



Design of Auxiliary Teaching System for Oral English Training Based on Cloud Computing

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Abstract. In order to further improve the effect of college students' oral English training, a cloud computing-based English oral training auxiliary teaching system design is proposed. Based on the existing oral English teaching methods and equipment, a network-based college oral English teaching system is developed and the hardware is optimized. Configuration and functions, design auxiliary teaching data processing equipment, system operation management framework, improve system software operation process, design the functional structure of the auxiliary teaching system for oral English training through cloud computing, optimize the auxiliary method of system oral training, and realize oral English training based on cloud computing Auxiliary teaching system design. The experimental results show that the designed system effectively enhances the interest of college students in English learning, and the effect of classroom application is better. The application of this system can allow more college students to participate in oral English teaching, improve the efficiency of oral English teaching, and improve the oral English level and English application ability of college students.

Keywords: Cloud computing · Spoken English · Training aid

1 Introduction

College oral English is a very practical course. Teachers need to organize various activities so that college students can use the language they learn and communicate according to the situation. However, according to the survey, many schools can use communicative methods to teach, create a real English environment, and carry out immersion teaching [1]. Some schools have very little time for oral teaching, and even some schools do not have special oral classes. In addition, in such schools, few foreign teachers come to teach spoken English, and college students rarely have the opportunity to get in touch with teachers whose mother tongue is English.

As far as speaking classes are concerned, the specific issues are as follows: First of all, most of the university courses in our country are very large. Due to the large number of classes, it is difficult to organize effective oral training activities. As a result, college students have fewer opportunities to practice, and it is naturally difficult to improve their oral expression skills. Secondly, large-class teaching makes the oral class mainly focus

on the teacher's language knowledge, and college students rarely have the opportunity to speak. This teacher-led classroom has led to a lack of subjectivity or motivation for communication among college students [2]. Third, among the very few college students' practice time, the time and opportunities for college students to practice oral English are unevenly distributed. Teachers cannot accurately control the speaking time of college students in the classroom, which may lead to a decrease in the effective oral practice time of some college students. In addition, due to the limitation of classroom teaching time, teachers cannot participate in every group discussion, cannot pay attention to every college student, nor can they guide every college student. Finally, the traditional oral teaching evaluation method is single and cannot save the oral data of college students, which is not conducive to the formative evaluation of college students, and it is not conducive to the development evaluation of college students' self-evaluation and mutual evaluation [3].

In order to solve the above problems, a cloud computing-based English oral training auxiliary teaching system design method is proposed to better improve the oral learning and application ability of college students.

2 Auxiliary Teaching System for Oral English Training

2.1 Hardware Configuration of the Auxiliary Teaching System for Oral English Training

The cloud computing-based oral English teaching system includes: digital integrated language laboratory and network virtual oral equipment. In order to meet the requirements of new oral teaching, the oral English training auxiliary teaching system integrates multimedia equipment, network technology, examination center, and open learning Center, etc. to optimize. The integrated voice equipment will use 48 kHz voice sampling rate, supplemented by a new digital voice processing algorithm, to ensure the pure and true voice [4]. In addition, the system can support two-way discussions with a group of 64 people to meet the requirements of teacher-student, student-student interaction in the oral class, and record the audio files of college students' oral practice through recording software, and save these audio software in the college students' electronic files.

The oral English training auxiliary teaching system uses online teaching technology and teaching resource research and development technology to create a virtual oral learning environment for college students, which greatly fills up the gaps in extracurricular oral teaching and allows college students to get more exercise opportunities [5]. The network virtual oral classroom includes the main function area, teaching auxiliary area and related information area. These three parts are subdivided into teaching content introduction, learning and teaching blanks, so that college students can get more oral training opportunities. In the design of the English teaching system based on the cloud computing platform, three modules of teachers, college students, and administrators must be ensured to ensure that the system design meets the design requirements. The overall design structure of this system is shown in Fig. 1.

