

# On the Applications of Modern Educational Technology in Maritime English Teaching from the Perspective of Constructivism

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## Abstract

Nowadays maritime transportation has become a major modern logistics because of its large capacity and low cost. English plays a leading role in the industry of maritime transportation. It is the most important medium and an indispensable communication tool in international business and global marine industry. Maritime English teaching has made some progress in China since 1990s. However, the applications of modern educational technology in maritime English teaching are still at its preliminary stage when compared to its current status abroad. Research on maritime English teaching has been very limited. This has raised a realistic question on current maritime English teaching: how can we improve maritime English teaching so that more people can be trained to be more competent in international business and trade.

**Keywords:** Modern educational technology, Maritime English, Constructivism, Maritime transportation, English teaching

## 1. Introduction

The concept of E-teaching is not new to us anymore no matter how it is defined as “internet –based teaching”, “online-teaching”, “networked-based teaching”, “e-moderating” and “web-based teaching”. The computers and multimedia have their unique features which mark the distinction between traditional teaching and E-teaching. It is claimed that constructivist paradigm may ultimately offer the most fertile ground for the application of information technology to education. Active and interactive learning is the central idea of constructivism. Information technology can provide a powerful dynamic interactive learning environment. In maritime English teaching, computers, multimedia and web-enhanced learning bear practical value. In international trade, most of the transactions are done by computers in English. Therefore it is imperative to incorporate computer, multimedia and web into maritime English teaching. So far such teaching has reaped a lot of benefits but it has its drawbacks and its drawbacks can be never neglected by instructors.

The purpose of this study is to integrate some theories such as behaviorism and constructivism into Maritime English to find out an effective way of teaching.

To meet the need of learning English, the schools are making great efforts to improve their English teaching. Hard as they have tried, some problems still remain to be handled.

Firstly, the teaching model of teacher-centered prevails. It is the teacher not the students who can decide the teaching contents, teaching method and teaching pace, which should be reformed.

Secondly, there is not much cooperation among learners in present English teaching. In class, the students are accustomed to wait for teachers’ answers instead of finding the answers by group work. They try hard to learn English unaware of the fact that language learning is a collaborative process.

Thirdly, modern English teaching and learning in a mode is a need for English teaching reform nowadays. Quite a few researchers have been advocating for adopting constructivism in learning over years. Learning on the Internet is very compatible with constructivism and social constructivism. The very process of knowledge construction on the Internet is keeping with these paradigms. So my study on the application of modern educational technology bears some practical value.

## 2. Basic Concepts for Modern Technology and Maritime English

In English teaching, modern educational technology includes computers, multimedia and Internet, etc. The definition of educational technology is described as that “educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources.”

Generally, the characteristics of modern educational technology are characterized with three words: digitalization, internetization and informationalization. This description can be widely accepted by most of people. Modern educational technology is based on modern educational theories which entail cognitivism, behaviorism and constructivism. The characteristics can reflect the development of educational theories.

### 2.1 Characteristics of Maritime English

In accordance with STCW78/95 convention made by IMO, the seafarers are required to be competent in using English for professional purposes. Maritime English falls into the category of ESP, English for Specific Purpose. ESP focuses the learner's attention on the language and communication requirements in a particular professional field. Maritime English is to satisfy the need of seafarers. Therefore it has its own characteristics.

- 1) SMCP It specifies the form of words and expressions utilized by seafarers in various working situations. It is characterized by concise language.
- 2) Written English in maritime English. It includes scientific English which can be seen in weather report, manuals, operations' guide, rule and regulations at seaport and legal English which can be found in accident reports, claims, contracts, conventions etc.
- 3) Like scientific English and legal English, maritime English has its all characteristics, too. Maritime English has its own technological jargon or expression. The terms make no sense out of maritime English or they are incomprehensible or wired. For example, the phrase "hard a port" cannot be understood according to literal meaning, however, in maritime English it denotes certain meaning.

### 2.2 The Present Situation of Maritime English Teaching

Computers have been used for language learning and teaching abroad since the 1960s. The history of more than 30 years can be roughly divided into three phases: namely, behavioristic CALL(Computer Assisted Language Learning), communicative CALL, and integrative CALL.

In recent years, constructivism has taken much ground which views learners as active meaning constructors. In other words, based on their prior experience, learners actively construct their knowledge through active participation in problem-solving and critical thinking in learning activities.

