Research Article

The Effect of English Reading Based on Embedded Sensor System on the Cultivation of College Students’ Humanistic Spirit

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In order to better improve the cultivation goal of college students’ humanistic spirit, this paper puts forward the research on the role of English reading based on embedded sensor system in the cultivation of college students’ humanistic spirit. Embedded sensor system is used to carry out college English reading teaching in the humanistic teaching content in the teaching process. In addition, the evaluation index of college students’ English reading humanistic spirit cultivation is constructed, in order to achieve the goal of improving English reading teaching and task spirit training.

1. Introduction

With the rapid development of China’s market economy and the intensification of social competition, people pursue and advocate instrumentalist more and more. As a place to shape the human soul, the university campus will inevitably be affected. Through the investigation of college students, it is found that a considerable number of college students have deviation in life value orientation to a certain extent [1]. There are many reasons for this situation. Economic development has brought great material enrichment, accompanied by the popularity of pragmatism, hedonism, and consumerism in the whole society. These influences will inevitably affect the campus, erode the value tendency of teachers and students, and eventually cultivate a group of graduates with poor humanistic foundation and narrow cultural vision, resulting in the loss of overall balance in talent development [2]. Although the state and the Du Hui have paid enough attention to promoting quality education in recent years, they still only pay attention to the teaching of knowledge and do not pay attention to the cultivation of students’ subject consciousness due to the limitations of the university education system, resulting in the insufficient development of students’ personality and lack of creativity [3]. In short, the humanistic quality of college students cannot be ignored. At present, China’s English education lacks attention to humanistic education, resulting in students only mastering basic language skills and lacking teachers’ knowledge and speculative ability. Therefore, it is necessary to combine the embedded sensor system to carry out English reading teaching and cultivate humanistic spirit [4]. Guided by the concept of humanistic education, taking the humanistic English teacher training curriculum system of a university English teacher as an example, this paper introduces the humanistic training model into English teacher training. Humanistic education elements have been added to the college English teacher training system. Humanistic education refers to teaching students the knowledge of humanities to improve their interpersonal skills, understand the world, and adapt to the society [5]. Taking college English education as an example, combined with the embedded sensor system, humanistic spiritual style and lifestyle of English-speaking countries, so as to broaden vision, enrich experience, increase insight, cultivate sentiment, and finally improve humanistic quality, convey faith values and other basic cultural means [6]. The content of college English is all inclusive and involves almost all aspects of human social life. It contains rich humanistic education resources and has
unique conditions for humanistic quality education, which provides feasibility and convenience for the implementation of humanistic quality training.

2. The Effect of English Reading on the Cultivation of College Students’ Humanistic Spirit

2.1. English Reading Based on Embedded Sensor System. The general goal of English course based on embedded sensing system is to enable students to form a preliminary comprehensive language application ability through English reading and learning [7]. From this description, we can see that the humanism of English curriculum based on embedded sensing system needs to be paid attention to. Compared with humanism of English curriculum based on embedded sensing system, knowing the eating habits of English-speaking countries, and paying attention to the similarities and differences between Chinese and foreign cultures. These standards contain rich humanistic spirit, have clear standards for students’ humanistic knowledge, and make appropriate requirements for corresponding humanistic behavior. The scale is the classification standard of emotional attitude. The specific operation is shown in Tables 1 and 2.

The theory of focusing on humanistic spirit was put forward by psychologist Professor Lin Chongde. The theory points out that humanistic spirit is the core of culture, and the cultural difference between human beings lies in the difference of human humanistic spirit [12]. Humanistic spirit shows us the components of humanistic spirit in detail, as shown in Figure 2.