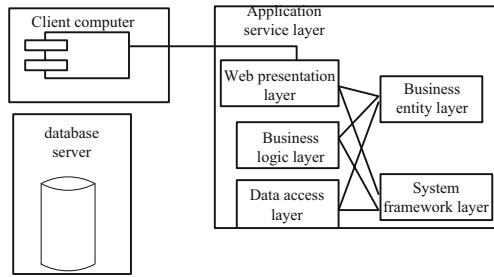


Fig. 1. The hardware structure framework of the auxiliary teaching system for oral English training

The system is developed based on the cloud computing platform technology system, and is supported by the Strust1.2 + Hibernate3.0 technical framework to build the system environment. Create a web project in the Myeclipse6.5 integrated development environment and name it wangljx; import all relevant jar packages of Strust1.2 and Hibernate3.0, and import the strust-config.xml file under WEB-INF and hibernate under the src directory. cfg.xml and log4j.properties configuration files; import the bin and jre/bin of the local JDK installation directory where Jsp Smart Upload and JACOB are located, and place the JACOB dynamic link library file jacob-1.15-M3-x86.dll; Configure the application server Jboss5.0, and set the jdk of Jboss to the jdk configured above, import the database connection jar package: mysql-connector-java-5.0.8-bin.jar, to provide the necessary environmental support for the development of the project [6]. In the system design, it should be ensured that a good system interface can be provided to users to improve the usability of the system design and meet the overall design requirements of the system.

In the design process of the auxiliary teaching system for oral English training, the relationship between the object categories of the system is complicated. In order to refine the different categories, the MVC design pattern, namely model-view control, is introduced. System operation objects are divided into category operation objects, data operation objects, image operation objects and query objects. The MVC model is composed of data layer, business layer and query object layer [7]. This system combines the MVC design model with the B/s network model to design the level of the college English auxiliary teaching system. In the application of teaching practice, the control of view technology is mainly controlled by JSP, because JSP can establish a direct interaction process between the teaching system and the user [8]. In the development and design process of the actual teaching system, designers mainly design the page, and JSP can use the program group in the view to process the data. Servlet controller plays a control role between EJB and JSP. It transforms user requests and model data. The results showed that EJB played a role in data encapsulation and logic processing. Its application objects are models and servlet controllers [9]. The data request generated by the EJB processing controller and the related results after data processing are stored in the database. In order to meet the processing effect of massive data, the auxiliary teaching data processing equipment is optimized, as shown in Fig. 2.

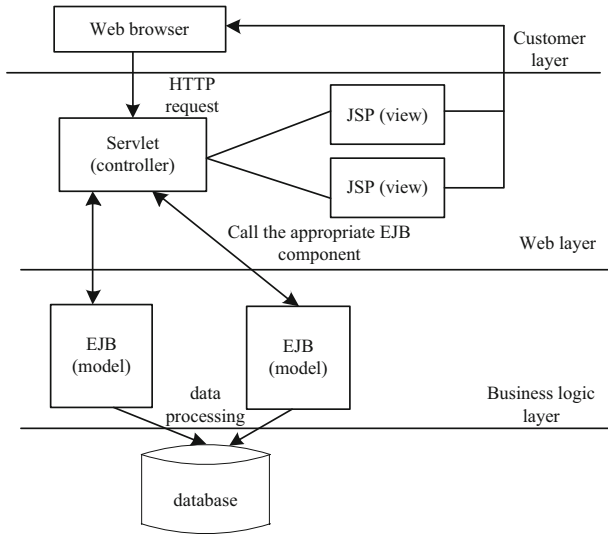


Fig. 2. Auxiliary teaching data processing equipment

From the application processing framework in the figure, it can be seen that the system is based on the B/S network mode and the combined structure is composed of browser, controller, view and model. Each part completes its own function and does not affect each other and is easy to proceed. Failure recovery and maintenance. In order to ensure the operation effect of the above steps, the operation management framework of the auxiliary teaching system for oral English training is further demonstrated, as shown in Fig. 3.

