Integration Path of Employment Guidance for College Students Based on Internet of Things Education

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Abstract: The development of IOT (Internet of Things, hereinafter referred to as IOT) technology has promoted the change of human social life style, and it is also embedded in the process of Political Education (hereinafter referred to as "PE"). The innovation of PE network service function, the promotion of online PE resource integration and environment construction, and the transformation of education and learning methods have become the primary tasks of employment guidance at present. Therefore, this paper conducted a detailed study on the integration path of college students' employment guidance based on the political education of the Internet of Things. First, the title of the article was analyzed and understood. After reviewing a large number of literatures, the background of IOT political education for college students' employment guidance was described at the beginning of the introduction. Then, career guidance and IOT political education were carried out for academic research and finally concluded. The second part has built the model based on the algorithm of fusion path, and related algorithms were proposed to pass the theoretical basis for the model. Then, the specific integration path factors, college students' employment guidance factors, and IOT political education factors were introduced. Finally, according to the relationship between the PE of the Internet of Things and the employment guidance, a simulation experiment was carried out, and the experiment was summarized and discussed in detail. The research results showed that the effectiveness of the IOT-based political education for college students' employment guidance constructed in this paper has been increased by 7.91%.

1. Introduction

With the continuous reform of the employment system and the increase of workload, the difficulty of college students' employment has gradually become a hot topic that the whole society pays attention to and attaches great importance to. It is important to do their career counseling well. However, in the actual career guidance process, many colleges and universities unilaterally focus on practical career guidance, such as skill training, information services, etc., while ignoring the good combination of career guidance and PE. It is not conducive to achieving more with less effort. Therefore, with the continuous progress of the times and the rapid progress of today's society, how to further promote the perfect integration of college students' career counseling and PE has
gradually become a hot issue.

The current difficulty in employing college students is the result of the combined effect of many factors. Should play a greater role in employment guidance in the whole process of employment. The employment guidance of college students has become a major problem faced by colleges and universities. Many researchers have studied the employment guidance of college students on this basis. Lei L I discussed the relationship between their psychological counseling and employment and entrepreneurship counseling. He expounded the necessity and importance of psychological counseling in their employment and entrepreneurship counseling, and introduced the relevant steps and precautions in detail [1]. Ma L proposed vocational guidance education as an important content of university education, which was considered to be directly related to the employment of university graduates and played an important role in cultivating their good business ideas [2]. Li H Y proposed an effective way to improve college career counseling based on employment forecast from four aspects: the improvement of the scientificity of decision-making, the importance of consulting, the accuracy of service, and the timeliness of recruitment [3]. Du H believed that in this new era of increasingly severe employment situation, the joint efforts of PE schools and vocational guidance education should be used to reduce their burden. It is very important to provide important guidance for their employment and life [4]. Yan-Hua X U’s research found that many schools have begun to re-examine their students' vocational education policies. Appropriate and feasible measures were taken by continuously updating the content and management of lifelong learning [5]. In order to promote better employment of civil aviation graduates affected by the epidemic, Ma J suggested the establishment of a consulting employment service system to improve the overall quality of graduates [6]. Duan L discussed how to conduct career planning consultation for them more effectively from the perspective of efficiency and the whole process [7]. The employment guidance of college students is hotly discussed in life, and also attracts attention in academia.

In a rapidly changing society, the purpose of PE presents a dynamic development. The reverse conflict between the educated and the educator gradually intensifies. Scholars have put forward rich insights into the research and application of IOT political education. Yang S believed that today's information technology was developing very rapidly. Cloud computing, big data, Internet of Things, mobile computing, etc. have been widely applied and updated. The scale of social informatization continued to deepen, and the role of information education in modern education was increasingly prominent [8]. Liu X W believed that the IOT era brought university challenges related to PE, as well as opportunities for innovation and development. The rapid development of various technologies is a new medium for PE [9]. Geng H proposed that the development of intelligent media has brought many opportunities to PE college graduates, which was conducive to enriching teaching and teaching resources, improving teaching and teaching methods, and promoting the educational concept of "ideological and political appropriateness" [10]. Gao X J believed that the arrival of the digital age brought a new field to the ideological and political construction of colleges and universities, affecting the structure, power and resource relationship of PE in colleges and universities [11]. Zeng L H discussed and analyzed the conditions and methods of PE subjective relationship convergence under the new media environment, which had important theoretical and practical value for further deepening the PE subjective relationship correct understanding under the new media environment [12]. Bai Y conducted research and analysis on school networks and thoughts on the use of social media by graduates. He also explored remedies to enhance the political education of Internet thinkers [13]. Yang Y investigated the impact of IOT technology characteristics and basic technology on education reform, and then examined the specific impact of IOT technology on the education reform of local application-oriented universities [14]. Based on the perspective of education development, this paper combined the analysis of IOT political education construction to conduct research.
The IOT technology has greatly changed the existing PE network. However, IOT is a new technology with many unsolved problems. The impact of PE is comprehensive. Subsequent research should focus on IOT privacy protection and its integration with traditional PE to provide a solid theoretical basis for related fields.