By focusing on the humanistic spirit theory, combined with the embedded sensor system, this paper provides ideas for the cultivation of humanistic spirit quality in this study. Firstly, as far as this study is concerned, it pays attention to guiding the cultivation of students’ humanistic spirit quality, that is, the cultivation of the logic, criticism, and innovation of humanistic spirit quality, which is consistent with the concept of “the quality of humanistic spirit” put forward in this theory [13]. Secondly, before English reading teaching, teachers should formulate corresponding teaching plans according to students and reading materials, monitor classroom teaching in the teaching process, and adjust teaching objectives in time. Finally, teachers should also pay attention to students’ noncultural factors, such as the stimulation of students’ interest and motivation, cultivate reading interest, and form a positive reading emotional experience, so as to improve students’ humanistic spiritual quality [14]. Based on the above findings, the research on humanistic spiritual quality is mainly divided into three stages.

1. Awakening stage, which mainly stays in the initial stage of defining its definition and components, focusing on the relationship between humanistic spirit quality and culture
2. Development stage, in which the humanistic spirit quality is combined with the cultivation of youth culture
3. Mature stage, in which the cultivation of humanistic spirit quality is combined with the teaching of various disciplines and explores the cultivation ways of humanistic spirit quality in the teaching of specific disciplines [15]. It can be seen that foreign research on humanistic spirit quality has been in a mature stage, mainly focusing on the relationship between humanistic spirit quality and teaching of various disciplines, and exploring its specific training ways

2.2. Evaluation Index of Humanistic Spirit Cultivation of College Students’ English Reading. Constructing the index system by combining the embedded sensor system is actually
the difficulty of fuzzy comprehensive evaluation. It can effectively deal with the impact of some subjectivity and uncertainty and avoid distortion in the selection of indicators. The bilingual teaching work evaluation of SG University in this case belongs to the work with characteristics. This teaching work has unique characteristics in methods and innovation [16]. Therefore, when determining the indicators, this paper fully combines the characteristics of bilingual teaching work and the actual situation of the case school and puts forward it on the basis of full understanding of bilingual teaching work in colleges and universities in practice. As mentioned above, the evaluation indicators of bilingual teaching in colleges and universities include teaching content, teaching attitude, teaching management, and teaching effect [17]. On this basis, it is also necessary to test the rationality of these types of indicators to ensure that the indicators can correctly reflect the performance of bilingual teaching. Ten experts with rich experience in bilingual teaching in colleges and universities were investigated and evaluated on four indicators [18]. The 10 experts participating in the survey were selected from colleges and universities, scientific research units, and other organizations or institutions, which ensured that they had a good understanding of bilingual teaching in colleges and universities.
The importance evaluation of these experts on the four indicators of the above embedded sensing system is shown in Table 3.

In view of the goal of bilingual teaching performance evaluation in colleges and universities, two indicators can be selected in the criterion layer to achieve comparison, so as to generate a matrix of relative importance [19]. According to the four categories of indicators mentioned above, the specific weights of the first level indicators shown in Table 4 can be obtained.

The above indicators are represented by $M_i$ in which the teaching content index is $U$, and the teaching effect index is $c_{ij}$. At the same time, $p$ is used to represent the specific weight of each index according to the relative importance and formula in Table 4.

\[ M_i = U \prod_{j=1}^{n} c_{ij} p. \]  

(1)

Then, we can get the formula:

\[ w_i = \sqrt[p]{M_i / p - c_{ij} - 1}. \]  

(2)

Substitute the relative importance values to obtain the relative weight values of each index as follows:

\[ w_1 = \sqrt{1 - (1/2)w_i} = 0.71w_i, \]  

(3)

\[ w_2 = \sqrt{1 - (1/3) \times (1/2)w_i} = 0.064w_i. \]  

(4)

Then, normalize the vector $w$ which is composed of each weight to obtain the feature vector of weight calculation as follows:

\[ \lambda_i = n - \frac{|w_1 - w_2|}{\sum w_i}. \]  

(5)

