

2014

BioTechnology

An Indian Journal

FULL PAPER

BTAIJ, 10(11), 2014 [5271-5280]

ESP development exploration under MOOCs course model

Yang Chen

Foreign Language Department, Qiqihar Medical University, Qiqihar 161000, Heilongjiang, (CHINA)

ABSTRACT

MOOCs takes connective attention theory and E-learning open education science as basis, present course range covers science and technology disciplines, social science discipline and humanistic studies. The course has a variety of types, appearing in the form of "micro-curriculum", is an important link of mixing teaching, which builds foundation for new round education reformation. The paper researches on MOOCs course features, origins, development history, design theory and development of its combination with ESP, in the hope of exploring paths for MOOCs development and the course and other forms course teaching combination.

KEYWORDS

MOOCs curriculum; Teaching interaction; Teaching design; Coursera platform; ESP English.



INTRODUCTION

“MOOCs” first letter “M” represents “Massive” great scale, it refers to course registering people are numerous; the first O represents “Open”, it refers to course learning takes interestingness as guide without threshold setting, principle only requires an e-mail address then can register and participate in; the second O represents “Online”, it refers to course learning time, space is very flexible, which is open in whole day. Therefore, the appearance of the course nearly overturns people recognition on traditional curriculums, in view of the course development modes and practical effects, such overturning feature is optimum, and it may become core of new round education reformation. The paper analyzes MOOCs course features, in the hope of exploring feasible paths for the course and ESP combination.

For researches on MOOCs course itself and its combination with universities teaching, many people have made efforts, their efforts play propelling roles in MOOCs course practical development. Among them, Feng Yuan (2014) stated universities foreign language education informationization process information technology and foreign language course integration confronted opportunities and challenge, and overlooked future foreign language education techniques application in universities foreign language curriculum, in analysis, it got involved in MOOCs course features analysis^[1]. Qian Min-Juan (2014) discussed ESP development new opportunities in MOOCs course model, revealed emergence of MOOCs brought into on-line course new experiences that let learners to press for improving learning English ability, and also created uncommon opportunities for ESP development^[2]. Pang Guo-Bin etc.(2014) researched and referenced MOOCs development ideas, started from China's national conditions, by virtue of lots of superior education resources, went deeper into exploration Chinese universities internationalization course system construction, in the hope of providing feasible suggestions for Chinese higher education sustainable development^[3].

The paper on the basis of formers researches, analyzes MOOCs curricular features, in the hope of building theoretical basis for MOOCs course development in China, and meanwhile also provides references for the course and traditional teaching combinative path exploration.

MOOCS CONCEPT AND DEVELOPMENT HISTORY

Zhang Hong-Yan (2014) pointed out Massive Open Online Course that called MOOC for short, was translated as Muke in Chinese, it was internet-based massive open online course^[4].

MOOCs is a kind of integrating traditional education resources and network resources and developed, faced to public “massive open online course” that springs up in recent years, it is a kind of public course set system that spreads in internet, a kind of massive network open course management system, relies on certain network platform to establish. MOOCs course divides into lecturer, participants and network platform three links, from which MOOCs lecturer generally is famous universities excellent teacher or researcher, participants are university students and social public from all over the world, lecturing form is mainly network lecturing videos, network interactive communication and discussion and off-line practices.

MOOCs course has following showed four features:

- Unprecedented openness.
- Unprecedented transparency.
- Unprecedented high quality education resources easily accessing.
- Unprecedented convenience.

MOOCs development history can be divided into budding stage, prototype stage, concept generation stage, entering stage, growth stage and mature stage, in the following according to the course development history, it makes brief introduction, in the hope of understanding curricular significances, and its application necessity.

Stage 1. It is budding stage, in 1962, American inventor and knowledge innovator Douglas Engelbart proposed a kind of research plan, topic was “Enhance human wisdom: Stanford research institute one concept frame”, in the research plan, Douglas Engelbart highlighted possibility of regarding computer as a kind of enhancing wisdom collaborative tools to apply, since then, lots of experts and

education reformers that keened on computer including Ivan Ilic successively published a great deal of academic journal articles, white paper and research reports, MOOCs development also formally entered into budding stage since 1962.

