

Interactive Teaching Mode of College English Listening and Speaking Based on Intelligent Terminal

Fan Xiao, M.Sc

Fan Xiao, Lecturer, Henan Polytechnic Institute, Nanyang, Henan, 473000, China

Correspondence LecXiao;btkefn@163.com

Objectives: With the development of the information industry such as Internet communication technology, the development of intelligent terminals has also been developed. **Methods:** Nowadays, intelligent terminals are now being applied on a large scale to all aspects of our lives. With the continuous updating of mobile data, intelligent terminal technology into our entertainment, of course, can be used in our learning teaching and our education industry needs the help of intelligent terminals, especially in English, which can make for the English heard more convenient. **Results:** The traditional college English teaching has many limitations. **Conclusion:** This article is based on the study of the intelligent terminal listening and speaking multiple teaching modes of college English, which can well solve the limitations of the traditional English teaching.

Keywords: genetic algorithm; intelligent terminal; multi-language teaching in english listening and speaking

Tob Regul Sci.™ 2021;7(5-2):4587-4595

DOI: doi.org/10.18001/TRS.7.5.2.25

An intelligent terminal is an internet related device that has various functions and is capable of downloading various kinds of software and applying it freely. At present, mobile phones are very popular all over the world, and the small size and versatility of mobile phones make the demand for mobile phones far exceeds that of computers¹. The development of wireless networks and the development of mobile data are also the unprecedented popularity of mobile phones. This has spawned the various needs of people to utilize smart terminals. It has a lot of well-known software for learning the English language by using smart terminals. Well-known software already has a lot of: Youdao, scallops, Baicizhan, etc. Therefore, it is an inevitable trend that intelligent terminals are connected with our English teaching². In the electronic product industry, the mobile terminal is the main amount of the industry. Its appearance is a major innovation in the electronics industry. The traditional terminal

industry can no longer meet people's demand for technology products. The intelligent terminal has a very broad development prospect. In college English I heard that the issue of multivariate mutual teaching has played a prominent role as the global trend continues to grow³. As people become more and more important in English learning, the multi-language learning group in the University English Listening and Speaking Group has been developed in the 20th century. The traditional English teaching methods are greatly influenced by the Russian Russian teaching. With the innovation of the teaching mode of reform and opening up in the latter part of our country, the teaching mode of our country is very advanced in college English teaching. This article is based on genetic algorithms. The combination of intelligent terminals and multi-language teaching of English listening and speaking has been combined to make our country's education model of English better developed⁴.

American scholars proposed the genetic

algorithm in the middle of the 20th century, and then gradually improved through development. Genetic algorithm is based on the theory of biological evolution, which is the process of evolution of model organisms. It has a wide range of applications and can be applied to various types of functions. Due to the accumulation of biological theory, genetic algorithms are rapidly developed, especially in the field of intelligence⁵. It is very popular, which is a good way to solve big data problems⁶. However, there are still many deficiencies in the research of genetic algorithms, and its advantages bring disadvantages. Due to the need to search globally for preference, it takes longer to compute⁷. The superiority of genetic algorithms has attracted the attention of the world's research community and its development has been the first priority. Currently, the use of genetic algorithms has become quite mature. It has been integrated into many aspects of life⁸. The research of genetic algorithm in our country is later than the research of genetic algorithm in the world. Since China's economy and science and technology were relatively backward at that time, the research on genetic algorithm has been shallow, but after decades of continuous research⁹. China's research on genetic algorithms has caught up with the world's development trend, has a certain right to speak in the world, but also makes its unique innovation. This article is based on genetic algorithm, which combines the intelligent terminal with English multi-language teaching to help the further development of our genetic algorithm and to further improve our English teaching model¹⁰.