In college English classroom teaching evaluation, it is divided into three roles: expert, student, and teacher. The calculation model of expert index weight is given. Students and teachers can refer to the calculation process of this model. Among them, experts include $n$ first-class indicators. In this paper, experts have a total of 4 first-class indicators, namely, in, and the corresponding weights of these classroom evaluation indicators are $C_1, C_2, \cdots, C_n$. For each first-class indicator, there are different numbers of second-class indicators, and the corresponding number of second-class indicators is under $n$ first-class indicators in English.
classroom teaching evaluation. In the third chapter of the paper, experts have a total of 10 secondary indicators, namely, $K_1, K_2, K_3, \ldots, K_n$. Then, the weights of secondary indicators corresponding to college English classroom teaching evaluation indicators are $C_1, C_2, \ldots, C_n$. For experts, if there are $n$ primary indicators, the sum of the weight of primary indicators in the whole goal is 1. In addition, students and teachers should do the same which is also available. The sum of the weights of students and teachers in the whole goal is 1, so it meets the following formula.

$$\lambda_i(C_1 + C_2 + \cdots + C_n) = 1.$$  \hspace{1cm} (6)

In college English classroom teaching, the weight of each level-1 index of experts, students, and teachers is the sum of level-2 indexes, so they all meet the calculation of indicators of experts, students, and teachers.

$$C_i = C_{i1} + C_{i2} + \cdots + C_{ik}.$$  \hspace{1cm} (7)

The consistency index CI can be calculated as follows:

$$CI = \frac{\lambda_{\text{max}} - n}{n - 1}.$$  \hspace{1cm} (8)

The consistency test index CR of the judgment matrix is further calculated as follows:

$$CR = \frac{CI}{RI}.$$  \hspace{1cm} (9)

The humanization of the evaluation concept of embedded sensor system is to focus on the emotional demands of teachers and students and pay attention to the sustainable development and progress of teachers and students. This requires that evaluators should understand the actual situation and specific needs of teachers and students. Evaluators should conduct dialogue and exchange on the basis of equality and give full play to the subjective initiative of both sides. In particular, when making learning evaluation, the evaluator should fully consider the differences between students’ family environment and their actual English level. After all, most students in universities and colleges come from vulnerable families with relatively low economic and social status [20]. Their psychology is more sensitive and fragile. The reason for their relatively low English level cannot be entirely attributed to their own lack of effort. By listening attentively, experiencing their thoughts and feelings, actively helping, and guiding them, they will relatively obtain a sense of psychological security, so that they will more actively cooperate with the teaching evaluation, so as to truly understand the evaluation results from deep inside. In terms of the results of evaluation, evaluators should look at them from a developmental perspective. They should not simply label students with the results of examination or final examination or skill competition but objectively and fairly evaluate them from the process of their pursuit of progress. As long as they make progress than in the past, it is worth affirming. Only such evaluation can be regarded as humanized evaluation. Only from the reality of the evaluation object, the use of humanistic care can promote the improvement of the evaluation.

| Teaching content index | Teaching attitude index | Teaching management index | Teaching effect index |
|------------------------|-------------------------|--------------------------|-----------------------|
| Teaching content index | 2                       | 2                        | 1/2                   |
| Teaching attitude index | 1                       | 1                        | 2                     |
| Teaching management index | 1                      | 2                        | 1/2                   |
| Teaching effect index | 1                       | 2                        | 2                     |

| Table 4: Weight of college English reading spirit training indicators. |
|-------------------------------------------------|
| **Experimental project** | **Experimental class** | **Experimental object** | **Control class** |
| Evaluation subject | Teachers, students, administrators, parents, etc. | Teacher |
| Evaluation object | Teachers and students | Student |
| Evaluation method | Focus on formative evaluation, qualitative evaluation, and other evaluation methods | Focus on the use of summary evaluation, quantitative evaluation, and other evaluation methods |
| Value concept of evaluation | Focus on educational value | Focus on management value |
| Evaluation tools | Test and nontest | Test type |
| Evaluation object | Teaching contents or learning contents, teaching methods or learning methods, teaching means or learning means, etc. | Teaching content or learning content, teaching effect, or learning effect |
| Technical means of evaluation | Standardization and personalization | Standardization |
| Manual and computer | Artificial |