Stage 2. It is prototype stage, in 2001, network course 1.0 era was coming, Massachusetts Institute of Technology innovatively declared to put courses on line for free, in 2009, Harvard university retreated from high quality high definition “Just” and others, which brought into new round video open course construction boom, in 2010, NetEase retreated from “Global famous universities video open class events”, first batch of 1200 episodes course were on line, network course 1.0 era’s online courses then became important prototype of subsequent MOOCs development.

Stage 3. It is concept generation stage, in 2008, professor Dave Cormier and Bryan Alexander firstly proposed MOOCs concept, with MOOCs concept first generating, network course 2.0 era was formally coming, the era put forward MOOCs concept and built theoretical basis for future development.

Stage 4. It is entering stage, in 2011, MOOCs accelerated its pace into public vision, in autumn, 2011, first MOOCs online course storm sprung up, MOOCs also was honored as “Education maximum innovation since printing invention” from that time, it presented new dawn of “future education”.

Stage 5. It is growth stage, New York Times called year 2012 as “first year of MOOCs”, MOOCs triggered one “storm” of education, the “storm” started in autumn of 2011, above 190 countries 16 ten thousand people registered Stanford University Sebastian Thrun artificial intelligence introduction free course, which subsequently bred present Udacity (online university) one of three main platforms, in November, another kind of important platform that Stanford University professors founded Coursera (course era) was set up, in December, Massachusetts Institute of Technology launched MITx project, on this basis, subsequently Harvard and MIT cooperated and organized online course project edX platform, released massive open online course^[5].

Stage 6. It is mature stage, in February of 2013, channels for MOOCs entering into regular higher education system was opened, Coursera five courses were entered into America Council on education (ACE) academic credits recommendation plan, students optional credits could be accepted by universities, and meanwhile, universities that cooperated with Coursera arrived at more than 60, which provided above 300 courses that included five kinds of languages, marked MOOCs development entered into mature stage.

MOOCS CONTENTS ANALYSIS ABOUT COURSERA PLATFORM

Coursera platform is by far one of most popular MOOCs platforms in the world, in December, 2013 relevant scholar Ma Wu-Lin made statistics of the platform established 575 courses^[6], course contents get involve in statistics, data analysis, chemistry, education, art, biology, social science and teachers’ education and else twenty-five main types, the platform presently totally provides twelve kinds of languages courses, each country language course quantities distribution is as TABLE 1 shows.

TABLE 1 : Coursera platform MOOCs course classified according to language

Language	The number of courses	Proportion
English	486	84.3%
Chinese	28	4.9%
French	19	3.3%
Spanish	13	2.3%
Russian	13	2.3%
Portuguese	6	1.0%
Turkish	4	0.7%

German	2	0.3%
Ukraine.	2	0.3%
Other	3	0.5%

From above TABLE 1 data and pie chart, it is clear that English course occupies the vast majority, secondly is Chinese course and French course. The paper sorts Coursera platform provide 486 disciplines of English courses, sorting result is as TABLE 2 shows, in TABLE 2 it shows that humanity type of courses are 90 disciplines, social science type of courses are totally 68 disciplines, health and social type of courses are 67 disciplines, biology and life sciences type of courses are 63 disciplines, these courses mainly face to group of undergraduate students, then is courses classification is relative concrete, as computer science is refined as artificial intelligence, software engineering, system and security as well as computer science theory and so on.