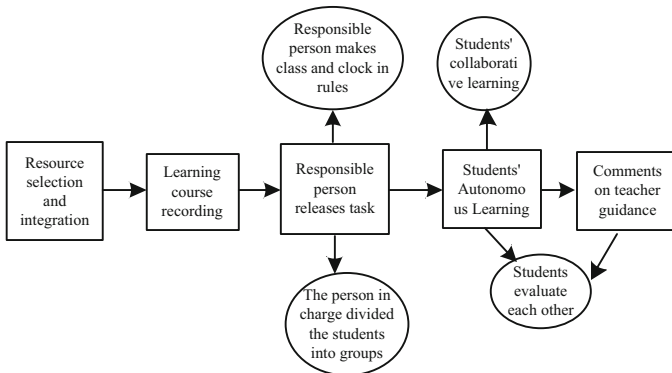


Fig. 3. System operation management framework

Active control in the system is to analyze the possibility of deviation from teaching objectives in advance, and to formulate and take various preventive measures to achieve the planned objectives. Passive control is a control method in which the controller finds

deviations from the actual output of the plan, and takes measures to correct the deviations in time [10]. Passive control is to achieve active interaction and self-active control. The ultimate goal of passive control is to ensure that learners achieve effective use of resources and effective control of themselves during the learning process, to achieve teaching goals, and ultimately to achieve learners' Do not lose yourself in the oral English classroom based on the local area network, effectively use resources, realize active control, and design an auxiliary teaching system for oral English training based on a cloud computing platform, so that college students and teachers can interact and improve the efficiency of oral English teaching. In designing a spoken English teaching system based on a cloud computing platform, teachers check the message information through the message list and reply to the messages that have not yet been replied. Teachers can communicate with college students anytime, anywhere, and answer difficult questions for college students. Teachers and students can communicate in real time online and interact in time, providing a good communication platform for teachers and students. At the same time, in the system design, it is necessary to clarify the user's requirements, confirm the feasibility of the development of the system, and design a reasonable system to ensure that the system's functions are consistent with the user's needs to improve the efficiency of English teaching.

2.2 Optimization of the Software Function of the Auxiliary Teaching System for Oral English Training

Based on the oral English training auxiliary teaching system, it is not restricted by the traditional teaching on time, place, and personnel, and it also releases the learners' all kinds of distress and rejection of the classroom. Teachers can purposefully and periodically publish some oral English learning skills and examples through the cloud computing platform. These skills and examples will be transmitted to learners' mobile phones based on the Internet in real time. College students can use a small amount of time to imitate at any time and place., Follow-up to respond to the information pushed by the teacher. After receiving the reply from the college student, the teacher can also use a small amount of time to guide the college student's oral pronunciation at any time and place, so as to solve the problem of college students in learning oral English. The equipment functions of the auxiliary teaching system for oral English training are optimized, as shown in Fig. 4.

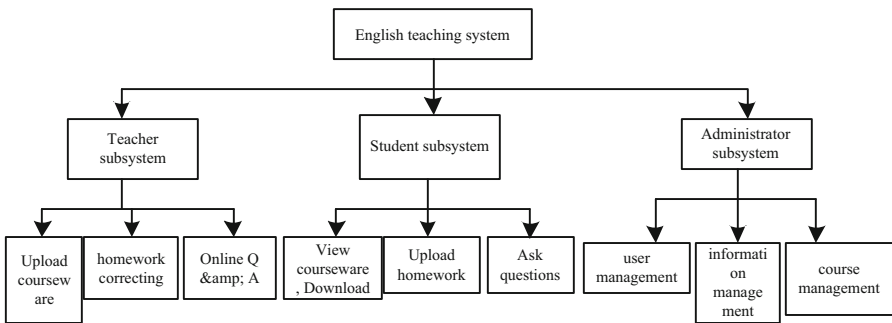


Fig. 4. The functional structure of the auxiliary teaching system for oral English training