But in a long period of time, the importance and characteristics of maritime English were not fully recognized by people. Since 1990s', the importance of maritime English teaching has been seen by the circle of maritime education. IMLA (International Maritime Lecturers' Association) will have a yearly WOME(Workshop on Maritime English) in the world to deal with maritime English teaching. So far, in 1998, 2000, 2002 WOME has been held in Shanghai, Qindao and Dalian with the hot topics such as CALL in maritime English teaching. In 1998, the Teaching Guidance Committee of Marine English was established and 4 important conferences on maritime English teaching were held in Shanghai, Hangzhou, Qingdao and Wuhan respectively. Some teaching reforms concerning CALL have been suggested by various colleges or vocational schools. But nowadays, coursewares on maritime English teaching or learning are not so easy to find. In September 2001, some experts of IMO conducted a survey on maritime English teaching in China. It was found that original materials and audio & video material are far from enough. In recent years, the urgent need of the implementation of CALL has been echoed in many published articles. In other countries, CALL has been carried out smoothly. The typical example is the International Maritime Language Program designed by Peter C. Vankluijven at Rotterdam Shipping & Transport College. Therefore, compare with foreign countries, the implementation of CALL in maritime English teaching in our country only takes the initial steps. That's much room to be improved.

### 3. A Constructivist Classroom in Teaching

The main purposes of the present study are as follows: 1) To be well aware of the present situation of maritime English teaching 2) To probe into the effect of modern educational technology on maritime English teaching and 3) To set out a more suitable English teaching model for training marine practitioner.

That is to say, the study is mainly to deal with the Implementation of Constructivism in teaching. It has been pointed out the four elements of constructivism are "context", "collaboration", "conversation" and "construction". Obviously, the characteristics and functions of multimedia technology and Internet can help fully demonstrate the four elements. Constructivism emphasizes the importance of context building, the premise of meaning construction. And multimedia is the most efficient tool to create real-world environment.

As we know, in general terms, needs analysis (also called needs assessment) refers to the activities involved in gathering information that will serve as the basis for developing a curriculum that will meet the learning needs of a particular group of students." (James Dean Brown, 2002:35)

Students' analysis can give two kinds of information for teaching. One reflects the students' possession—their current level of competence in language. The other represents what students want to achieve. It is clearly that the chief tenet of English teaching in maritime transport is to relate teaching to learner's needs. So it is important to know what the needs are in order to do that. To develop an efficient course, however, we need to select appropriate materials, teaching method and to set relevant tasks and activities which will develop the learners'

motivation for the purpose of achieving the learning objectives. This undoubtedly requires a much more detailed knowledge of the learners' needs. Successful training or teaching is based on the teacher's understanding and responding to students' needs. Needs analysis can be done at the start of the course — to provide essential information about individual seafarers. Needs analysis can be an ongoing procedure to help decide the focus of training and follow students' progress. Ongoing needs analysis can help the teacher decide the focus of the teaching.

Students in colleges or universities will have obtained their knowledge of English largely from teachers and books and, as a result, such knowledge will be incomplete and theoretical rather than practical. "They will be less aware of their language needs in terms of communicating in real-life business situations, and their expectations of language learning will be molded by their experiences from schools, and thus by the educational policies of the country in which they grew up" (Mark Ellis & Christian Johnson, 2002:5)

In fact, how to set the teaching objectives employs very important functions in the typical teaching method. As mentioned above, the process of needs analysis can generate a tremendous amount of information that must be sorted and utilized in some way within the curriculum. One way to use this information is to apply what has been learned in the needs analysis for the formulation of program objective.

Instructional objective will be defined as specific statements that describe the particular knowledge, behavior, and/or skills that the learner will be expected to know or perform at the end of a course or program.

And in the constructivist teaching process, the role of teacher is changed for the need of learning who sometimes is a designer, an organizer, a guide, a facilitator, even an assessor attempting to design teaching activities based on Constructivism for creating real-life context by using authentic materials, taking the following into consideration: A. the source of the materials and the role of the materials; B. the materials should attract students' attention, C. learning resources must be used by individual learner to construct knowledge for solving the problems; and plan a developmentally appropriate curriculum that enhances their students' logical and conceptual growth; emphasize the critical role that experiences---or interactions with the surrounding environment---play in student learning, learn to start with the issues around which students are actively trying to construct meaning, create real-world situations and provide the connection between new knowledge and the students' prior knowledge, and finally to promote collaborative learning, raising appropriate questions for students to ponder and lead the students to deeper understanding of the knowledge to learn, help them to evaluate their learning.

