

Application of Hypertext in the Teaching of English Grammar in Secondary Schools

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Abstract. Against the social background of rapid developments in information technology, hypertext--with its non-linear structure and feature of network interconnection--offers flexible and interactive learning pathways for secondary school English grammar teaching. This approach helps to overcome the mechanical and rigid patterns often found in traditional grammar teaching. This study draws on interviews with three teachers and three students to investigate the pedagogical benefit of hypertext and find ways to further improve it, to stimulate its usage among teachers in grammar classes. The investigations reported in this study indicate that hypertext can deepen comprehension of students' grammar, engagement in the class, and personalized learning. However, hypertext use in the classroom is facing two main obstacles: the low level of teachers' technological skills and the lack of appropriate educational materials. To the end, the current study suggests reinforcing the training of teachers and resources supply as a means to support the transition from traditional to modern grammar teaching. This article shows the hypertext possibility for learning and explains the difficulties connected with its use, giving the language teaching field an empirical base for using educational technology.

1 Introduction

As a new type of textual system, hypertext organizes multimedia components (image, audio, and video) in a non-linear way. By clicking on the embedded links, users will be redirected from the traditional linear texts to the content of their preferences. As electronic information technology progresses and new communication methods become widespread, more and more scholars have started to notice the benefits of using hypertext-based tools in foreign language courses. Such instruments can be easily adapted to provide the audiovisual dissemination of a message and refer to authentic contexts, which in turn will contribute to learners' progress in English [1]. Hypertext-assisted instruction can be a target for the limitations of current teaching methods, which are mainly dependent on memorization and repetitive exercises of the language [2].

Although grammar is widely regarded as both a key point and a challenging part of secondary school English teaching, traditional teaching methods have failed to support teachers in delivering grammatical knowledge systematically, thereby undermining overall instructional effectiveness [3]. At the same time, despite the considerable potential of

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hypertext platforms in grammar teaching, many of their key functions remain underdeveloped and underutilized, making it difficult for their advantages to be fully realized in English grammar instruction.

Nonetheless, the study of the use of hypertext for teaching English grammar in secondary education is deficient. In this context, the current study aims to explore the efficiency of hypertext-based teaching of grammar and to discover the obstacles that make it difficult to implement this approach in the classroom. This article investigates the effective use of hypertext technology in grammar teaching and tries to solve the outlined problems; therefore, it helps to improve students' grammatical skills and generally enhances the level of English language teaching at the secondary school. The investigation will most probably aid in both theoretical and practical proofs for the more advanced application of information technology in English grammar instruction.

2 Method & result

2.1 Research process

2.1.1 Research methods

To explore authentic experiences of both teachers and students regarding hypertext-assisted grammar instruction, the investigation utilized interview analysis as the major research method. A semi-structured interview format was adopted in this study to avoid restricting the breadth and depth of questions asked and the answers received. This methodology was preferred to guarantee the authenticity and variety of data collected through the interview process.

2.1.2 Research participants

This research took a qualitative approach, which obtained data through semi-structured interviews. In choosing the participants of this research, the selection criteria mainly refer to the following two dimensions: the teaching experience of teacher participants and student participants' educational stages. The interview incorporated three teachers and three students to guarantee that the sample would be representative and diverse.

All teacher participants in this research were from a regular senior secondary school in Yunnan Province, which has a mid-level academic standing within the province, making it a representative case. The teachers were coded as Teacher W, Teacher M, and Teacher Z based on the initials of their surnames. Their years of teaching experience were 5, 29, and 7 years, respectively, representing novice, experienced, and veteran teachers. This range not only ensured the teachers participants have sufficient teaching experience to identify pedagogical problems, but also offered a multi-perspective understanding of hypertext-assisted teaching from teachers at different stages of professional development.

As for the student participants, three learners from regular secondary schools in Yunnan Province were selected, and coded as Student Y, Student L, and Student W, again based on surname initials. Student Y and Student L were enrolled in local junior secondary schools, while Student W attended a general senior secondary school. All of the selected schools had average academic levels in their region. Meanwhile, different grades of students were included in the study design to investigate how students with varying cognitive levels of development adapt to hypertext associated with grammar instruction, thus giving a developmental view of the topic in question.

2.1.3 Interview implementation

The interviews were conducted via online video conferencing and were transcribed and documented. On the teacher side, the interviews focused on three main aspects: the practical value of hypertext, its advantages in use, and the challenges encountered during implementation. On the student side, the interviews explored three key areas: the perceived learning benefits of hypertext, obstacles to learning, and actual usage experiences.

2.2 Interview findings

2.2.1 Application in practice

Analysis of the interview data shows that hypertext technology has been applied to some extent in current English grammar instruction.

Regarding the teachers' side, each of the participants (Teacher W, Teacher M, and Teacher Z) applied hypertext in their lesson plans and design. These include, for example, integrating hyperlinks in the PowerPoint slides, which help students quickly access grammar explanation videos and online practice, as well as supplementary reading materials.