| Table 5: Evaluation scheme design of English reading humanistic spirit teaching in colleges and universities. |
|-------------------------------------------------|
| **Experimental project** | **Experimental class** | **Experimental object** | **Control class** |
| Evaluation subject | Teachers, students, administrators, parents, etc. | Teacher |
| Evaluation object | Teachers and students | Student |
| Evaluation method | Focus on formative evaluation, qualitative evaluation, and other evaluation methods | Focus on the use of summary evaluation, quantitative evaluation, and other evaluation methods |
| Value concept of evaluation | Focus on educational value | Focus on management value |
| Evaluation tools | Test and nontest | Test type |
| Evaluation object | Teaching contents or learning contents, teaching methods or learning methods, teaching means or learning means, etc. | Teaching content or learning content, teaching effect, or learning effect |
| Technical means of evaluation | Standardization and personalization | Standardization |
| Manual and computer | Artificial |
object’s English language communication ability and professional ability. Only when the interests of the evaluator and the evaluation object should be tied together can the two sides of the evaluation effectively fight hand in hand. Only by understanding the historical development background and development process of the evaluation object can we understand their progress in a certain aspect, so as to create better conditions and opportunities for their sustainable development. The specific operation is shown in Table 5.

Through the analysis and research on the literature related to college English classroom teaching evaluation, the construction of mutual promotion English classroom teaching evaluation methods, and the investigation of college English experts, unique opinions and rich teaching experience are introduced to English teaching evaluation. Combined with their practical experience in English teaching, they preset the evaluation indicators of college English classroom teaching. The specific indicators are shown in Table 6.

It can be seen from the table of evaluation and certification index system that in terms of teaching attitude, college English classroom teaching contents should be fully prepared and strictly managed. Classroom discipline is the responsibility of teachers for teaching and is an important index item. In the classroom performance, the clarity of spoken English, the proportion of Chinese and English in spoken English, the approximate proportion of new words in spoken English when students answer questions, and the oral ratio of Chinese and English are important index. In educational action research, teachers combine teaching action with research and creatively use teaching theory to solve specific problems in teaching practice. Therefore, educational action research is the organic combination of action and research and the link between theory and practice. Action research is a reflective research method to take action to solve practical problems in education and improve educational practice. Action research includes a variety of research...
|                                           | Totally disagree | Disagree | Uncertain | Agree | In full agreement |
|-------------------------------------------|------------------|----------|-----------|-------|-------------------|
|                                           | Number of people | Proportion (%) | Number of people | Proportion (%) | Number of people | Proportion (%) | Number of people | Proportion (%) |
| Reading is important                      | 8                | 2.3%     | 19        | 7.00% | 36                | 11.98%         | 145            | 48.11%         | 99            | 33.15%         |
| Like reading                              | 23               | 7.55%    | 92        | 30.61%| 77                | 36.53%         | 85             | 28.41%         | 29            | 9.31%          |
| In order to improve English               | 4                | 1.00%    | 33        | 10.76%| 55                | 19.00%         | 128            | 43.00%         | 86            | 28.12%         |
| Reading is easy                           | 33               | 10.68%   | 96        | 32.12%| 65                | 22.35%         | 68             | 22.25%         | 43            | 14.00%         |
| I am very satisfied with my reading       | 51               | 17.43%   | 99        | 33.86%| 62                | 21.63%         | 58             | 18.98%         | 36            | 11.86%         |

Table 8: Humanistic emotion and attitude in English reading.
modes, mainly including Lewin’s spiral cycle mode, Kemis’s action research mode, and spiral research mode. This study adopts Kemis’s action research model, which mainly includes four links: planning, action, investigation, and reflection. In educational action research, these four links are interrelated and interdependent, which is a gradually rising development process. The specific operation is shown in Figure 3.