METHODS

Genetic Algorithm Based on the Introduction And Analysis

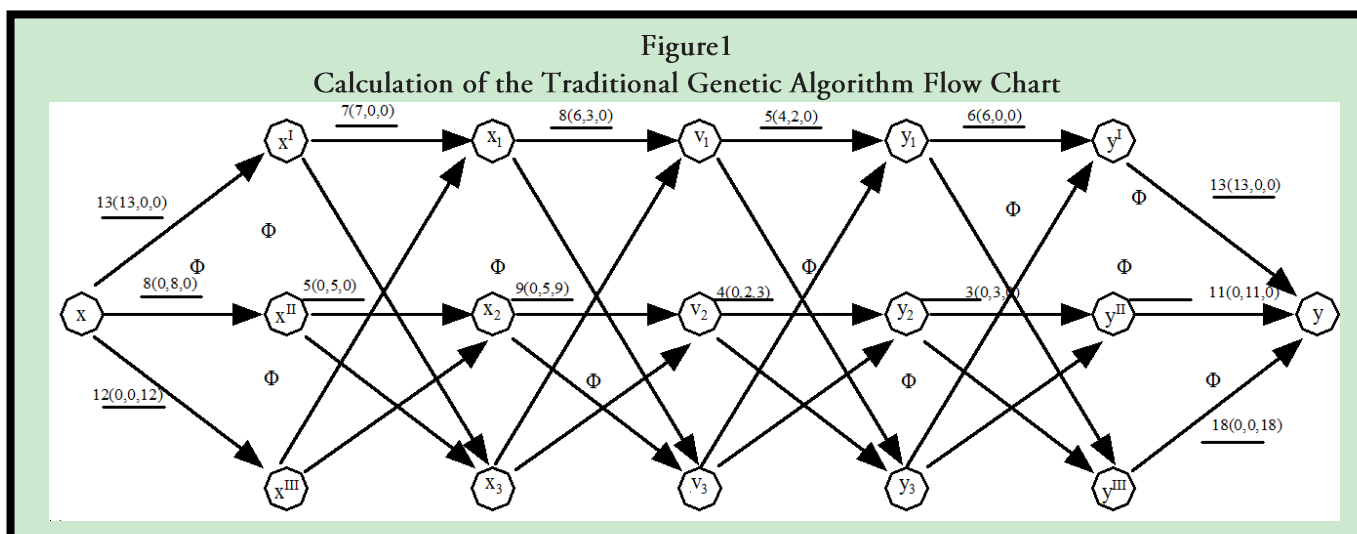
The origin of genetic algorithms is mainly based on the ancient biological considerations of biological genetic variation existing systematic law for the purpose of research in the genetic algorithm, we can get the genetic algorithm which will be subject to different genetic factors impression which will produce different impression results. In analyzing the genetic algorithm, we get the process and transmission of

the genetic information of the organism. Under the influence of different genetic factors, we analyze the genetic variation factors. The results of the analysis show that the genetic factors and the global database we design will have different effects on the calculation results. When designing the genetic algorithm, we need to consider not only the existence of genetic variation factors but also the genetic. In the process of analyzing the genetic factors, we can get that the genetic variation factor is the main carrier of the genetic factors of the organism, and the genetic factors of the organism are mainly transmitted through the genetic variation factor. This genetic variation factor in data computing, will have an impact on our final calculation results, so we in the process of designing genetic algorithms, we should take into account most of the possible genetic factors. The existences of genetic factors are different, which are the main problems that we need to consider and also the problems that we must overcome in the first place. The second is to optimize and process the algorithm so that the genetic algorithm can be as simple as possible and as far as possible operable. This is a great help to us in designing the overall problem. In the process of calculating and processing genetic information, we process and process the collected genetic information. This is where processing and processing take place. We should perform the next phase of computational tasks in accordance with the algorithm steps we designed. After completing the computational tasks, we need to consider the overall accuracy of the algorithm in controlling computational tasks. We use different methods of analysis for the overall accuracy of different algorithms.

