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Research on the Practical Path of Digital Transformation of Maritime English Enabled by Digital Technology

Xiang Huang, Yana Guo

Jiangsu Maritime Institute, Nanjing, Jiangsu 211170, China

Abstract: With the rapid development of digital technology, the requirements for English proficiency in the maritime field are increasing. This study aims to explore the practical path of digital transformation of maritime English, analyze the current situation and problems, and propose feasible strategies to improve the quality of maritime English teaching and meet the needs of the industry.

Keywords: Digital Empowerment; Maritime English; Digital Transformation; Practical Path.

1. Introduction

Since the 18th National Congress of the Communist Party of China, the Party Central Committee has made comprehensive plans for the development of informatization in China, especially in education. The 20th National Congress of the Communist Party of China included "promoting the digitalization of education" in the report for the first time, clarifying the action plan for the future development of educational digitalization. "China's Education Modernization 2035" lists "education reform in the information age" as one of the ten strategic tasks, and clearly states that "build intelligent campuses, and coordinate the construction of integrated intelligent teaching, management, and service platforms. Use modern technology to accelerate the reform of talent training models, and achieve the organic combination of large-scale education and personalized training. Innovate educational service formats, and establish a digital education resource co-construction and sharing mechanism." [1] In the context of the digital wave, digital empowerment is not just about reshaping a certain system or platform, but based on the continuously iterated and upgraded digital environment, technology, and thinking, comprehensively elevating elements, processes, and chains to the digital space dimension, in order to resolve the contradictions and problems that have long existed in the traditional social environment. [2] Here, the teaching transformation and development empowered by digital technology is a practice that uses digital technology to achieve the deep integration of information technology and education and teaching, aiming to enhance the efficiency and quality of teaching. The digital transformation of education will reshape the digital talent training system and reconstruct the smart education development ecosystem through innovative teaching models, rich resource supply, reform of evaluation methods, and optimization of education governance.

In the context of the digital wave, digital transformation has become an important driving force for the development of maritime English education. Traditional teaching methods and tools have gradually failed to meet the requirements of modern society for maritime English proficiency. Therefore, empowering maritime English education with digital technology can not only improve teaching efficiency but also realize the innovation of teaching content and methods. By introducing advanced digital teaching platforms, virtual simulation teaching resources, and other auxiliary teaching systems, the teaching resources of maritime English can be greatly enriched, and the teaching quality and learners' experience can be improved. In addition, digitalization can also provide more accurate teaching feedback for teachers and help students better master maritime English skills. Therefore, digital transformation is an inevitable choice for the development of maritime English education, as it can not only optimize the allocation of teaching resources but also cultivate high-quality talents who are more adaptable to the needs of the future maritime industry. However, it is a pity that relevant research has not kept up with this pace, seriously limiting the possibility of in-depth development of maritime English teaching activities, resulting in many teaching behaviors becoming superficial and mechanical repetitions, lacking effective summary and reflection. This paper focuses on the core proposition of "the practical application of maritime English teaching transformation" to explore. Digital empowerment is an important issue that combines theoretical research and practical operation, constituting the basis and key elements for the successful transformation of maritime English teaching.

2. Current Situation Analysis of Digital Empowerment in Maritime English

2.1. Application Status of Digital Empowerment in Maritime English

In the current maritime English education, the application of digital technology has become increasingly common. With the rapid development of Internet technology, online and offline blended teaching has become an effective teaching method. Through various online teaching platforms, students can not only access the latest learning resources at any time but also interact with students of the same major nationwide. In addition, the rise of mobile learning has greatly enhanced the flexibility of learning. Students can access learning materials anytime and anywhere through smartphones or tablets, making effective use of fragmented time. The application of virtual reality technology has also brought revolutionary changes to maritime English teaching. By

simulating a real maritime environment, students can conduct operational training in a safe and risk-free environment, and this immersive learning experience greatly improves learning efficiency and interest. In general, digital technology is continuously deepening its application in maritime English teaching, injecting new vitality into traditional teaching methods.