TABLE 2 : Coursera course platform course classification and number

Catalogue	Number	Catalogue	Number
Arts	22	Health & Society	67
Biology & Life Sciences	63	Humanities	90
Business & Management	59	Information,Tech & Design	44
Chemistry	16	Law	10
CS: Artificial Intelligence	27	Mathematics	33
CS: Software Engineering	25	Medicine	59
CS: Systems & Security	21	Music,Film,and Audio	23
CS: Theory	24	Physical & Earth Science	18
Economics & Finance	52	Physics	23
Education	59	Social Sciences	68
Energy & Earth Sciences	21	Statistics and Data Analysis	31
Engineering	34	Teacher Professional Development	40
Food and Nutrition	15		

MOOCS COURSE DESIGN THEORETICAL BASIS

Core content of MOOCs course is famous teachers' lecturing, implementing by network platform and presenting to learners, the idea actually is a kind of extensive course way in network remote education courses, so in MOOCs course design processs, and it also should have certain rules that need to follow. The rules are also theoretical bases of course designing, especially in ESP's MOOCs design that needs to focus on researching.

The chapter analyzes teaching interaction theory and teaching design theory, in the hope of building theoretical basis for ESP development exploration in MOOCs course model.

Teaching interactive theory

Doctor Chen Li of Beijing Normal University thinks that teaching interaction was a kind of event that appear between students and learning environment, it contained students and teachers, and communications among students, and also contained students and each kind of materialization resources mutual communication and mutual effects^[7].

Teaching interaction core is student, the purpose is in students learning process, by each kind of mutual communication and mutual effects, change learners behaviors, and then implement teaching objective, when environment to learners' reaction can let learners behaviors to develop towards teaching objective orientations, teaching interaction is effective, therefore, teaching interaction should have two

aspects effects, on one hand, it is leading to learners changes, on the other hand, it is letting learners changes to gradually get closer to teaching objective, teaching interaction should focus on mutual communication and mutual effects significances to learners' learning^[7]. Teaching interaction model is as Figure 1 shows.

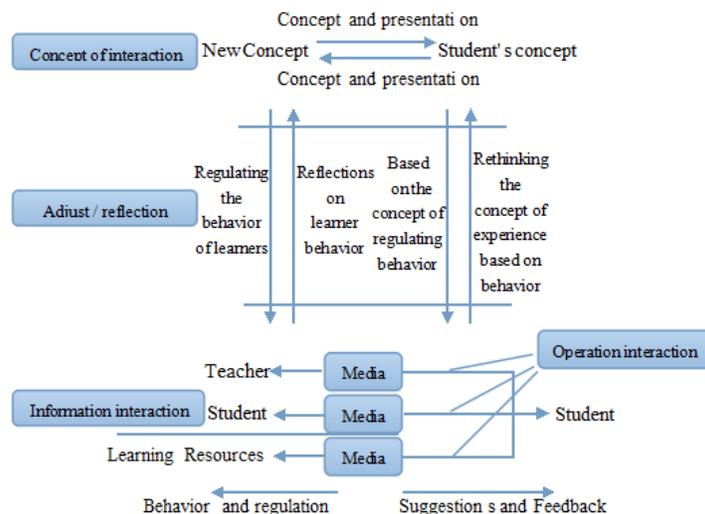


Figure 1 : Teaching interaction model

As Figure 2 shows, teaching interaction is composed of operation interaction, information interaction and concept interaction three levels, their effects also show in Figure. As Figure 1 show teaching interaction hierarchical tower.

In Figure 2, SONCI represents students new and old concepts interaction ;STI represents students and teachers interaction ;SSI represents students and students interaction ;SSoI represents students and learning resources interaction ;SMI represents students and media interface interaction. Teaching interaction hierarchical tower illustrates three kinds of teaching interaction according to orders of operation interaction, information interaction and concept interaction, from low level to high level, from concrete to abstract, high level teaching interaction is on the condition of low level teaching interaction, no operation interaction and information interaction, then it will have no concept interaction, interaction of higher level and more abstract will have more important significances in generating real learning.