2. Utilization Algorithm Model of Fusion Path

The path state algorithm can be expressed as a matrix: at time slot \( t \in T \), the path state \( S_h(t) \) is determined by a combination of factors such as the real-time spectrum state, the channel state, and the energy states of all router nodes in the path \([15]\). It can be represented as a matrix: 

\[
S_h(t) = [\gamma_h^1(t), \gamma_h^2(t), ..., \theta_h^k(t)]
\]  

(1)

According to Shannon's theorem, the delay \( h \) to the end of the path can be expressed as the information transmission delay:

\[
D_h = \sum_{k \in (1, k)} D_h^k = \sum_{k \in (1, k)} \frac{1}{B \times 0.5 (1 + p_h^k g_h^k / N_0)}
\]

(2)

Among them, \( p_h^k (k \in \{1, 2, ..., K\}, h \in \{1, 2, ..., N\}) \) is the power of the k-hop node on the hth path. \( g_h^k \) is the bandwidth of the channel. \( N_0 \) is the noise power. When considering path mutual interference, channel contention between nodes \( D_{\text{cross}} \) and information retransmission lead to additional transmission delay. The delay expression is as follows:

\[
D_h^k = \frac{1}{B \times 0.5 (1 + p_h^k g_h^k / N_0)} + D_{\text{cross}}
\]

(3)

According to the obtained signal-to-noise ratio predicted by the finite Markov state transition theory, according to Formula (4) and the energy state transition matrix, the real-time energy state of each port and routing node can be obtained:

\[
E_{\text{a}}^a (t) = \{ E_h^k(t) = e' \mid E_h^k(t-1) = e, a = a^k(t) \}
\]

(4)

\[
E_h^k(t) \geq 0, t \geq 1
\]

(5)

Among them, \( a = a^k(t) \in \{0, 1\} \) represents the real-time routing activation state. \( a=1 \), \( a=0 \) indicates whether the route is activated at time \( t \). \( e \) and \( e' \) represent the energy state before and after the node change. \( E_h^k(t) \) is used to describe the kth path of the remaining energy state of the hth path Hopper node.

From Formula (5), it can be obtained:

\[
\text{SNR}_h = \frac{S}{\sum 1 + N_0}
\]

(6)

\[
E_h^k(t)' = E_h^k(t) - \frac{1}{4} E_i
\]

(7)
Among them, $E$ is the transmission energy consumption.

3. Relevant Factors about the Integration Path of IoT Political Education for College Students' Employment Guidance

(1) IOT political education factors

IoT refers to things that connect things to the Internet through various information sensing devices such as radio waves, infrared sensors, global positioning systems, laser scanners, and other information sensing devices, according to an agreed-upon protocol. It realizes the intelligent identification, location, operation, monitoring and management of the network [16]. Its purpose is to connect all facilities to the network for easy identification and management.

IoT is also education to nurture people's opinions and political beliefs in a specific way. This is an important part of school moral education. Its nature is limited by specific social, political and economic systems and educational policies and goals. Therefore, it has a distinct class and direction [17].

With the advent of the IOT era, people's social production methods and lifestyles have changed, and people's concepts, ways of thinking, and behavioral communication methods have also undergone great changes, which inevitably affect the current PE network. It is necessary to make a way of thinking outside the traditional way. PE items such as new learning materials, learning methods, learning processes, and learning environments are discovered from the Internet [18]. IOT applications have changed people's traditional communication and interaction methods, and accelerated the integration of different cultures and cultural subjects. More notably, IoT increases cultural diversity and insecurities in current human development. How to deal with the challenges of such diversity and uncertainty in the current order, and how to address the serious problems behind these challenges, requires further thinking by ideological educators, as shown in Figure 1.