2.2. Unique Characteristics of Digital Empowerment in Maritime English Courses

As a branch of professional English, the uniqueness of maritime English is mainly reflected in vocabulary, context, and cultural background. In a digital environment, these unique features can be effectively presented and processed. First, the digital environment can provide rich and diverse multimedia presentation forms for vocabulary, such as audio and video, which can enable learners to understand the meaning of vocabulary more deeply in combination with industry characteristics. Secondly, through virtual reality technology, it can simulate a real maritime environment, helping learners better experience and understand the context, and imperceptibly giving impetus to course learning. Finally, through Internet resources, learners can better access and understand Western marine culture and enhance cross-cultural communication skills.

3. Exploration of Practical Paths for Digital Empowerment in Maritime English

Driven by the digital wave, teachers in colleges and universities around the country have launched digital teaching practices one after another, and teaching methods and teaching effects have undergone profound changes. In the practical field of maritime English teaching, digital technology can play a key role in many dimensions such as teaching content, learning resources, teaching models, and teaching evaluation, thereby effectively promoting the smooth transformation of teaching activities and achieving excellent teaching results.

3.1. Digitization of Teaching Content

Implement digital processing of teaching materials such as textbooks, courseware, and test questions for maritime English to provide students with more convenient and efficient learning resources. Teachers carefully create digital PPT or videos, covering the core points of each week's course, extracurricular reading materials, listening materials, oral practice, and other content, which is conducive to students' centralized review and sorting. Teachers can upload such course materials to relevant platforms to facilitate students' browsing and learning at any time.(see figure 1) At the same time, high-quality resources closely related to teaching can also be retrieved on the Internet for students to use in the learning process. For example, the English listening and reading materials provided in the professional maritime teaching resource library, English news videos related to maritime affairs, and the simulation question bank for maritime English professional exams.

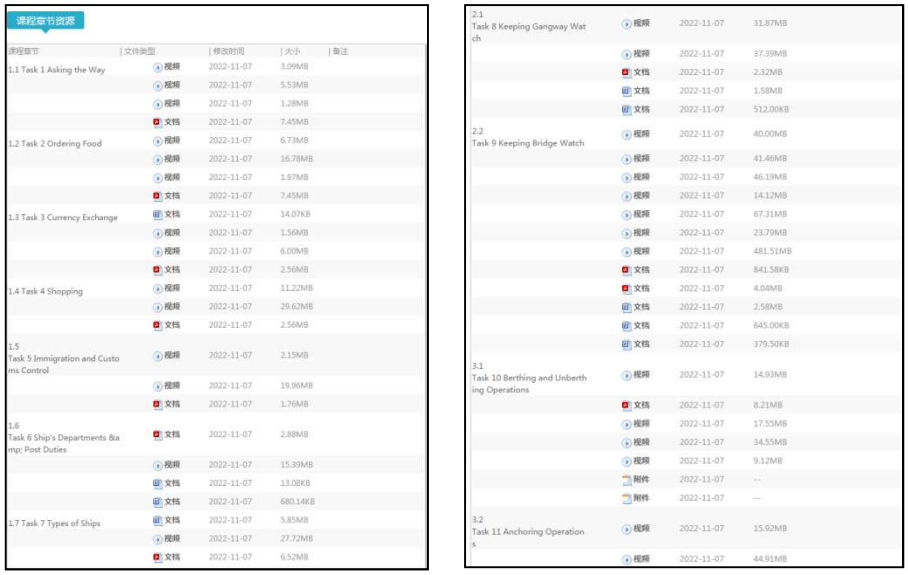

Figure 1. Maritime English Course Network Teaching Resource Library

In terms of vocabulary teaching, the pronunciation, spelling, and usage exercises of maritime English words can be organically integrated with gamification and interesting elements to make word learning more interesting (see figure 2). By teaching maritime English words through animation and gamification, the instructor significantly enhanced students' interest in learning, effectively promoted learning memory and application. Teachers can use various language learning software or applications to create voice- or image-based word teaching activities or interactive classrooms, and use voice recognition technology to assist students in self-assessment. In this way, students can not only enhance their voice and listening skills in a real, non-natural environment but also meet their practice needs of using maritime English in real-life scenarios. In addition, some online learning websites for maritime English also provide a rich variety of interesting English learning videos and after-class exercises, which can greatly help students improve their vocabulary and language skills in a relaxed, enjoyable, efficient, and diverse environment, while playing a supplementary and

consolidating role in maritime English teaching, keeping students in a learning state.