For the genetic factors that meet our actual needs we need to extract and filter out the genetic information we collected, this part of the good genetic factors can help individuals better survival and reproduction to ensure the overall stability of the population, the number of individuals will not Great changes have taken place, such genetic factors is the genetic factors we need to actually run genetic algorithms. This allows us to consider the independent processing of data in the process of controlling variables of genetic factors. Based on the independent processing, we can analyze the existence and existence of genetic factors based on

the completion of demand functions and demand objectives. We carry out the overall data integration and adjustment, this part of the adjusted data in the design of our objective function occupy the vast majority of computing space. According to the calculation of space for independent calculation of objective functions, independent computing process will produce independent computing. As a result, this part of the result forms part of the overall final result of the algorithm. Under the guidance of the introduction process, we can make great use of the calculation algorithm to optimize the overall calculation steps. There are several optimization steps, and we need to solve the data analysis problem according to the function model. According to different genetic information classification to consider the transmission of our genetic information and delivery path, it is in this

part of the work which is completed and we need to data in the text of the genetic code for independent operation. In the Internet technology, we exist in the genetic information. According to the results of the classification process, we designed an independent numbering and coding ancient city. Under the control of this part of the genetic information and chromosomes, we carried out independent coding processing. And according to the coding processing, we again can process the genetic information that we finished to be sorted. In the process of our processing, we found that in the process of actual analysis, the genetic information is independent and needs to be segmented in different data types of chromosomes. Between them in the conflict, we design the genetic algorithm calculation process as shown below.



In the last part, we introduce the basic source of genetic algorithm as well as the overall calculation of genetic algorithm ideas and calculation process, we can get the superiority of genetic algorithm, as well as the genetic algorithm may exist defects, which for our next stage of computational work has a great help. According to the origin and development of genetic algorithms, we can easily get the genetic algorithm flaw, so we in the design of genetic algorithms as much as possible to avoid the emergence of these shortcomings.

Based on Genetic Algorithm for College English Listening and Speaking Multiple Interactive Teaching Model Construction

We mainly introduced the basic information of genetic algorithm and genetic algorithm based on the calculation process, according to our introduction above, we can build based on genetic algorithm to college English listening and speaking multiple interactive teaching model construction. In the construction of the theory of guidance, we mainly designed the algorithm to change the college English listening and speaking model. With the help of this part of information, we can construct the model easily. Different

calculation methods will help us improve the actual speed of building the model. This is a great help to our design. This genetic factor for genetic algorithm we have to consider is that most of the computational space to be mainly concentrated in this part of genetic factors. According to the different transformation of genetic factors to eliminate and deal with the conversion, our genetic information will be gradually changed, passed on to future generations, which is one of the essence of genetic algorithms. After the introduction is completed, we began to learn based on genetic algorithms to College English Multiple interactive teaching model construction model task. The first step of the task is to introduce the calculation of genetic algorithms and the overall operation guide.

The first thing we need to do is to code the genetic code as well as to establish a new population. We randomly determine a new population of chromosomes of length N :

$$pip_i(t), i=1,2,3,\dots,N \quad (1)$$

To calculate fitness, we represent the fitness function as:

$$f_i = f(pop_i(t))$$

ulation is

$$P_i = \frac{f_i}{\sum_{i=1}^N f_i} \quad (3)$$

For a practical problem to be optimized, first of all, it is expressed as a form suitable for the operation of genetic algorithm, that is, an optimization model is established. For example, binary code:

(1) Determine the parameters to be optimized according to the specific problems;

(2) For each parameter to determine the scope of its change, and binary numbers is used to represent. For example, if the a variable has a range of $[a_{min}, a_{max}]$, the m -bit binary b indicates:

$$a = a_{min} + \frac{b}{2^m - 1} (a_{max} - a_{min}) \quad (4)$$

In this case, the parameter range should be determined to cover all the optimization space.

The word length m should be determined as small as possible to meet the accuracy requirements to minimize the complexity of the genetic algorithm.

(3) All the binary numbers that represent the parameters are concatenated into a long binary string, the string is the operation of the genetic algorithm object.

There are usually two ways to generate the initial population:

(1) In the absence of any prior knowledge, a completely random method may be used;

(2) In the case of some prior knowledge, the sample must be randomly selected after satisfying the prior knowledge requirement.