![Figure 1: IOT political education factors](image)

(2) Guiding factors for college students' employment

Employment guidance can be divided into two categories: narrow and broad [19]. In a narrow sense, employment counseling is to provide information about work to employees who need to work. It has become a bridge between employees and employers. In a broad sense, career counseling includes comprehensive social counseling related to employment and service activities, such as forecasting the labor force required for employment, social needs, collecting and disseminating employment information, developing professional skills, organizing labor market, recommending, promoting and organizing recruitment. In China, employment guidance should also include career orientation and appropriate ideological education. The main content of employment guidance is shown in Figure 2.

1) Information guidance

Information counseling is the foundation of career counseling. Only by collecting and mastering comprehensive information on the needs of society can schools and careers offices create as many employment and career counselling opportunities for graduates as possible.
2) Thought guidance

Thought Counseling is a career counseling center with three meanings. Graduates are helped to set the right professional standards. Graduates are helped to establish noble job-seeking ethics. Graduates are helped to choose the right path to success.

3) Technical guidance for job hunting

Technical consultation in job hunting is one of the basic contents of career consultation. In general, graduates facing career choices generally lack psychological preparation and worry.

![Figure 2: Employment guidance factors for college students](image)

(3) Specific fusion path factors

Mobile Internet platform is a new carrier of PE [20]. PE must actively occupy this new height in order to keep pace with the times. It is also necessary to grasp the pulse of the times and keep up with the interests and concerns of current students. Therefore, in the specific use of the mobile network platform, the following aspects should be considered:

1) Platform construction and publicity

The construction of online teaching platform is very important. It is an important means of teaching, which requires special personnel to teach and update and feedback information in real time. Through Weibo and official accounts, teaching-related materials, such as open classes, teaching videos, PPT, etc., can be taught in real-time through the Internet, which facilitates communication between teachers and students.

2) Selection of content

In the process of building the platform, teachers should grasp the current development trend of ideological and political work, and make timely suggestions to attach importance to ideological education. Especially when guiding students, teachers should be consistent with their conversations and give students a voice. In this way, students can be happy to accept. In order to grasp social hotspots, today's college students are increasingly concerned about real life, especially to obtain more information. Therefore, the construction of network media must keep pace with the times and focus on social hotspots and issues. The positive responses they made are guided in due course. In the construction of the platform, teachers should grasp the development trend of ideological and political work, and provide the latest information in a timely manner to attach importance to ideological education. Especially for their management, students have to approach and adjust their speech. Only by allowing students to express their opinions can they be willing to accept it. Contemporary college students should grasp social hotspots and pay more attention to reality, especially to obtain more information channels.

3) The form should be diverse

PE must be permeated in a vivid and intuitive form, such as cartoons, animations and other vivid forms that are easy for students to understand, so that they are ready to receive, permeate education.
in a light and interesting way, and avoid harsh preaching. The correct use of the current online language is essential to enhance the learner's sense of identity.

4) Teacher-student interaction

It is necessary to actively carry out ideological and political education. Various forms are adopted to communicate with students to grasp their ideological dynamics, so as to guide students in a timely manner. Teachers and students can conduct interactive monitoring through online chat or Weibo, which allows teachers to better grasp their psychological state and better understand their concerns and thoughts. By affirming positive behaviors, negative conversations and behaviors are facilitated.

5) Student cadre work

Student leaders are like the leaders of the “flock”. With the right choices, a team can be led well. With the wrong choices, it is a very difficult thing. In the mobile network environment, PE work should also pay attention to arresting people, which can play a great role in strengthening publicity. When instructing students to guide relevant platforms and information, cadres can play a linking role. At the same time, it can also fully collect information and provide timely feedback, as shown in Figure 3.

![Figure 3: Specific fusion path factors](image)

4. Relationship between PE and Career Guidance

First of all, with the development of the times and the rapid advancement of the socialist market economy, the society has higher and higher requirements for outstanding talents. If people want to participate better and faster in the process of social development, they not only need solid basic knowledge and professional skills, but also need good physical and mental quality. PE work must be oriented to career planning and social development needs. This provides them with desirable career coaching help, while at the same time finding a direction for their work to shape their social conditions. Secondly, the purpose of career counselling is to promote understanding and mastery of more national employment policies. More correct employment conditions are formulated to strive for greater employability, thus guaranteeing their smooth employment.