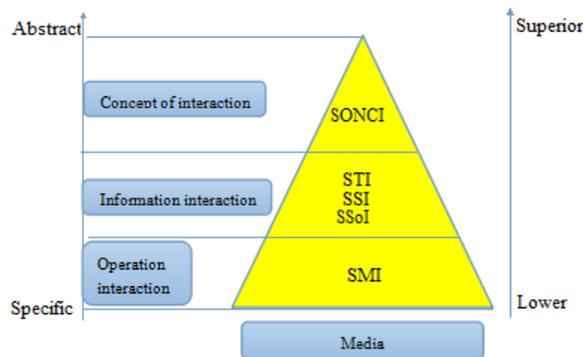


Figure 2 : Teaching interaction hierarchical tower

Teaching interactive theory has larger enlightenment in MOOCs course designing, the writer thinks that in design course process, it should try to perfect media functions, make detailed explanation

of course resources usage, in the hope of reducing students learning efficiency declination due to media operation aspect problem, and ensure learners have certain learning technique operability before learning. Secondly, in the level of teaching design, according to learning activities-centered theoretical design teaching scheme, it mainly takes cultivating students' remote learning required each kind of learning strategies as main course objectives, carries out learning activities design, strives to let students to have ability to better adapt to MOOCs course learning requirements after fulfilling such series of relative independent and mutual connected learning activities.

Teaching design theory

Teaching design process mode also calls teaching design mode, is description of teaching design process simplified, theorizing, teaching design model normally regulates teaching design activities main tasks and their flow relations in macroscopic view, it can reflect the mode-based teaching design theory some basic opinions to certain extents.

Teaching design mode most direct effect is carrying on macro specification on teaching design operation, learning activities-centered teaching design theory thinks that teaching system is composed of learning activities, therefore learning activities are basis units of teaching design, learning activities core elements are activities tasks, activities tasks and teaching objective compose direct causal relations. Learning activities-centered teaching theory can use a kind of "Knowledge network deformation method" approach to effective design activities tasks, and instructing network graph deformation method operation basis is field knowledge analysis result, He Fang (2006)^[8] according to above thoughts, constructed as Figure 3 showed learning activities-centered teaching design mode.

Figure 3: Learning activities-centered teaching design mode

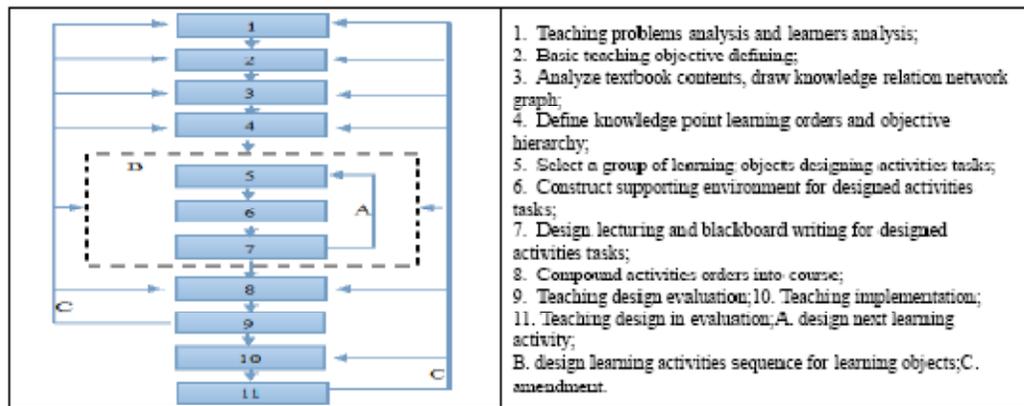


Figure 3 : Learning activities-centered teaching design mode

Teaching design evaluation can apply AHP analysis method to evaluate, the method implementation steps are as following:

STEP1 Construct paired comparison judgment matrix;

Every layer element relative to last layer one element single arrangement problem can be simplified into a series of paired elements judgment comparison, in the paper it introduces Saaty (1-9 ratio scale measurement table),and then writes into matrix form, as TABLE 3 show judgment matrix form.