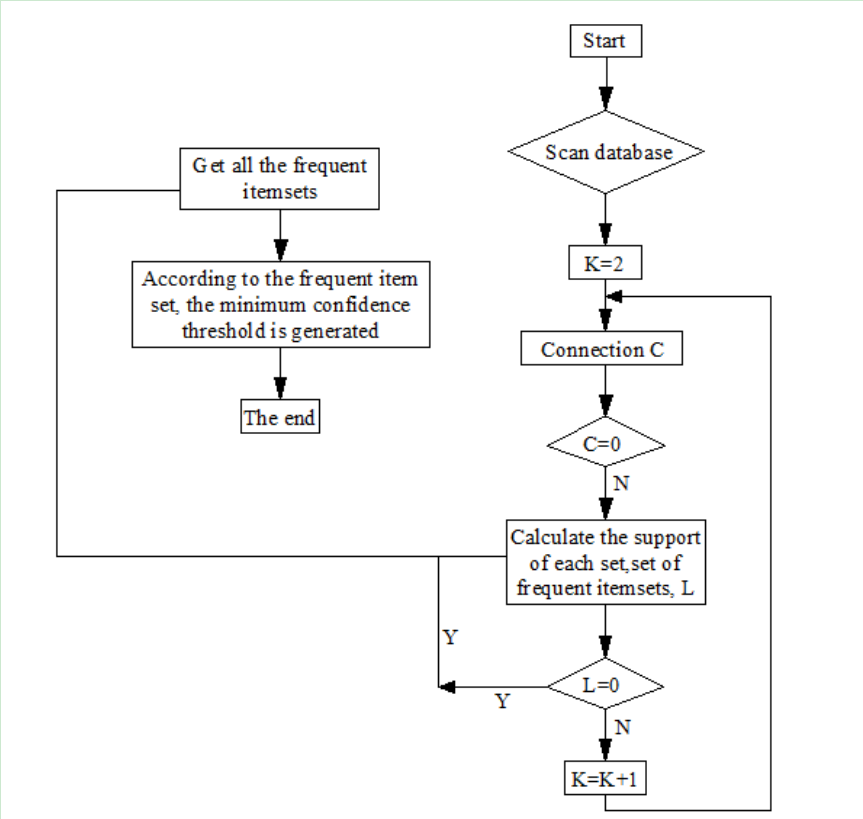
The size of the fitness determines the probability that the individual will be passed on to the next generation. Fitness must be non-negative. In order to meet this condition, the basic genetic algorithm uses the following method to transform. Two formulas is used to combine research and analysis. In each of the following transformations, $f(x)$ is the objective function and $Fit(f(x))$ is the fitness function.

$$Fit(f(x)) = \frac{1}{1 + C + f(x)}, C \geq 0, C + f(x) \geq 0 \quad (5)$$

$$Fit(f(x)) = \frac{1}{1 + C - f(x)}, C \geq 0, C - f(x) \geq 0 \quad (6)$$

After introducing the above calculation formulas and calculation steps, we have to consider the optimization and screening steps of genetic factors, which is also very important in our overall calculation process. Different genetic selection factors will cause different results. According to the actual transformation of the results, a network information model is constructed. The logical structure of the network information model we constructed is shown below.

Figure2
Calculation Path for Genetic Algorithm



RESULTS

After the completion of the part of the construction process based on genetic algorithm for intelligent listening and speaking college English listening and speaking interactive teaching model, we should test the system model we build the next step. After the test was completed, we constructed the college English listening and speaking interactive snow model can be put into use. In the test we have to design different algorithm models for comparative analysis, and only after comparative analysis, we can filter out the algorithm model that best suits our requirements. The test steps are as follows, first of all, it is the data accuracy test and the test results are reflected in the following table.

Table1
Calculate the Selection of Some Methods and Parameters

Genetic process	Specific steps	parameter settings
Initialize the population	Search space	The first step in screening the feature set
	Initial population size	10
	Feature selection initial probability	0.8
Genetic operation	Encoding	Floating point code
	Choose a method	Blocking method / Monte Carlo selection method
	Mutation probability	0.5
	Crossover probability	0.6
	Cross the way	Evenly crossed
End condition	Maximum number of iterations	100

After the upper part of the test is over, we need to go through the process of analyzing the simulation parameters. Based on the correlation between our simulation parameters and the actual operation results, we can conclude that our

calculation conclusion is different and the calculation result may react differently. In the test level, the final results we obtained during the testing of this article are tabulated below.

