled questionnaire to obtain the required data.

Field investigation: the method of direct perception of social phenomena in the natural state in a planned way by using one's own sense organs or scientific observation tools according to the purpose of investigation. Taking Anhui Province as an example, we took a field survey of some local counseling institutions to get a preliminary understanding of the current basic situation of counseling institutions.

Literature survey: the method of collecting all kinds of literature and extracting useful information [4].

4. Data Sources

The data in this paper come from technical channels such as questionnaire distribution, official website query and web crawler.

5.   Empirical Analysis of Teenagers' Views on Counseling Institutions

5.1.   Descriptive Analysis

Firstly, we processed the data collected through the questionnaire, including validity analysis, reliability analysis and other means. A series of analyses were carried out for the processed data. The information of the respondents is shown in the table below.

Table 1. Basic information of respondents

project	options	frequency	Frequency (%)
age	15 ~ 18 years old	90	21.23
	19 ~ 22	272	64.15
	23 ~ 25 years old	42	9.91
	26 and above	20	4.71
What was the stress of school	There is almost no	196	46.23
	general	152	35.85
	larger	76	17.92
Whether the rise of tutoring agencies has caused pressure on students	is	281	66.27
	no	143	33.73
Whether participating in extracurricular institutions has an impact on academic performance	It's very helpful and can improve your performance	123	29.01
	The improvement was modest	190	44.81
	It doesn't help	81	19.10
	Will lead to a decline in grades	30	7.08
If you do not participate in extracurricular tutoring will take the initiative to learn	is	195	45.99
	no	229	54.01
Attitude towards after-school tutoring agencies	Like it very much	51	12.03
	general	169	39.86
	Don't like	113	26.65
	Very hate	91	21.46

Among them, surveyors believe that the main sources of learning pressure are shown in the figure below.
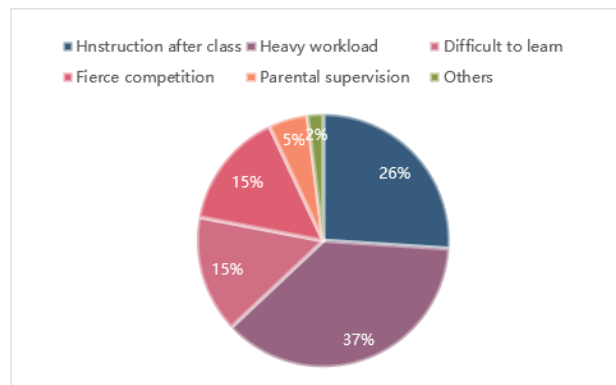

Figure 1. Main sources of students' stress according to surveyors

As can be seen from the figure, the main source of students' pressure is the heavy homework burden, followed by the reason of after-class tutoring, which intuitively shows the influence of tutoring institutions on students. we know from some literature that due to the gradual rise of extra-curricular institutions; the rise of tutoring agencies will give parents the idea that other students are improving their competitiveness and their children cannot be left behind. Moreover, the slogans of tutoring agencies attract many parents [5]. for students, the pressure they face is not limited to the pressure of school study, but also the pressure of tutoring institutions.

5.2. Validity Analysis

Through the questionnaire, we investigated the opinions of most people on the guidance institutions and the problems existing in the current guidance institutions. We processed and analyzed the data.

Table 2. Schematic diagram of questionnaire validity analysis results

KMO and Bartlett tests			
KMO sampling suitability quantity	The approximate chi-square	Degrees of freedom	significant
0.558	289.431	136	0.000

As can be seen from the table, the KMO test coefficient of the data in this questionnaire is 0.558, greater than 0.5, and the degree of freedom is 136. Its corresponding significance is close to 0, less than the significance level. Therefore, the questionnaire design has structural validity, and we can conduct factor analysis on it. $\alpha = 0.05$

6. Development Status of Counseling Institutions

6.1. Current Development Status of Tutoring Institutions

By selecting relevant data of counseling institutions in the past decade, including the number of counseling institutions in Anhui Province, average development cost, average profit, number of engaged personnel and market share as indicators, we consider using TOPSIS algorithm to score their development and evaluate their development status. in order to get better objective results, we consider using entropy weight method to assign weight to each index.

6.1.1. Basic Introduction of Entropy Weight Method-TOPSIS Algorithm

Entropy weight method is an objective method to calculate weight. According to the basic principles of information theory, information is a measure of the degree of order of a system. According to the definition of information entropy, entropy value can be used to judge the dispersion degree of an index. The smaller the information entropy is, the greater the dispersion degree of the index is, and the greater the influence (i.e., weight) on the comprehensive evaluation is. If all the values of this index are equal, it does not play a role in the comprehensive evaluation[5].Therefore, the weight of each index can be calculated by using the tool of information entropy to provide a basis for comprehensive evaluation of multiple indexes.