TABLE 3: Judgment matrix form

A_k	B_1	B_2	...	B_n
-------	-------	-------	-----	-------

B_1	b_{11}	b_{12}	\cdots	b_{1n}
B_2	b_{21}	b_{22}	\cdots	b_{2n}
\vdots	\vdots	\vdots	\vdots	\vdots
\vdots	\vdots	\vdots	\vdots	\vdots
B_n	b_{n1}	b_{n2}	\cdots	b_{nn}

STEP2 Convert initialized judgment matrix into comprehensive judgment matrix; at first, according to geometric mean calculation method calculate initialized judgment matrix each indicator paired comparison values, and convert them into final matrix, after that, for final matrix, according to formula (1) showed calculation method, it can get comprehensive judgment matrix:

$$\begin{cases} A(S) = [a(S)_{ij}]_{n \times n} \\ a_{ij} = k \cdot \sqrt[k]{\prod_{s=1}^k a(S)_{ij}}, S = 1, 2, \dots, k; i, j = 1, 2, \dots, n \end{cases} \quad (1)$$

STEP3 Calculate comprehensive judgment matrix maximum feature root corresponding feature vectors, and then normalize the vectors that are each indicator corresponding weights;

STEP4 Comprehensive judgment matrix consistency test.;

Consistency indicator CI computational method is as formula (2) show

$$CI = \frac{\lambda_{\max} - n}{n - 1} \quad (2)$$

When comprehensive judgment matrix has completely consistency, $CI=0$, when CI gets bigger, it represents consistency gets poorer, in order to define satisfaction membership of CI.

MOOCS IMPACTS ON TRADITIONAL TEACHING MODE AND ITS COMBINATION WITH ESP DEVELOPMENT PATH EXPLORATION

MOOCs impacts on traditional teaching mode

Fudan University vice chancellor Lu Fang thought that current higher education needed to solve resources share and learning mode two problems, information technology popularization and development bring new vitality into teaching reformation, network technology as important intervention way of course teaching, it broke through traditional course teaching basic structure, and optimized and reconstructed course teaching contents, teaching flow structure, teacher and students interactive structure^[9].

Zhu Jian-Ping (2014) pointed out “MOOCs” revolutionary significance was renewing teaching mode, it was overturning traditional course lecturing-based teaching mode, presented online teaching mode that took E-learning as main technique way and breaking through space boundary^[10].

MOOCs course development has great impacts on traditional education, the impacts are optimum that can play positive roles in education development, impact content mainly shows in MOOCs course and traditional teaching differences. When analyzing teaching course differences, the paper takes course elements as categories to carry on distinguish analysis, course teaching elements are teachers, students, lecturing site, learning process, time distribution, learning management and course evaluation, differences between MOOCs course and traditional teaching in above five elements are as TABLE 4 shows.

TABLE 4 : MOOCs and traditional teaching mode elements features comparison table

Teaching elements	MOOCs	Traditional teaching
Teachers	A11. Puzzles answerers A12. Learning promoter	A21. Knowledge initiator A22. Learning manager
Students	B11. Active learning B12. Learning manager	B21. Passive infusing B22. The managed of learning
Lecturing site	C11. Any sit in network	C21. Classroom、playground or lab
Learning process	D11. After-class learning knowledge D12. Class internalizing knowledge	D21. Class learning knowledge D22. After-class internalizing knowledge
Time distribution	E11. Independent distribute learning time	E21. Passive carry out learning according to teaching arrangement
Learning management	F11. Self-management	F21. Educational institution
Course evaluation	G11. Multiple aspects evaluation	G21. Classroom evaluation

As TABLE 4 showed two courses elements differences, MOOCs causes following mutation on traditional teaching:

Course scale mutation: the word “MOOC” starting letter “M” has two levels definitions, the first level is it can provide learners course quantities are not three or five disciplines but massive, the second level is the number of people that can simultaneously learn same courses are massive rather than traditional classroom’s several dozens of people.

Teaching ways mutation: one is implementing realistic “hierarchical teaching”, MOOCs admits students differences, and can really implement hierarchical teaching, every student can learn according to his speed, students with fast learning speed can master more difficult course contents, students with low speed can carry on repeatedly learning, and seek help from teachers^[11]. Two is implementing knowledge imparting “overturn”.