Table2
Test Results Comparison Table

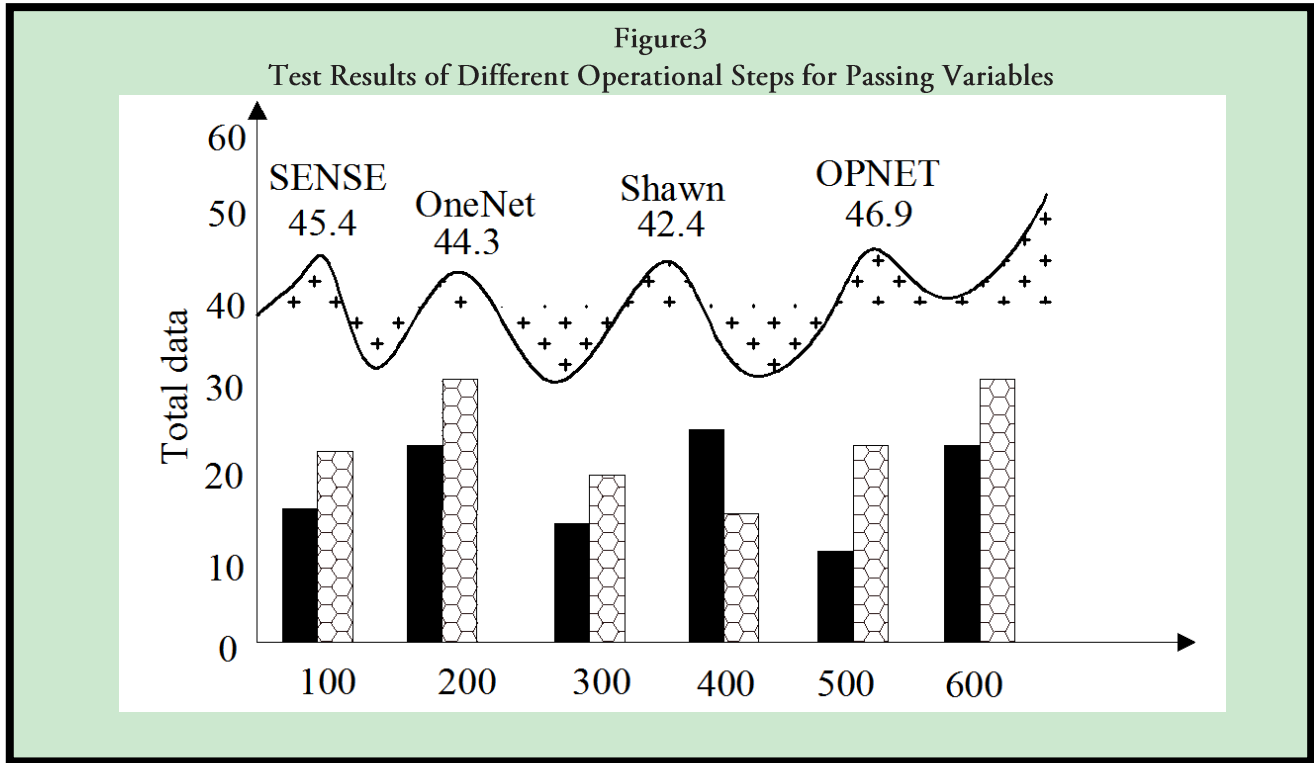
Test function	Variable x	Variable y	Function optimal solution	The number of iterations	operation hours
f_1	5.32	1.14	1.22	42	0.23
f_2	3.12	2.33	2	31	0.63
f_3	2.45	4.24	0.98	17	0.82
f_4	2.24	4.33	1.3	41	0.72
f_5	1.13	5.45	1.8	65	1.15

The data that we can get after the comparative data is filtered can meet the original prediction. This shows that the genetic algorithm we designed has made great progress compared with the original genetic algorithm. With the help of the guidance of this new genetic algorithm, we can make quick and accurate calculations to get

the right answer. In our process of calculating genetic information, we need to use a variety of algorithms to calculate, and then find the most suitable genetic algorithm from different genetic algorithms, so that this part of the genetic algorithm was screened out. The specific details of the calculation process is in accordance with the

actual operation of continuous improvement, and then it gradually improves our operating system. The first step in the calculation process is that we need to solve the different steps of

genetic variables. In calculating the overall impact of genetic and control factors, genetic calculation factors that do not fit our requirements are directly ruled out by us at screening time.