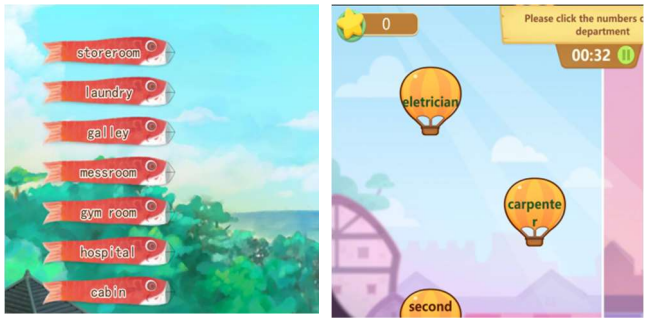

Figure 2. Maritime English Digital Game Teaching Example

3.2. Sharing of Learning Resources

Build a learning resource sharing platform through forms such as maritime teaching resource libraries, MOOCs, and online courses to promote wider sharing and utilization of learning resources. Taking the "Maritime English (Basic)" course of a certain maritime college as an example(see figure 3), the teaching videos are broken down into pieces, and the course links mainly include: 1) Pre-class exploration Teachers search and collect knowledge, videos, or cases related to the teaching content, design topic discussions through teaching platforms such as Chaoxing, and let students conduct pre-class exploration in the form of pre-class tests to prepare for subsequent learning. 2)Course lead-in Teachers lead students to familiarize themselves with the theme of the text by telling maritime stories, industry role models, topic exchanges, brainstorming, and other methods. Teachers lead students to learn the course content in a diversified manner, covering vocabulary expansion, syntactic analysis, English-Chinese translation, etc. 3) Group learning Teachers compare learning words to maritime preparations, breaking them down into three links: material preparation (accumulating words) - voyage preparation (analyzing words) - setting sail (applying words), interspersed with root words, affixes, small tests, example sentences, maritime beautiful pictures, etc. to guide the members of the class group to conduct cooperative learning. 4) Task implementation This link focuses on using the previous learning reserves to complete the corresponding learning tasks in this part. 5) Task evaluation This link focuses on inserting the learning of the maritime cultural background and the introduction of ideological and political elements into the task evaluation. 6) Task review In the last link, students freely exchange learning experiences in English on the learning platform forum or class group, and teachers can make evaluations accordingly. This teaching method makes the originally static and closed network teaching resources continuously tend to be dynamic and open in the interaction between learners' virtual and real.