TOPSIS algorithm is a sequential optimization technique of ideal objective similarity, and it is a very effective method in multi-objective decision analysis. Through the normalization matrix of normalized data, it finds out the optimal target and the worst target (represented by ideal solution and anti-ideal solution respectively), calculates the distance between each evaluation target and the ideal solution and anti-ideal solution respectively, obtains the closeness degree of each target and the ideal solution and sorts them, which serves as the basis for evaluating the

quality of the target. The value of proximity is between 0 and 1. The closer to 1, the closer to the optimal level, and the closer to 0, the closer to the worst level[7].

6.1.2. The Establishment and Solution of the Model

(1) Data normalization

Because the measurement units of each index are not unified, they should be normalized before calculating the weight, that is, the absolute value of the index is converted into relative value.

$$\lambda_{ij} = \frac{\lambda_{ij} - \min(\lambda_{ij})}{\max(\lambda_{ij}) - \min(\lambda_{ij})}$$

(2) Variability of indicators

We need to determine the weight according to the variability of the index. its calculation formula is as follows:

$$p_{ij} = \frac{\lambda_{ij}}{\sum\limits_{i=1}^{5} \lambda_{ij}}$$

(3) Calculate the information entropy of each indicator

Information entropy refers to the expectation of the amount of information, which can be understood as uncertainty. Generally speaking, the smaller the information entropy of an index is, the greater the variation degree of the index is, the more information it provides and the more important it plays in the comprehensive evaluation. Its calculation formula is as follows:

$$e_j = -\frac{\sum\limits_{i=1}^{5} p_{ij} \ln p_{ij}}{\ln 5}$$

(4) Determine the weight of each indicator

The formula for calculating the weight of each indicator is as follows:

$$w_{ij} = \frac{1 - e_i}{n - \sum e_i}$$

The results are shown in the following table

Table 3. Schematic diagram of scores of tutoring institutions in each year

indicators	The information entropy	Information utility value	The weight
Number of tutoring institutions	0.9153	0.0847	0.1681
Average development cost	0.8191	0.1809	0.2507
Average profit	0.7517	0.2483	0.3549
Number of personnel engaged	0.8582	0.1418	0.2263

It can be seen from the table that the information entropy of the number of counseling institutions is the largest, indicating that the variation degree of this index is the smallest, the information utility value is the smallest, and it plays the least role in the comprehensive evaluation[8].The information entropy of the average profit of counseling institutions is the lowest, indicating that the variation degree of this index is the largest, the information utility value is the largest, and it plays the largest role in the comprehensive evaluation.

(5) Calculate the distance from the ideal value

The positive ideal solution is:

$$\lambda^+{}_j = \max_{1 \le i \le 5}\{\lambda_{ij}\}$$

The negative ideal solution is:

$$\lambda_j^- = \min_{1 \le i \le 5}\{\lambda_{ij}\}$$

Then the distance is:

$$D_i^+ = \sqrt{\sum_{j=1}^{3}\left[w_i(\lambda_j^+ - \lambda_{ij})^2\right]}$$

$$D_i^- = \sqrt{\sum_{j=1}^{3}\left[w_i(\lambda_j^- - \lambda_{ij})^2\right]}$$

(6) Calculate the relative progress

The larger the relative progress is, the closer the index is to the positive ideal solution and the better the development is. its calculation formula is as follows:

$$S_i = \frac{D_i^-}{D_i^+ + D_i^-}$$

The results are shown in the following table:

Table 4. Schematic diagram of scores of tutoring institutions in each year

year	score
In 2011,	0.244
In 2012,	0.2553
In 2013,	0.2262
In 2014,	0.2294
In 2015,	0.2664
In 2016,	0.3017
In 2017,	0.3024
In 2018,	0.3452
In 2019,	0.4379
In 2020,	0.4417

From the results, we can see that the development trend of counseling institutions generally presents a good trend. In 2020, the development of counseling institutions declined due to the epidemic, but the results were not obvious. This fits well with our prior survey. In the next few years, the market share of counseling agencies may become higher and higher, and more and more people will choose to engage in the education work of counseling agencies, followed by the industry competitiveness of counseling agencies will also continue to increase.