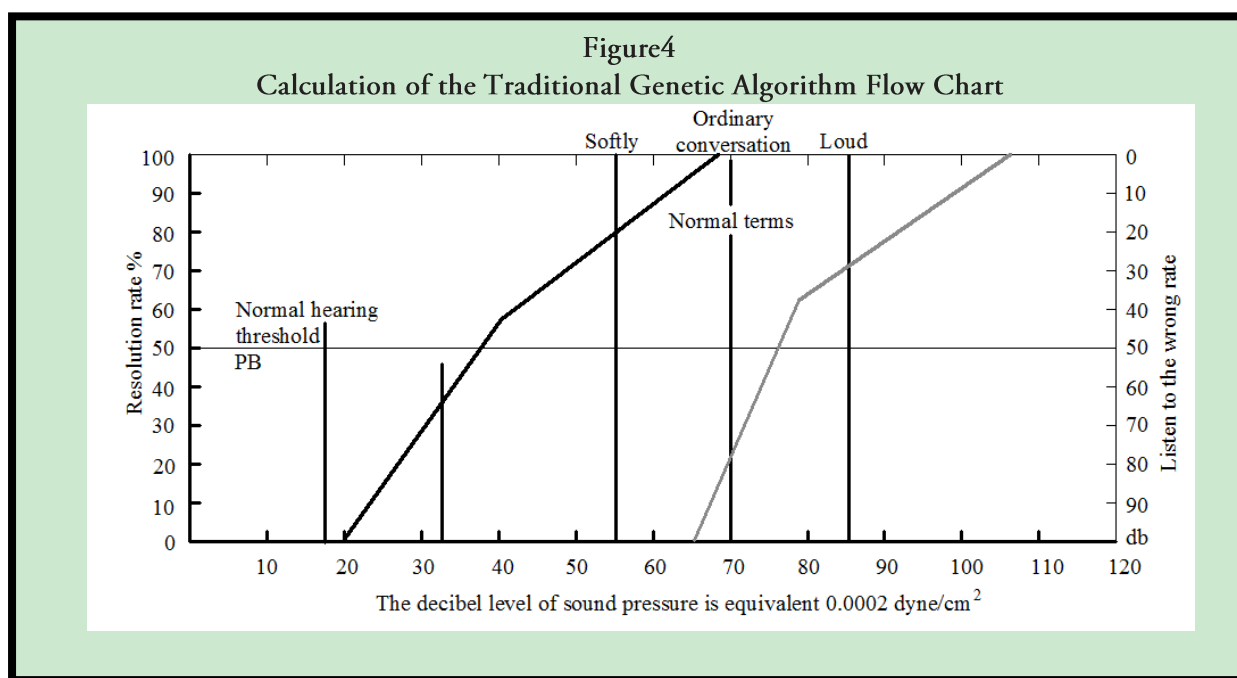
We can conclude from the experimental data in the above table that we can calculate the result we need according to the genetic algorithm after optimization. And, according to our optimized algorithm can also reduce the number of iterations, the five prediction function does not calculate the number of iterations of more than

50, the minimum is only 26, which meets our use requirements. In addition, we also establish a control experiment to prove the advantages of the algorithm in this paper as shown in Table 3 below.