Learning ways mutation: MOOCs video course is cut into 10 minutes or even smaller micro-course, one core feature is reducing teachers’ lecturing time in class, and leaving more learning activities time for students, finally changing into promoting students understanding levels on knowledge, in addition, when teachers carry on performance-based evaluation, interaction in class will become more effective, according to teachers’ evaluation feedback, students will more objective get acknowledge of their learning status, and better control their learning^[12]. In addition, due to MOOCs video course is cut into micro-course, and there are many questions inserted and linked up, just like games’ levels setting, and if students have doubts, they can directly present in platform, it will have teachers or students to provide answers in five minutes, which no doubt will extremely promote students’ learning interestingness and initiative.

Teachers’ roles mutation: MOOCs lets teachers to change from traditional classroom knowledge initiator to learning promoter and guider, which means teachers are no more the core of knowledge interaction and application, but they are still main propeller to students learning, teachers become staging for students convent acquiring resources, utilizing resources, handling with information and applying knowledge in real situations^[12].

Students’ roles mutation: MOOCs is an activate class that needs students to highly participate, with technological development, education enters into a new era, in personalized learning under technological supports, students become learners with self-assigned pace, they can control selection of learning time and sits, and can control learning contents, quantity of learning, however in MOOCs, students are not fully independent to carry on learning, therefore, MOOCs is a constructive covering knowledge class, the class leading role is student rather than teacher^[11].

MOOCs and ESP combinative development path exploration

MOOCs development brings challenge for university students’ course design and development, teaching organization, credit certification, faculty construction, and also bring opportunities for higher education development. Deng Hui (2013) pointed out by mixing teaching, students grasping on problems were deeper, and meanwhile their expression ability, critical thinking skills had been trained,

and team collaboration function was strengthened^[13]. In the following, carried out exploration and discussion on how ESP teachers effective combine with MOOCs course in language, in the hope of providing references form MOOCs and ESP combinative development path exploration.

Firstly, it needs to select courses that get closer to students major, language levels as entry points. In class organized ESP teaching can fully consider “individualized teaching”, according to students professional backgrounds and interests, adopt students recommendation, team or group discussion ways, select correlation course in MOOCs platform as ESP teaching online supplement. Cai Ji-Gang (2013)pointed out that real ESP teaching was language teaching rather than contents teaching, language teachers were qualified only needed to have some basic knowledge in professional aspect^[14]. For students’ differences in adaptation state of online full English lecturing, ESP teachers can also distinguish when select courses, for students of relative weak base, they can select some courses that their theoretical properties are not so strong, focus on general academic English teaching (EGAP),stress training students academic oral communicative ability and academic written communicative ability, and for some students that already own stronger listening, speaking, reading and writing abilities, they can select some stronger professional courses, stress cultivating students special academic English ability, expand professional vocabulary, get familiar with professional fields’ syntax and text structure features, and make language and contents preparation for next professional course learning.

Then carry out staging, emphasis academic English technological training, academic English technology involves in listening, speaking, reading and writing multiple aspects, in teaching, it should help students to overcome embarrassing emotions that cause by language barrier, adopt staging, emphasis training methods. Xiao Kun-Xue (2000)in academic reading exercises, positive cultivated students’ effective absorbing information ability, included words guessing by context, critical thinking skills in reading professional articles^[15]. When training academic writing, guide students to collect relative literatures, fulfill literature reviewing, reasonable quote others opinions and so on, avoid plagiary. When organizing classroom discussing on lecturing contents, guide students to carry on net or library information searching on one topic,reasonable organize information, report discovery and results, in the process, it can also focus on cultivating students critical thinking skills, and meanwhile can give consideration to provide students pronunciation, intonation and grammar.

CONCLUSION

On the summarizing MOOCs concept an development history basis, the paper explores and discusses MOOCs course openness, transparency, superior education resources easily accessing and convenience four features, and states MOOCs development history six stages features, in the hope of exploring MOOCs course development necessity and background.