The cloud computing platform-based English oral training supplementary teaching system consists of teachers forming learning groups, selecting appropriate teaching resources and integrating them. Starting from the teacher's release of learning tasks, college students study the day's course on their own within the specified time and complete the teacher's assignment task. The task form is generally based on reading short sentences or uploading notes and photos. This can make good use of the voice and picture publishing functions of the cloud computing platform for learning feedback. Teachers will evaluate and guide the completion of tasks for college students on the day. Provide information and study guidance during the process. The workflow of the system is as follows: the web browser client page requests data from the server, the servlet receives and processes it, and the processing result is returned to the web browser client; the servlet (controller) processes different data requests and then sends them to the logical processor. Corresponding numbers, to achieve non-business invocation of different databases [11]; after the data logic processor completes the data logic operation, it returns different types of data results to the JSP (view), and the result after the view completes the operation is transmitted back to the web in HTML format Browser client. The use of clear data structure and data flow mode in the English teaching system can greatly improve the performance of the system. The three-tier structure of browser + JSP (servlet) + sqlserver is adopted in the design of the system. In database design, courseware resources can be stored and updated, involving multiple pages and multiple functions [12]. For system design, for users, systems, and databases, the data flow performance is shown in Fig. 5.

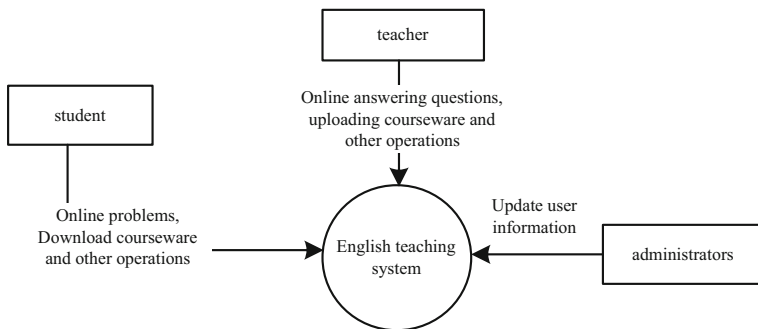


Fig. 5. Optimization of system oral training auxiliary method

In the system database, system information can be dynamically stored. The main database tables include: personnel table, courseware table, homework table, administrator, etc. Electronic learning files refer to the information technology environment where learners use information to perform and demonstrate learning. In the learning process, the learner is a collection of related learning about learning goals, learning activities, learning results, learning performance, learning efforts, academic progress, and reflections on the learning process and learning results. With the help of electronic learning files, teachers can not only guide college students' oral practice in class, but also analyze the spoken language of each college student through recording data after class, and give feedback on the problems of university survival [13].

2.3 The Realization of Auxiliary Teaching for Oral English Training

Through real-time interaction, teachers can provide immediate answers to the problems in college students' spoken language and their questions. Real-time interactive systems can arouse learners' resonance, but it is easy to destroy the continuity of teaching, deviate from the theme of teaching, and it is not easy to think deeply. Non-real-time interaction can make up for this defect. In the case of non-real-time interaction, learners will think deeply about problems and have more time to practice and prepare for the questions raised by the teacher. At the same time, the non-real-time interactive system also provides sufficient time for teachers to analyze the problems in the university and find relevant ones. In addition, in the past oral English teaching, there was mostly real-time interaction between teachers and students. Teachers could not or seldom retain the voice data of college students and could not make formative evaluations of college students. College students are also unable to understand their own mistakes and practice repeatedly to improve their oral English. In the new spoken language teaching system, real-time interaction and non-real-time interaction are combined with each other and complement each other.

Oral English learning has always been a relatively difficult problem to solve uniformly. The general English learning process is mainly based on classroom teaching, and classroom teaching emphasizes vocabulary, grammatical structure and reading comprehension training. There is very little time for oral learning and communication. College students passively accept knowledge, and teachers assign tasks after class to college students. Teachers are more dominant, and oral learning itself is training that requires higher learners' subjective initiative. The general process of English learning is shown in Fig. 6.