#### **4. Inspiration of the Study**

##### *4.1 Changes in the presentation of the instruction*

Traditionally, the presentation of knowledge in class is realized by books, chalk and blackboard. In maritime English teaching, it is far from enough to use books, chalk and blackboard to demonstrate how to operate the devices. They are not so vivid, easy to understand. The use of modern educational technology certainly eliminates several deficiencies and problems encountered in the traditional education and training process. It has been found that modern technology introduces a new and active approach to education and training, and which can shorten the learning process and facilitates the acquisition of new knowledge and understanding of the operational principles of different kinds of devices.

Maritime English is a kind of professional English. It is necessary to create vivid and authentic environment for teaching if we want to increase the teaching and learning proficiency. Multimedia and Internet can create real-world environment which can not be presented by traditional "chalk and talk" instruction. Modern technology can provide vivid 3-dimensional pictures which can arouse students' interest and facilitates their understanding. Modern technology can provide authentic materials for students to learn English and create real-world situation for them to practice. Combined with classroom face-to-face instructions and the guidance from teachers, students can choose the materials, the time and the place well suited to their needs and get feedback from the multimedia and internet soon. Therefore, individualized teaching is realized with the help of computers and networks.

##### *4.2 The Role of the Students Is Changed While Learning in Multimedia Mode*

Often traditional classrooms are dominated by teacher talk, and students have few opportunities to engage in meaningful talk that foster critical thinking. Such practice tends to promote rote recall and memorization as opposed to allowing students to think in meaningful and authentic ways. Students' thinking tends to be geared towards copying the teacher for "correctness" as opposed to being rooted in active construction of understanding.

Constructivist environments supported by modern technology supply learners with opportunities to construct

new knowledge. Learners are encouraged to confront problems full of meanings. In solving these problems, learners are facilitated to explore possibilities, invent alternative solutions, collaborate with others, try out ideas and hypotheses, revise their thinking, and finally present the best solution they can derive. The characteristics are as follows.

- Students change from the so-called “empty vessel” to those who engage in active meaning construction.
- Students participate in problem-solving activities rather than just memorizing what the teacher says. Learning to work in groups to solve a realistic and authentic problem, thus gaining collaborative learning experience.
- More emphasis on students as autonomous, independent learner who are responsible for their learning. And give more emphasis on knowledge use instead of rote recall.
- Students learn to take advantage of modern technology to help them solve problems.

#### 4.3 *The role of the teacher is changed*

In a traditional classroom, the relationship of a teacher and the students can be summed up as follows:

Insert Figure 1 Here

Seen from Figure 1 above, we can see that the teacher-students relationship is linear. The teacher holds the position of authority passing knowledge to passive students and getting no feedback.

Insert Figure 2 Here

However, from Figure 2, we can see clearly that the linear relation has changed into a triangle relationship. In this triangle, with the students in the center, teachers get feedback from the students and they are helped by modern technology.

Computer and information technologies have the potential to transform how and what students learn throughout their lives. Effective teachers in the new century, with the help of computer and information technologies, can serve as a "valuable source of feedback, guidance and answers to questions" (Felix, 2001: 349), and not just disseminators of information. No matter how powerful the modern technology is, they can never replace the teachers. When coming across any problems, the students will turn to their teachers through BBS, e-mail, MSN etc. Then the teachers can help the students to solve the problems with their rich teaching experience. With the help and encouragement from the instructors, the students will go further in their self-study.

#### 4.4 *The information accomplishment and life-long learning*

The modern technology has made great demand on both parts of an instructor and a student. For a teacher who is not familiar with computers, in practice a lot of time in a computer lesson often goes on setting up programs, getting students into them and then solving problems with moving from one stage, or one program, to another. But for teachers who are skillful in using computers it will be invaluable for preparing materials such as worksheets or tests. In fact, “teacher perceptions of learning technologies are likely to be key factors in the successful integration of learning technologies” (Cope & Ward, 2002, p 72). Based on constructivism, a teacher is a helper, an assistant, a facilitator in the process of the students’ meaning construction. The leading role of a teacher should not be reduced. On the contrary, the role of a teacher should be strengthened. Taking advantages of traditional teaching and modern technology to achieve the best result, a teacher should know how to design wonderful PPT to attract the attention of the students rather than become an operator who can only play pieces of boring slides. Last but not the least, a teacher should teach a student how to manipulate modern technology. Facing modern technology, sometime students will be perplexed. At this moment, it is the job of a teacher to guide students. That is, to teach them how to get information, how to analyze and process information, how to explore and think with the help of modern technology. Without knowledge of computers, one can never browse vast ocean of information, let alone interacting with others. So a student should learn some basic skills, such as how to operate computers, how to use BBS, e-mail and MSN etc.