Table3 Comparison Test Results Analysis Table				
Test object		calculating time	The final average score	Most satisfied individual score
test group	Improved genetic algorithm	180	2.5	5.2
	Classical genetic algorithm	221	1.5	8.2
Control group	Algorithm1	215	6.3	6.1
	Algorithm2	224	6.1	6.5
	Algorithm3	214	5.1	6.1

In addition to the calculation of the data in the above table, we are in accordance with the points to show the pros and cons. According to the experimental results of the comparison test in the above table, we can see that our optimized calculation time is reduced by 30-100 seconds compared with the traditional algorithm. It greatly improves our computational efficiency, which helps us calculate a lot of data in a shorter

period of time. The average score of the accuracy of the calculation results has more than 1 point advantage over the other groups, which shows that our optimized algorithm is more accurate than the traditional algorithm. Below we will calculate the response in the number of axes which can be more intuitive to get our calculation information.



DISCUSSION

Through the study of the current multi-language mutual teaching in English, we have got a better understanding of the mutual aid mode in English. Although it is a new product this year, it has outstanding advantages over the traditional terminal mode. Today's era is a time of great integration of science and technology and life. It is an inevitable trend to develop English listening and speaking mutual teaching into mobile terminals. The mobile terminal is a college English teaching aided, for students to learn English to bring a diverse environment. Class and extracurricular should be double development. This will free the shackles of traditional teaching; improve the learning environment, so that language learning is easier and more convenient. In the process of integrating the intelligent terminal and English

teaching, it is necessary to distinguish the primary and the secondary, and the traditional English teaching still cannot be completely abandoned. The traditional English teaching model has been unable to keep up with the tide of the times, bringing the modernity and the tradition together to make the better development of education. This article is the use of genetic algorithms, genetic algorithms and intelligent terminals combined, applied to study English listening and speaking multiple interactive teaching mode. According to the calculation of traditional algorithms to optimize, the genetic algorithm will search the global data to obtain the optimal solution so that mobile terminals in English teaching can become a catalyst to promote the development of education in our country.

Human Subjects Approval Statement

This paper did not include human subjects.

on IEC 61850 protocol. *Gaoya Dianqi/high Voltage Apparatus*, 2015, 51(5):89-94.

Conflict of Interest Disclosure Statement

None declared.

Acknowledgements

The study was supported by the Humanities and Social Sciences Project of Department of Education, Henan Province, NO.2020-ZZJH-522.

References

1. Ahmadi A. Design and implementation of an intelligent virtual environment for improving speaking and listening skills. *Interactive Learning Environments*, 2016, 24(1):252-271.
2. Al-Jemeli M, Hussin F A. An Energy Efficient Cross-Layer Network Operation Model for IEEE 802.15.4-Based Mobile Wireless Sensor Networks. *Sensors Journal IEEE*, 2015, 15(2):684-692.
3. An Y, Li G, Fan Z, et al. Research and development on intelligent terminal units incorporated with control and protection functions in new generation smart substation. *Dianli Xitong Baohu Yu Kongzhi power System Protection & Control*, 2017, 45(8):138-146.
4. Chen H, Wu Y, Wang Z. Research on the MOIPSO Model for Collaborative Capability-flow Allocation in Multi-airports Terminal Area ☆. *Procedia Engineering*, 2015, 99:224-232.
5. Cordeau J F, Legato P, Mazza R M, et al. Simulation-based optimization for housekeeping in a container transshipment terminal. *Computers & Operations Research*, 2015, 53:81-95.
6. Khari S, Rahmani Z, Rezaie B. Chaos control using fuzzy controller based on combination of intelligent terminal sliding mode and state feedback controllers. *International Journal of Engineering & Technology Sciences*, 2015, 3(4):317-336.
7. Li N, Matsuda N, Cohen W W, et al. Integrating representation learning and skill learning in a human-like intelligent agent. *Artificial Intelligence*, 2015, 219:67-91.
8. Liu W, Wang Y, Sun D, et al. Login authentication vulnerability mining and improved login authentication method based on an open source intelligent terminal. *Qinghua Daxue Xuebao journal of Tsinghua University*, 2017, 57(9):897-902.
9. Wan G G, Tie L. Research of Electronic Forensics Model and Key Technology for Intelligent Terminal. *Applied Mechanics & Materials*, 2015, 734(3):8-13.
10. Wang L, Yang D, Kong B, et al. Modeling and implementation of intelligent terminal devices based