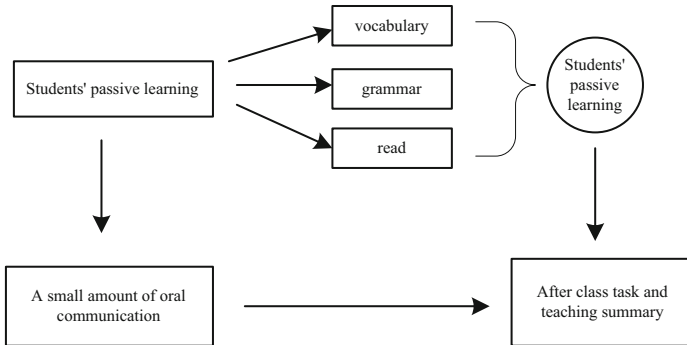


Fig. 6. The general process of oral English learning

The interface architecture model of the college oral English teaching system installs the technical system on the database equipment to facilitate centralized management of components. The software program, database and information release for task processing are all completed by the server, reducing the workload on the user side. Based on the network structure, the auxiliary teaching system with the background database as the core will serve users as the goal, and reasonably arrange the course resources, such

as uploading of course videos, processing and maintenance of examination questions, and providing assistance and support for English teaching. The functions of this system include user registration, teacher teaching, college student learning and teaching management. The auxiliary teaching steps of oral training are further optimized, as shown in Fig. 7.

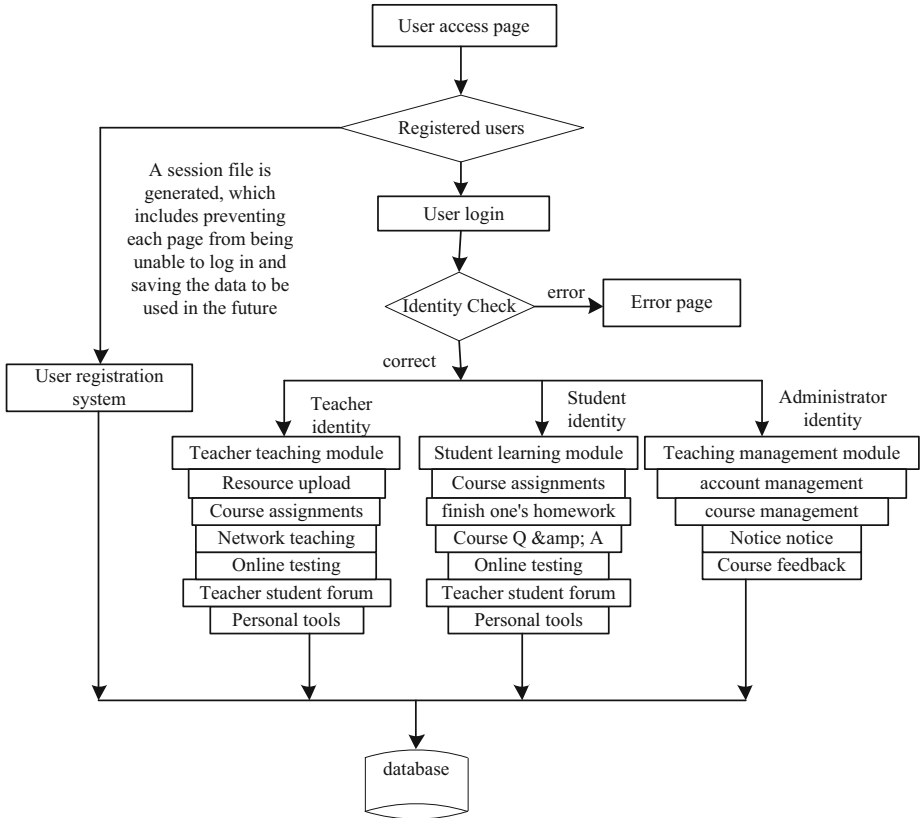


Fig. 7. Auxiliary teaching steps for oral training

Oral English teaching training based on Fig. 7 can better improve the teaching effect, help college students use English to communicate with others fluently, and promote the improvement of college students' oral English expression ability. This is a problem faced by the majority of English teaching workers. The application of the latest information technology to assist oral English teaching can make up for the shortcomings in the original oral teaching, truly implement the oral teaching, and transform the traditional oral evaluation model.