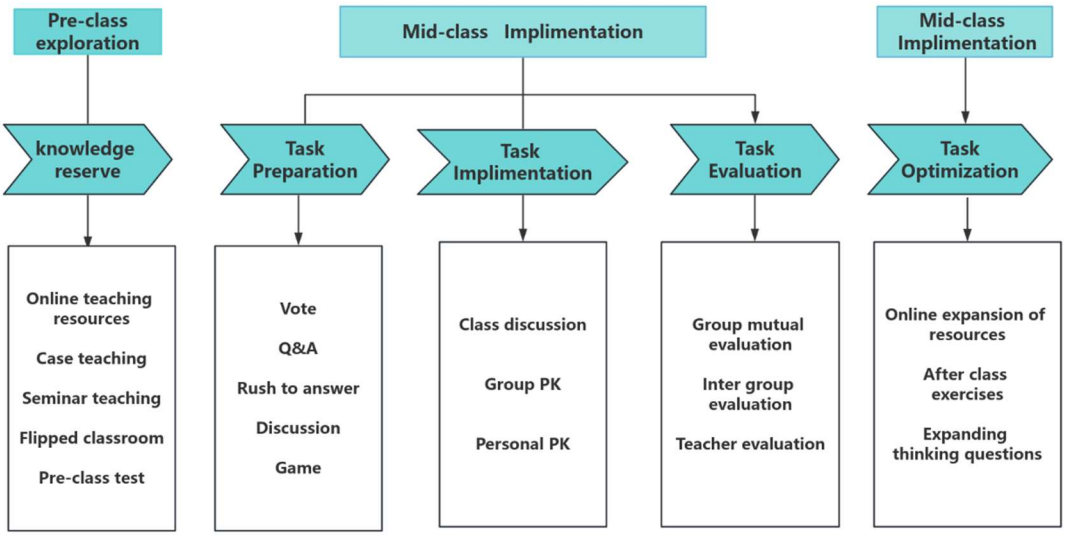

Figure 3. Typical Teaching Process Design for Online and Offline Integration

3.3. Diversification of Teaching Methods

Adopt multiple methods such as online teaching, interactive teaching, and personalized education to enrich the models and forms of maritime English teaching and encourage students to participate more actively in teaching. Typical examples include the Chaoxing app, Tencent Meeting, and QQ Group Classroom. The Chaoxing platform is a powerful and easy-to-use classroom tutoring teaching platform that can carry out both online and offline teaching scenarios, allowing teachers and students to interact and learn more effectively. At the same time, this software also supports the insertion of various forms of classroom activities, can quickly achieve real-time question-and-answer interaction, can more perfectly allow students to watch detailed learning content steps, and review the teaching content at any time, facilitating students to review and master in time. In addition, it also has a powerful data monitoring function internally, which can monitor students' full-cycle (before class - in class - after class) classroom performance, homework completion, and other personalized data in real-time, so as to make reasonable teaching arrangements for students. At present, this teaching mode has been adopted for all maritime English teaching for students enrolled after 2021. This mode not only helps teachers to grasp students' classroom participation in real-time, take attendance in real-time, but also share some learning experiences and resources, and understand students' real-time learning effects.

3.4. Refinement of Teaching Evaluation

Digital empowerment can provide more powerful means and broad possibilities for the refinement of teaching evaluation. Online teaching platforms can collect students'

learning data and feedback, such as students' learning duration, progress, answer status, video viewing, and so on. These data can provide more guidance and reference for teachers to understand students' learning progress and learning status more accurately. Data visualization tools can present students' grades, learning data, and feedback in the form of charts and reports to help teachers grasp students' learning status and teaching effects more intuitively. For example, teachers can analyze students' answer sheets and wrong questions through visualization tools and guide students to improve accordingly. In addition, artificial intelligence technology can assist teachers in classroom observation and analysis. For example, using artificial intelligence technology to automatically recognize and analyze teachers' classroom videos can obtain information such as classroom participation, students' understanding, teaching effects, and the advantages and disadvantages of teachers' lectures. This method can provide teachers with more objective and comprehensive classroom analysis results, which is helpful for timely adjustment and optimization of the teaching process. Some digital matching systems can also greatly improve the quality of maritime English teaching, conduct pixel-level evaluations at different levels such as listening, speaking, reading, and writing, accurately grasp students' personalized learning status, adjust course content and teaching methods by giving students feedback, and greatly improve the personalization and pertinence of maritime English teaching.

4. Profound Changes in Maritime English Teaching under Digital Empowerment

Digital technology plays an increasingly important role in the transformation of maritime English teaching. From the perspective of practical results, the transformation not only requires us to break away from the traditional teaching model but also requires fundamental changes and adjustments in teaching methods, teaching content, and teaching relationships. At the same time, the digital transformation requires the construction of the school management system and the teaching department to work together, and requires the formulation of the talent training program of the teaching department to be fully combined with the actual situation of digital teaching. The key to the transformation of maritime English teaching and even the entire classroom teaching reform in colleges and universities is to fully embody the educational concept of "learning-centered", combine large-scale teaching and personalized teaching. At the same time, actively promote the transformation from traditional classrooms to blended teaching, and strive to establish an equal, interactive, and cooperative teacher-student relationship. In terms of teaching evaluation methods, by formulating evaluation indicators for teachers' classroom teaching effects, assessment rules for students' academic performance, and gradually increasing the proportion of usual learning processes in performance evaluation, further standardize the assessment of the usual learning process, and use the learning platform to build intelligent diagnostic evaluation, intelligent feedback evaluation, and other aspects of learning and management services to monitor and evaluate students' online learning processes, forming big data on each student's learning behavior, and providing decision-making basis for teachers' precise teaching. However, information technology is only a means, an important guarantee for the realization of the educational concept of "learning-centered" and the comprehensive and healthy development of students. The responsibility of teachers as the main body of educational behavior will never change, nor can it be replaced by technical means [3] [4]. The efforts of the majority of English teachers in their own knowledge reserves, teaching skills, and literacy are always on the way. Only in this way can we cultivate maritime English talents who adapt to the needs of future society in the grand context of the digital age.

Acknowledgments

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