In today's era of knowledge economy, it is not only necessary to consider cultivating their professional skills, but also to guide attitudes and values, and guide them to use scientific concepts and methods to analyze and solve problems. This is inseparable from the silent cooperation of PE work.

The key to PE employment guidance work is whether it can promote employment, agile employment communication, and docking employment concepts. PE employment guidance aims to promote their better and faster integration into the society, and continuously improve their
comprehensive skills. Therefore, smooth employment and healthy development are closely related to the integration of career guidance and PE, as shown in Figure 4.

![The Relationship between the IPE and Employment Guidance](image)

**Figure 4: The relationship between PE and employment guidance**

5. Simulation Experiment of IoT Political Education and Traditional Political Education for College Students’ Employment Guidance

The realization of PE in the employment guidance work of college students should not only follow the previous methods, but also follow the changes of the times, constantly innovate and summarize. New ways are found to carry out PE in employment work, as shown in Table 1.

<table>
<thead>
<tr>
<th>specialized</th>
<th>employment rate</th>
<th>monthly income</th>
<th>professional counterpart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>91</td>
<td>3500</td>
<td>78</td>
</tr>
<tr>
<td>management</td>
<td>90</td>
<td>3460</td>
<td>71</td>
</tr>
<tr>
<td>economics</td>
<td>88</td>
<td>3400</td>
<td>68</td>
</tr>
<tr>
<td>Agronomy</td>
<td>86</td>
<td>3350</td>
<td>67</td>
</tr>
<tr>
<td>literature</td>
<td>85</td>
<td>3270</td>
<td>65</td>
</tr>
<tr>
<td>science</td>
<td>83</td>
<td>3040</td>
<td>64</td>
</tr>
</tbody>
</table>

In the path of integrating political education and employment guidance, this paper adopts the experimental method of case study to conduct an experimental analysis on the impact of IOT political education and traditional political education on employment guidance in regions A and B.

(1) Enrich the content of PE in the employment guidance

In addition to maintaining the content of traditional PE works, new content must be constantly added to PE works. The new contents include the socialist concept of honor and disgrace, correct work concept, employment and entrepreneurship concept, good mental health education, professional ethics education, etc.

1) Socialist concept of honor and disgrace

The socialist concept of honor and disgrace is a requirement of the new era. The establishment of a good socialist concept of honor helps to create a good social atmosphere and improve people's civilization quality, so as to cultivate a correct outlook on life and values for the majority of students.

2) Correct outlook on career selection, employment and entrepreneurship

With the continuous improvement of enrollment and other conditions, new problems have emerged in the employment situation of students. A good outlook on career choice, employment and
entrepreneurship can help them properly deal with the risks and competition in business life, allowing them to choose careers based on their skills and expertise. The cultivation of entrepreneurial ideas can alleviate the current job imbalance, while creating good conditions for their self-education.

3) Good mental health education

Mental health education is urgently needed to add PE to ongoing career guidance. Due to the bleak labor market situation and the low psychological quality of many college students, they feel inferior and pessimistic about the employment process. The ideological education work can help them develop a good psychological quality to properly handle the problems in work and life and correctly evaluate the process of adapting to work, so as to meet and compete with a positive attitude.

4) Professional ethics education

Professional ethics guidance can help students plan their careers wisely and clarify their career goals. Therefore, it is also a new material to be added in PE work. Professional ethics education can help them develop lifelong learning habits and lay a solid foundation for their success.

Figure 5 is a comparative analysis of the content of PE in abundant employment guidance in regions A and B.

As can be seen from Figure 5, in the comparative analysis of the content of enriching PE in employment guidance in regions A and B, among the four kinds of content learning rates in region A, the learning rate of social attention to honor and disgrace is the highest, followed by correct career choice, Employment concept and entrepreneurship concept, professional ethics education, and finally good mental health education. Among the four types of learning rates in region B, the learning rate of social attention to honor and disgrace is the highest, followed by good mental health education, professional ethics education, and finally correct career selection, employment and entrepreneurship. The learning rate of the socialist concept of honor and disgrace in region A is 31%. Region B is 1% lower than region A. It can be seen that both places pay more attention to their learning.