3 Analysis of Experimental Results

In order to verify the effect of the system, the experiment selected a certain English class of a certain university English major using the system to conduct a questionnaire, mainly to analyze the classroom effect of the system in English teaching and the effectiveness of teaching strategies. Before and after adopting this system, the experiment conducted a questionnaire survey on the college students of the class. The setting of the question was the effect of the system on teaching and the application of teaching strategies. The experiment issued a total of 94 questionnaires, as shown in the Table 1 shows.

Table 1. Classroom teaching effect

Questionnaire title	Option	Implementation system selection number	Proportion of implementation system	Number of people without system selection	Proportion of systems not implemented
Do you think this class is fast?	Soon	76	81%	61	65%
	Same as usual	7	8%	23	25%
	It's slow	11	11%	10	10%
Do you think the focus of this lesson?	very	78	83%	62	66%
	Same as usual	6	7%	20	21%
	difference	10	10%	12	7%
Do you think the completion of this class is good	aggressiveness	80	85%	61	65%
	Low interest	3	4%	23	25%
	Barely finished	11	11%	10	10%

Table 1 shows the classroom effect of the auxiliary teaching system on teaching. According to the experimental data in the table, the students who use this assisted teaching system are greatly satisfied with the classroom effect. Most students think that the classroom rhythm using multimedia teaching is more compact, which is 16% higher than before using this system. % Percentage points, indicating that the college students under this teaching system are very interested in English classes, feel that time passes quickly, and the number of students who feel bored in English classes is decreasing, indicating that the classroom effects are better. In order to obtain the application of teachers' teaching strategies to college students, the following questionnaire questions are set up, and the results of the questionnaire are analyzed, and the application of classroom teaching strategies of this system is obtained, as shown in Table 2.

Table 2. Classroom teaching application situation

Questionnaire title	Option	Number of people	Proportion
Adopt group discussion attitude?	Like	86	91%
	Have no feelings	3	4%
	Dislike	5	5%
What's your attitude towards this lesson?	Like	88	93%
	Have no feelings	2	3%
	Dislike	4	4%
Hope for the way the clock teaches	Keep going	90	95%
	casual	4	5%
	Give up	0	0%

From the questionnaire data in the table, it can be seen that college students like this auxiliary teaching system that can combine multiple elements. Simple text teaching can no longer satisfy college students' desire for knowledge exploration. Adding multimedia animation to the classroom can bring college students into the ocean of animation has a strong interest in English learning. The use of grouping has made students have a sense of cooperation and competition, and greatly improved the self-confidence and satisfaction of college students. From the data in the table, it can also be seen that In English classrooms, the advantages of computer multimedia are applied to teaching through animation, which is generally recognized by college students. Most students are very satisfied with the teacher's courseware design. English teaching strategies have achieved effective results. More than 90% of the students are the system is very satisfied with the teaching strategy of introducing multimedia teaching into the English classroom. I hope to continue to learn through this teaching strategy, which affirms the feasibility of this system in English teaching.

Two months after applying this system for teaching, the experiment conducted a new questionnaire on college students' attitudes towards oral English learning, and compared them with the situation of learning attitudes that did not use this system for teaching two months ago. The results are shown in Table 3.