6.2. Development Forecast of Counseling Institutions in the Next 10 Years

We predict the future development of tutoring institutions by establishing a grey forecasting model.

(1) Based on the above data, we obtained the development of tutoring institutions from 2011 to 2020 and the original sequence:

$$y^{(0)} = \left\{y_1^{(0)}, y_2^{(0)}, y_3^{(0)} \ldots y_{10}^{(0)}\right\}$$

We grade the original sequence, and if almost everything falls in between, the model applies to this data $L(t)$ $(e^{-\frac{2}{11}}, e^{\frac{2}{11}})$

$$L(t) = \frac{y_{t-1}^{(0)}}{y_t^{(0)}}, (t = 1,2\ldots10)$$

In order to weaken the randomness of objective phenomena and better reflect their regularity, we accumulated the original data to obtain a new series of numbers:

$$D(t) = \frac{y_t^{(1)} - y_{t-1}^{(1)}}{2} \quad \text{(one)} \quad y_t^{(1)} = \sum_{t=1}^{t} y_i^{(0)}$$

(2) Establish the prediction function

We first establish the whitening equation:

$$y_t^{(0)} + \mu d_t^{(1)} = \lambda$$

Then it can be known from the definition of derivative:

$$\frac{dy^{(1)}}{dt} = \lim_{\Delta t \to 0} \frac{y_{t+\Delta t}^{(1)} - y_t^{(1)}}{\Delta t}$$

And because, if we put it into the whitening equation, we get: $y_{t+1}^{(1)} - y_t^{(1)} = y_t^{(0)}$

$$y_{t+1}^{(0)} = -\mu y_t^{(1)} + \lambda$$

$y_t^{(1)}$ Is the mean value of the two moments before and after, namely:. $\dfrac{y_t^{(1)} + y_{t-1}^{(1)}}{2}$ Then the dot product becomes:

$$y_{t+1}^{(0)} = \left(-\frac{y_t^{(1)} + y_{t-1}^{(1)}}{2}, 1 \right) \binom{\mu}{\lambda}$$

Construct data matrix A and vector matrix B:

$$A = \begin{pmatrix} y_1^{(0)} \\ y_2^{(0)} \\ \ldots \\ y_{10}^{(0)} \end{pmatrix} \quad B = \begin{pmatrix} -\dfrac{y_1^{(1)} + y_2^{(1)}}{2} & 1 \\ -\dfrac{y_2^{(1)} + y_3^{(1)}}{2} & 1 \\ \ldots & \ldots \\ -\dfrac{y_{n-1}^{(1)} + y_n^{(1)}}{2} & 1 \end{pmatrix}$$

Then the relationship between A and B is, $A = B\binom{\mu}{\lambda}$

The estimated value by using the least square method is, which is substituted into the whitening equation and its prediction formula is obtained by solving the differential equation: μ, λ

$$\binom{\mu}{\lambda} = (B^T B)^{-1} B^T B A$$

$$y_t^{(1)} = (y_1^{(1)} - \frac{\mu}{\lambda}) e^{-\mu(t-1)} + \frac{\lambda}{\mu}$$

The results obtained by using MATLAB are shown in the following table.

Table 5. Shows the projected scores for the next ten years

year	score
In 2021,	0.4386
In 2022,	0.4557
In 2023,	0.4562
In 2024,	0.4694
In 2025,	0.4664
In 2026,	0.5217
In 2027,	0.5224
In 2028,	0.5652
In 2029,	0.5779
In 2030,	0.6417

7. Problems Existing in the Current Tutoring Institutions

Table 6. Total variance interpretation

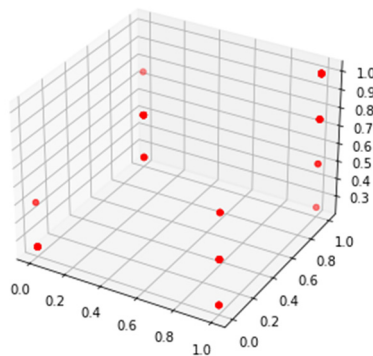| Total variance interpretation									
composition	Initial eigenvalue			Extract the sum of squares of loads			Sum of squares of rotational loads		
	A total of	Percentage of variance	Cumulative %	A total of	Percentage of variance	Cumulative %	A total of	Percentage of variance	Cumulative %
False advertising	1.583	39.578	39.578	1.583	39.578	39.578	1.576	39.408	39.408
Insufficient faculty	1.234	30.861	70.439	1.234	30.861	70.439	1.241	31.031	70.439
Higher cost	0.782	19.561	90						
Poor training conditions	0.4	10	100						

Figure 2. Schematic diagram of the relationship between principal factors and satisfaction of counseling institutions

It can be seen from the table that among the factors affecting people's satisfaction with counseling institutions, false publicity and insufficient teaching staff are the main factors, whose cumulative variance contribution rate is 70.439%, that is, these two factors provide sufficient information of the original data [8] Therefore, we choose false publicity and insufficient teachers as the main factors for analysis.