The problems in teaching are found through investigation, analyzed, and planned. This study finds the practical problems of the cultivation of humanistic spirit quality in college English reading teaching, analyzes the problems, and formulates a feasible research plan, that is, put the action research plan into practice. This study implements two rounds of action research, designs teaching objectives and teaching activities, respectively, and carries out the cultivation and observation of students’ humanistic spirit quality, that is, the investigation of the process and results of action implementation. After each round of action research, this study interviewed students to obtain the feedback and reflection of college students in the process of action, that is, to summarize and reflect on the effect by collecting data. After each round of action research, this study reflects and summarizes through students’ feedback and formulates the next round of research plan. After two rounds of action research, collect and sort out students’ humanistic spirit quality, test scores before and after reading, and student logs for effect summary and put forward action improvement. This study follows the operation process of action research and explores the teaching activities of cultivating students’ humanistic spirit quality in college English reading teaching through two rounds of action research, so as to achieve the training goal of English teaching.

3. Analysis of Experimental Results

Reliability is reliability, which refers to the consistency of the results obtained when the same method is used to measure the same object repeatedly. Reliability indicators are mostly expressed by correlation coefficient, and the Cronbach α reliability coefficient is the most commonly used reliability coefficient at present. American statisticians Hale, Anderson, Tyson, and Brett pointed out that the reliability coefficient of the scale is better than 0.8. If the reliability coefficient reaches more than 0.9, it shows that the reliability of the scale is very good, between 0.7 and 0.9; 0.6-0.7 is acceptable. If Cronbach’s alpha coefficient is below 0.6, we should consider recompiling this paper using spss220 to analyze the internal consistency reliability of the content, and the calculated coefficients are shown in Table 7.

From the reliability test table of the research variables, it can be seen that the Cronbach’s value of each variable is greater than 0.7, indicating that the reliability of each variable is good. At the same time, the reliability value of the total scale is 0.767, which performs well. It is considered that the survey data is relatively reliable and passes the reliability test. From the survey results, 80% of the students think English reading is very important. It can be seen that most college students have realized the importance of English reading. However, 20% of the students still think that college reading is not important and do not pay much attention to English reading. However, students do not ensure enough reading time. Only a small number of students find English reading easier, and most students find English reading more difficult. Among them, there are students’ own reasons and teachers’ teaching methods and teaching materials. In order to improve college students’ English reading ability, we must find out the causes of students’ reading difficulties and correct them. Only 30.34% of the students were satisfied with their reading performance, and 69.6% were dissatisfied with their reading performance. It can be seen that the reading performance of most students needs to be improved. The specific quantity statistics are shown in Table 8.

Through the observation of 30 English classes and the repeated observation of 20 recorded classes, it is found that few humanistic knowledge is involved in the class, and even some whole classes do not involve relevant humanistic knowledge. The specific quantity statistics are shown in Table 9.

The theme of this paper is Christmas day. The study found that apart from the vocabulary about Christmas that the professor needs to master, this class only involves humanistic knowledge twice. Compared with the understanding of humanistic knowledge, the infiltration of humanistic spirit in classroom teaching is more, and most of the classes have the infiltration of students’ humanistic spirit. However, generally speaking, the infiltration of these humanistic spirits is more deliberate. Some are omitted with a famous saying or proverb and are usually arranged at the end of the class as a deliberate promotion. This arrangement is only to reflect the need to pay attention to the humanistic nature of English teaching, which is too formal, superficial, and mechanized. In order to study the impact of the combination of task-based teaching method and implicit hierarchical teaching on students’ reading performance, the author analyzes and compares the students’ English reading performance in the initial examination and the English reading performance in the final examination. The specific operation is shown in Figure 4.

Through statistics, it is found that under the guidance of this method, the English reading method based on embedded sensor system can better improve college students’ humanistic spirit and understand Chengdu and the overall English learning achievement. Compared with traditional methods, this method can better improve the teaching quality and fully meet the research requirements, and the efficiency increased by 30%.
4. Conclusion

In English teaching, teachers should follow the principle of combining teaching with educating people on the basis of constantly improving ideological and moral and professional ethics, science, culture, and ability. We should teach students to “learn knowledge” and “learn to do things and be a man,” so that students can establish a learning concept of all-round development and truly become talents needed for national construction. Through embedded system, students’ English reading performance is improved and the teaching efficiency and effect are improved greatly.