(2) The method of improving PE in the employment guidance of college students

The perfection of career counseling PE method needs to move from closed to open, from loneliness to diversification. The current university campus is already an open campus, and the value has also changed. In response to this situation, the work of PE also needs to be appropriately transformed. It has changed from the current closed education method to actively adapting to the society, so as to develop an open education method.

The ideological education of college students is not a single job. It exists in learning and in life, which requires work in conjunction with other disciplines. In view of the current situation, the
education work adopts the methods of psychological counseling, education and crisis intervention to make the ideological education work go deep into the life and study, so as to continuously improve the timeliness. Figure 6 is an analysis of the methods of improving PE in the employment guidance of college students in regions A and B.

![Figure 6: Methods in regions A and B](image)

It can be seen from Figure 6 that among the PE methods proposed to improve employment counseling, the improvement rate of the curriculum in region A is the highest, reaching 63%. This shows that the focus of region A in the employment guidance is placed on the curriculum. Next is the improvement of the environment, which is 21%. The improvement of the environment can influence students' thinking invisibly and lead them to the right path. Region B has the highest improvement rate for space, reaching 58%. Compared with region A, region B more emphasis on allowing students to be exposed to more things. It has changed from the current closed education method to actively adapting to the society and developing an open education method.

(3) Build a high-quality guidance team

A team of high-quality instructors is inseparable from a high-quality team to carry out the PE work of college students' employment counseling. Judging from the current actual situation, many colleges and universities have incomplete employment counseling PE teams. The problem of low quality is directly related to the development of employment counseling PE work. In colleges and universities, it is necessary to fully activate all aspects of funding, and constantly optimize and enrich the PE team. Many universities have established PE teams, which are made up of advisors, course teachers and full-time administrative staff involved in management. This method can help them solve employment problems in a timely manner, provide them with career counseling, and help improve their psychology. In addition, many colleges and universities have also set up corresponding employment departments to provide them with various employment information and help recommend employment. Some schools invite multiple psychologists to give lectures to help them establish a good working attitude, and provide them with systematic psychological education and counseling, so that they can have a deeper understanding of society and society. Many such practices have improved the quality of PE recruitment consultants and formed a good PE work system. Figure 7 is a comparative analysis of the content of teams A and B on how to build a team of high-quality instructors.

As can be seen from Figure 7, the scores of the two teams are different in terms of professional ethics, psychological quality, communication ability, and research ability. The highest score in the A team is the communication ability score of 8 points. The highest score in the B team is the psychological quality score of 9 points. Therefore, it can be concluded that if people feel that they lack communication skills and cannot deal with people better in employment, they can choose to study in the A team. If they feel that their mental capacity is poor and they often feel anxious, they can consider studying in B team.
(4) Integrate theory with practice and continue to explore

The development of PE work in employment counseling needs to consider the relationship between theory and practice. Only by combining the actual situation of college students can PE work be done well. Only when a good ideological and moral work system is formed in the continuous exploration and research, better service for employment and guidance of students' employment can be achieved in the shortest time, thereby increasing the employment rate of the whole society. Figure 8 is a comparative analysis of 4 students' satisfaction with PE jobs in employment counseling.

It can be seen from Figure 8 that the trend of the two broken lines is: the trend of the satisfaction curve is to increase first, then decrease and next increase. The trend of the dissatisfaction curve is to decrease first, then increase and next decrease. The satisfaction and dissatisfaction of Student 1 are 41% and 59%. The satisfaction and dissatisfaction of Student 2 are 58% and 42%. The satisfaction and dissatisfaction of Student 3 are 39% and 61%. Student 4's satisfaction and dissatisfaction are 55% and 55%.

To sum up, the effectiveness of IOT-based political education for college students' employment guidance constructed in this paper is increased by 7.91%.

6. Conclusion

The employment guidance of college students is the combination of the "main channel" and "main position" of ideological and political education for college students, and is an important medium for colleges and universities to achieve "three comprehensive education". It is closely related to the real life and social reality of college students. This experiment has obtained the analysis and comparison results of combining theory with practice, constantly exploring, building a high-quality guidance team, improving the methods of PE in the employment guidance of college students, and enriching the content of PE in the employment guidance. The experimental results showed that the effectiveness of IOT-based political education for college students' employment
guidance has been improved.

References