According to our survey, some people are not very satisfied with counseling institutions. According to our analysis, it is mainly due to the false propaganda of counseling institutions and the problems of teachers. With the increase of social competition, there are more and more

tutoring agencies. in order to increase its competitiveness and attract students, some institutions use the means of issuing false advertisements to deceive students and parents. One of the tutoring institutions we visited secretly advertised the teaching of teachers from North China. In fact, except for one Tsinghua university graduate, the rest of the teaching staff are students from domestic universities. at the same time, this reflects another problem, which is that the current teaching staff of counseling institutions is not very strong. Most of the teachers are not professional, most of them are college students or non-professional education graduates, and they do not have much teaching experience, which is also an important reason why many students do not improve their scores after attending cram schools.

8. Make Suggestions

Through the results of online and offline research, we further understand that the main characteristics of off-campus training institutions are "fiction, exaggeration and induction". First, the diversification and generalization of false propaganda. It mainly includes fabricating teacher qualifications, fabricating teaching experience, exaggerating training effect, exaggerating organization strength, fabricating user evaluation and so on. For example, among 103 teachers listed in the "Distinguished Teachers" column of New Oriental, 76 teachers' actual teaching experience did not match the propaganda, and the proportion of false propaganda reached 73.8%. Second, the problem of price fraud is prominent. The main performance is fictitious original price and false preferential discount. For example, Bond posted a tag on his official account that reads "2 lectures + final high Score secret book, original price 430 yuan, current price only 12 yuan". In fact, the package is a new experience specially launched for the "Double 12" in 2020, and its so-called "original price" has never been sold before.

In view of these problems, we propose the following suggestions:

In terms of false publicity, the counseling agencies that conduct false publicity should be fined and the amount of fines should be increased. In serious cases, their business licenses should be revoked. False advertising includes the advertised price never implemented, the false price of the curriculum, deceiving consumers and so on.In addition, false propaganda teachers, exaggerated teaching results, a small number of people to improve the results to mislead consumers to sign up for false propaganda.

In terms of teachers: the recruitment agency of tutorial classes implements strict measures and pays attention to teachers' educational experience, educational background and educational achievements. The relevant information of the tutor is made public, so that parents can fully understand the teaching staff of the tutor institution, so as to better choose what they need.At the same time, for the recruited teachers, centralized training, improve their own quality, to ensure the quality of teachers.In addition, it is necessary to strengthen the supervision of the society, from the institutions, parents and other aspects of the supervision of teachers, to promote teachers to regulate their own behavior, strengthen the work attitude. Teachers can also be arranged regularly to report and summarize their own work, there needs to be a complete system to help students learn knowledge, some teachers are forbidden to perfunctory students deceive parents deceive counseling institutions, only take money do not do practical things.

Environment: For students' learning, guidance institutions should do their best to provide excellent educational environment for students, who can devote themselves to their learning. At the same time, tutoring institutions can also increase some activities and benefits to mobilize students' enthusiasm for learning. Since tutoring institutions are places where additional learning tasks are added outside the school, it is more important to give priority to mobilizing students' learning enthusiasm and reducing their resistance. So that students can achieve twice the result with half the effort.

Cost: Relevant departments should strictly formulate pricing standards and resist high-priced tutoring. with the increasing competitiveness of our society, most parents and students are anxious about their grades. Many tutoring institutions are grasping this kind of psychology, exaggerate the description of students and parents, increase their psychological burden, and exaggerate the effect of their tutoring, to increase the tutoring price, the phenomenon of high tutoring. The lower price is conducive to more students who want to receive education to have the opportunity to participate in remedial classes to strengthen their weaknesses. On the one hand, it can expand the number of consumers of tutoring institutions to some extent and increase their profits. On the other hand, it can also reduce the burden on families of children in each remedial class.

The selection of counseling institutions: counseling institutions can implement a trial program, first let students feel the teacher's class style, etc., to judge whether they can accept or whether it is beneficial to their own, and then choose whether to enter the counseling institutions for learning. Parents should also listen to their children's opinions, not blindly follow the trend, but give priority to their children.

Acknowledgments

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