Data Availability

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest

The authors declared that they have no conflicts of interest regarding this work.

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References

[1] B. Yang and J. Nie, "A study on the shaping of college students values in the new era and the educational methods of Marxist philosophy," Advances in Higher Education, vol. 5, no. 2, pp. 164–172, 2021.
[2] D. Clements, K. Morgan, and K. Harris, "Adopting an appreciative inquiry approach to propose change within a national talent development system," Sport Education and Society, vol. 27, no. 3, pp. 1034–1036, 2022.
[3] M. Ajwar, F. Faridah, and P. Muniarti, “The development of students creativity through the implementation of guided inquiry method on sciences,” Journal of Physics: Conference Series, vol. 1778, no. 1, pp. 26–28, 2020.
[4] Q. Xu, “Research on the construction of college English reading teaching system based on the Internet environment,” Lifelong Education, vol. 9, no. 7, pp. 145–153, 2020.
[5] H. Made and A. Rusyaidi, "Pragmatics knowledge: cross-cultural perspectives on English teacher training studies," The International Journal of Interdisciplinary Educational Studies, vol. 14, no. 2, pp. 29–36, 2019.
[6] J. Chen and Y. Qian, "Research on the application of computer multimedia technology in English education and teaching,” Journal of Physics: Conference Series, vol. 1915, no. 3, pp. 116–118, 2021.
[7] J. Li, "Language chunks theory and its application in college English translation teaching,” Advances in Social Sciences, vol. 2, no. 9, pp. 132–137, 2016.
[8] Y. Jiwon, "Laozi on the goal of education and its significance,” Advanced Science, vol. 23, no. 10, pp. 32–34, 2017.
[9] V. Dike, "Objectives and learning resources for social education,” Nigerian School Library Journal, vol. 2, no. 2, pp. 1120–1124, 2003.
[10] S. Jeremy, "A vindication of politics: on the common good and human flourishing,” The Review of Politics, vol. 82, no. 2, pp. 20–23, 2020.
[11] Z. Malik and S. Haidar, "English language learning and social media: schematic learning on Kpop Stan twitter,” E-Learning and Digital Media, vol. 18, no. 4, pp. 85–88, 2021.
[12] J. Acker, "Cultural differences,” The Yale Review, vol. 107, no. 2, pp. 1111–1117, 2019.
[13] U. Bronfenbrenner, "Thoughts on teaching,” Human Ecology, vol. 33, no. 33, pp. 45–62, 2005.
[14] R. Okta, M. Akbar, and A. Neolaka, “Assessing student social studies learning: effects of learning environment, inquiry, and student learning interest,” Tarbiya: Journal of Education in Muslim Society, vol. 6, no. 1, pp. 46–57, 2019.
[15] C. Florafel, "Teaching competence and challenges encountered in secondary science instruction,” International Journal of English Language Studies, vol. 2, no. 4, pp. 7–10, 2020.
[16] J. Wang, G. Chen, and B. Li, “From the perspective of blended teaching: the application of fragmented learning in the class of
bilingual teaching,” *Creative Education*, vol. 11, no. 11, pp. 2213–2217, 2020.

[17] G. Li, X. Lin, Z. Yu, and H. Li, “Intelligent evaluation of teaching based on multi-networks integration,” *International Journal of Cognitive Computing in Engineering*, vol. 1, no. 1, pp. 1132–1140, 2020.

[18] J. Zhao and D. Yajie, “Analysis on evaluation index system of network teaching quality based on analytic hierarchy process,” *Learning &amp; Education*, vol. 9, no. 2, pp. 108–114, 2020.

[19] T. George, P. Nikos, T. Evangelos et al., “Instant evaluation of teaching methods and students’ comprehension level using smart mobile technology,” *Eai Endorsed Transactions on Creative Technologies*, vol. 5, no. 16, pp. 65–71, 2018.

[20] M. Narissra and V. Santiago, “The interplay between interpersonal communication and instructional communication,” *Communication Education*, vol. 66, no. 1, pp. 15–17, 2017.