Analyzing Table 3, it can be concluded that after using this teaching system for two months of study, the percentage of college students who like English has increased significantly, indicating that the application of the system to English teaching has increased the enthusiasm of college students to learn English and is beneficial to the development of classroom teaching.. It shows that this teaching system has internally improved the attitude of college students to learn English, and the reason why college students learn English has changed from being dominated by parental requirements in the past to being interested in English. Through the above experimental results, we can see that the use of this system can effectively enhance college students' interest in English learning.

Table 3. Comparison of test results before and after using the system

Investigation questions	Option	This system is not used	This system is adopted
How much do you like English	like it very much	11%	88%
	I like it better	36%	8%
	Indifferent	53%	4%
On the value of learning English	Very useful	55%	72%
	It's useful	36%	25%
	It's totally useless	9%	3%
	Key skills	54%	45%
	Enrich knowledge	22%	48%
	Further education	20%	5%
	It's useless	2%	1%
	Other	2%	1%
To investigate the motivation of learning English	Like English	11%	85%
	Study abroad	22%	10%
	Parents request	67%	5%

4 Concluding Remarks

Using English to communicate and communicate with others fluently is an important purpose of English teaching and an inevitable requirement of social development. How to improve the efficiency of oral English teaching and promote the improvement of college students' oral expression ability is a problem faced by the majority of English teaching workers. Based on this, the design of an auxiliary teaching system for oral English training is proposed. The application of the latest information technology to assist oral English teaching can make up for the shortcomings of the original oral teaching, truly implement the oral teaching, and change the traditional oral evaluation mode.

References

1. Malinee, V.V., Senthamarai, T.: The use of web 2.0 tools in English for specific purpose: a blended learning approach in English language teaching. *J. Shanghai Jiaotong Univ. (Sci.)* **16**(8), 703–716 (2020)
2. Yuan, F.: An English language multimedia teaching model. *Int. J. Emerg. Technol. Learn.* **13**(8), 198 (2018)
3. Santikarn, B., Wichadee, S.: Flipping the classroom for English language learners: a study of learning performance and perceptions. *Int. J. Emerg. Technol. Learn.* **13**(9), 123 (2018)
4. Herath, B., Dewmin, G.H.S., et al.: Design and development of a novel oral care simulator for the training of nurses. *IEEE Trans. Biomed. Eng.* **67**(5), 1314–1320 (2019)
5. Mitani, A., Muramatsu, M.: Development of human tongue model for mealtime assistant training using oral care simulation model. *Int. J. Autom. Technol.* **13**(4), 499–505 (2019)

6. Wickens, J.D.J., Norris, D.H.: The imperative of soft skill development in preventive conservation practice and training. *Stud. Conserv.* **63**(9), 301–306 (2018)
7. Guil, F.: Associative classification based on the transferable belief model. *Knowl. Based Syst.* **182**(8), 1048–1059 (2019)
8. Hou, W., Hou, X.: Spatial–temporal changes in vegetation coverage in the global coastal zone based on GIMMS NDVI3g data. *Int. J. Remote Sens.* **41**(21), 1–21 (2019)
9. Korepin, V.N., Dorozhkin, E.M., Mikhaylova, A.V., et al.: Digital economy and digital logistics as new area of study in higher education. *Int. J. Emerg. Technol. Learn.* **15**(13), 137 (2020)
10. Huang, Y.Y., Wang, Z.H., Deng, L.H., et al.: Oral administration of quercetin or its derivatives inhibit bone loss in animal model of osteoporosis. *Oxid. Med. Cell. Longev.* **20**(3), 1–21 (2020)
11. Yang, T., Cappelle, C., Ruichek, Y., et al.: Multi-object tracking with discriminant correlation filter based deep learning tracker. *Integr. Comput. Aided Eng.* **26**(3), 273–284 (2019)
12. Pan, G., Chen, G., Kang, W., et al.: Correlation filter tracker with siamese: a robust and real-time object tracking framework. *Neurocomputing* **358**(9), 33–43 (2019)
13. Fu, W., Liu, S., Srivastava, G.: Optimization of big data scheduling in social networks. *Entropy* **21**(9), 902 (2019)