In the paper, targeted at MOOCs contents’ Coursera platform, it makes analysis, displays MOOCs course category aspect features, gets English type course are most, and disciplines categories are also very exquisite, and as largest world population country’s China’s Chinese type of course are very little, now that English type courses can develop, then Chinese type MOOCs course development is also feasible, which builds good foundation for Chinese MOOCs course development. And then, targeted at MOOCs course design theory, it makes analysis, focuses on analyzing teaching interaction theory and teaching design theory, explores course design important links and details that need to pay attention to, which provides theoretical basis for MOOCs course designing.

Finally, targeted at MOOCs impacts on traditional teaching mode and its combination with ESP development path exploration, it makes researches, gets MOOCs differences from traditional teaching mode in classroom, students, lecturing site, learning process, time distribution, learning management and course evaluation and else seven teaching elements by comparing,states course scale, teaching ways, learning ways, teachers roles and students roles mutation details problems. Finally, state MOOCs and

ESP development path from selecting courses that get closer to students major, language levels as entry points and staging, emphasis carry on academic English technological training two perspectives.

ACKNOWLEDGMENT

Project Origin: Qiqihar Medical University. Project Name: Study on the Cultivation of English Autonomous Learning Ability for Medical Students Based on Massive Open Online Courses. Project Number: JY20141043.

REFERENCES

- [1] Feng Yuan; Universities Foreign Language Courses Opportunities and Challenges in Foreign Language Education Technology Science Initial Establish Background [J], *Media in Foreign Language Instruction*, **155**, 76-80 (2014).
- [2] Qian Min-Juan; ESP Development New Opportunities in MOOCs Course Mode [J], *Overseas English*, **4**, 19-20 (2014).
- [3] Pang Guo-Bin; “MOOCs” struck: Chinese Universities Internationalization Course System Construction Exploration [J], *Journal of Dalian Education College*, **30(1)**, 23-25 (2014).
- [4] Zhang Hong-Yan; MOOCs and MOOCs Triggered Education Reformation Exploration and Analysis [J], *Chinese Education Technical Equipment*, **12**, 16-17 (2014).
- [5] Li Man-Li; MOOCs are Brewing Abnormal New Education Revolution [N], *China Youth News*, **23(3)**, 05 23(3).
- [6] Ma Wu-Lin; International MOOCs Impacts and Reconstitution on Chinese University English Courses [J], *Media in Foreign Language Instruction*, **157**, 48-54 (2014).
- [7] Chen Li; Terms “Teaching Interaction” Essence and its Relative Concepts Discrimination [J], *Chinese Remote Education*, **2**, 24-28 (2004).
- [8] He Fang; Internet-Based “Remote Learning Introduction” Curriculum’s Curricular Development [D], Beijing: Beijing Normal University, (2006).
- [9] Zhao E-Nuo; “MOOCs” Struck, How Chinese Universities to Cope with it [N], *People’s Daily*, **08(18)**, 08 (2013).
- [10] Zhu Jian-Ping; Big Data Era Vocational Teaching Four-Dimensional Challenges and Innovation [J], *City Management Teaching and Research*, **1**, 81-83 (2014).
- [11] Zhang Yu-Jiang; “Overturn Class” Reformation [J], *Chinese Information Technology Education*, **10**, 12-13 (2012).
- [12] Zhang Jin-Lei; “Overturn Class” Teaching Mode Research [J], *Remote Education Magazine*, **4**, 25-26 (2012).
- [13] Deng Hui; Online University: Dreadful Monster or “Elixir of Benefiting Mankind”, *Guangming Daily*[N], **06**, 05 (2013).
- [14] Cai Ji-Gang; Full English Teaching Feasible Research—Case Analysis of Fudan University “Public relations science” Course [J], *Foreign Language in China*, **6**, 61-67 (2010).
- [15] Xiao Kun-Xue; Methods and Strategies in Listening to English Academic Reports [J], *Foreign Language Teaching*, **4**, 86-91 (2000).