As the saying goes “It’s never too old to learn”. In traditional classroom, knowledge is seen inert while in constructivist classroom, learning is viewed as dynamic ever changing with our experiences. With our experiences increase, our knowledge will be enriched. But there is no end. This process recurs again and again, so we should never stop our learning. What’s more, the modern technology change rapidly and the world changes at a finger’s clip. Modern technology have changed people’s concept of learning.

### 5. Conclusion

Constructivism, a theory of learning now in the limelight among educators, represents a radical departure from traditional notions of learning.

Although Internet users still encounter some barriers such as a lack of learning skills, a lack of training, and

higher costs for accessing the Internet, using instructional technologies, especially the Internet, in education in part or whole has become inevitable. Rapid advances in computer and Internet technologies provide new opportunities to support teaching and learning. An Internet-based education environment facilitates students learning without the constraints of time and distance, giving students more opportunities to control their own learning. This type of learning is usually learner-centered and supports knowledge construction and meaningful learning. And to great extent, through the meaningful learning of maritime English, it would promote students' abilities of autonomic learning and increase their comprehensive competence relevantly, such as strengthening and combining their sense of maritime major with real situations, rising their cognitive levels and practical standards in reading, listening, speaking and writing in some ESP fields as maritime and shipping, and optimizing their thinking patterns and gathering their resolutions to both knowledge and ability construction upon the integration of modern educational technology, which will make great contributions to students' future employment.

Though the present study has got theoretical and practical inspiration of the modern educational technology in maritime English teaching, some obvious constraints in the study still exist, such as less typical effects for study samples and strategic collecting, weakness of preparing real-life environment and obtaining authentic materials from the author's deficiency of computer data analysis and distinctive examples of maritime major and English for class presenting, and lack of making full use of the excellent traditional teaching methods. It is necessary for the author to try his best to seek for ideal solutions to the mentioned constrain, and improve the teaching in future.

The author always believes that there remains much further study for maritime English teaching in a modern technological way. First and uttermost, how to combine the great advantages of excellent traditional teaching approaches with the modern educational technology to create a suitable and real-life environment for students' learning; and how to conduct well the experimental study and field study in the light of the present study so that to meet the need of maritime English teaching and learning.

**References**

Cope C. & Ward P. (2002). *Integrating Learning Technology into Classroom*. Educational Technology & Society Volume 5, Number 1.

David Nunan. (2001). *Second Language Teaching and Learning*. Beijing: Foreign Language Teaching and Research Press.

Flex U. (2001). *Beyond Babel: Language Learning Online*. Melbourne: Language Australia.

Fraida Dubin & Elite Olshtain. (2002). *Course Design*. Shanghai: Shanghai Foreign Language Education press.

James Dean Brown. (2003). *The Elements of Language Curriculum: A Systematic Approach to Program Development*. Beijing: Foreign Language Teaching and Research Press.

Liu, Lina. (2003). *The Vocabulary on Maritime English*. Dalian: Dalian Maitime University Press.

Su, Dingfang, Zhuang Zhixiang. (1996). *Modern Foreign Language Teaching – Theory Practice and Method*. Shanghai: Shanghai Foreign Language Education press.

Sun, Jiawen. (1999). *Handbook on Maritime English Conversation*. Dalian: Dalian Maitime University Press.

Xiu, Yuezhen. (2006). *Reseach on English Teaching Reform Under Multimedia and Internet Environmen*. Beijing: Tsinghua University Press.

Zhang, Jianping. (2003). *Modern Educational Technology: Theory and Application*. Beijing: Higher Education Press.

Zhong, Zhixian. (2005). *Informationized Teaching Mode: Theory and Practice*. Beijing: Educational Science Publishing House.

Zhu, Zhiting. (2002). *Modern Educational Technology: Road to informatization*. Beijing: Educational Science Publishing House.



Figure 1.

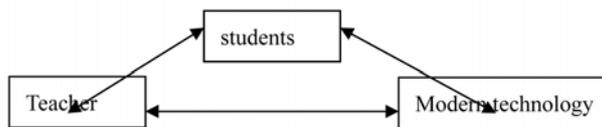


Figure 2.