Both student participants and teacher participants' responses supported this pattern. All three student participants (Students Y, L, and W) stated that they had used hypertext in their grammar classes, most commonly as hyperlinks that link to multimedia materials, such as videos, pictures, or slide shows, used by their teachers.

A synthesis of the six interviews, however, reveals that the current application of hypertext in teaching is limited. Its use is largely confined to basic multimedia support within slide presentations, but it is not integrated into the instructional process. Thus, the findings indicate that hypertext technology has made an entry into grammar teaching practice; however, it has as yet failed to reach its full potential.

2.2.2 Aspects of effectiveness

The interview data indicate that hypertext technology can significantly enhance the effectiveness of English grammar instruction in secondary schools.

From the perspective of teaching practitioners, all three interviewed teachers acknowledged the pedagogical value of hypertext. Teacher W and Teacher M stated that the application of hypertext can effectively increase classroom engagement and make grammar instruction more lively and enjoyable. Teacher Z offered supportive claims that hypertext-based instruction reduces learning anxiety by allowing students to immediately fill in the knowledge gaps that may hinder the learning process.

From the learners' perspective, Students Y and W mentioned that hypertext, in addition to offering unique features that are not available in traditional grammar instruction, made the process more interesting and allowed for a deeper understanding of grammar. One of the hypertext advantages is that it can integrate varying learning tools and boost the effectiveness of learning; consequently, Student L was pleased with the results.

Bringing together the responses of the six participants, the indicators of the efficiency of hypertext in grammar teaching can be outlined as three areas: stimulating classrooms and learning processes, increasing flexibility of the learning process, and enhancing efficiency and comprehension of the material at the same time.

These findings are consistent with existing learning theories. First, they confirm constructivist learning theory and multimedia cognitive theory, which point out the role of multimodal resources in knowledge acquisition and emphasize the fact that learners construct knowledge actively [4]. Secondly, the study substantiates the assertion of the incorporation

of multimedia technology into instructions makes the teaching-learning process more interesting and generate more student engagement; these claims were also supported by the results of the studies of Djurayeva et al. and Iqbal et al., who discussed a positive contribution of multimedia in classroom interactivity and learner motivation [2,3]. Furthermore, this study shows that the hypertext presents grammar content in a flexible and lively way, which is free from the tediousness of traditional text and drill-based instruction [5]. Hypertext, on the other hand, is an effective tool in offering instant access to additional information that can be utilized in reducing learner anxiety and increasing their confidence in learning. This outcome also aligns with what Liu espoused [6].

2.2.3 Challenges and practical needs

The interview data suggest that, although it has the potential of being an instructive tool, the use of hypertext technology for teaching English grammar in secondary school still faces several challenges.

From the perspective of instructional practice, teachers stated that they encountered the following main barriers: Teacher W and Teacher M mentioned the absence of a systematic hypertext resource platform at present, which results in higher course design and lesson preparation difficulty. What's more, the nonexistence of specific training programs introduces operational challenges for teachers with minimal technical skills. As for Teacher Z, he emphasized the issue of cognitive load, and, according to his opinion, the non-linear nature of hypertext may lead to information fragmentation, which may impose additional cognitive strain on students who have weaker learning abilities.

Based on the interviews that took place with the learners, other limitations that the learners may face are identified as follows. Students Y and L mentioned that hypertext is used in its simplest form, mainly comprising just hyperlinks, which severely limits its full pedagogical potential. Whereas Student W held the opinion that hypertext presentation of information can interfere with a learner's continuous train of thought, therefore reducing learning efficiency.

The overall barriers in hypertext-assisted instruction can be summarized in two categories: firstly, instructional design aspects and secondly, technical implementation aspects. At the level of technical implementation, the absence of teacher training and the lack of instructional resources are the critical ones—these findings are similar to the results of the Iqbal et al. study, which emphasized that inadequate technical preparation among teachers hampers effective technology integration [3]. From a cognitive perspective, this study confirms Karimi's research, where it was found that digital reading increases cognitive load due to fragmentary information being presented, and consequently, the cognitive load is increased [7]. Likewise, hypertext is meaningful for the instruction of grammar, but it can still be a burden for the learners in terms of cognitive load due to its fragmented information.

3 Discussion

3.1 Pedagogical innovation through hypertext

3.1.1 Hypertext and the development of digital literacy

In the present educational framework in the age of artificial intelligence, English grammar teaching should focus on the training of digital literacy as a fundamental part of the curriculum rather than traditional grammar settings. According to Faria, a critical aspect of contemporary educational policy is the infusion of digital literacy skills in the learning

outcomes, which better prepare students for the demands of a technology-driven society [8]. Particularly in secondary grammar teaching in English, educators should not only address the traditional transmission of knowledge about language but also incorporate the teaching of digital literacy into the learning process. This fosters the development of the whole range of a learner's skills and makes them more competitive in the digital age.

However, existing studies suggest that though hypertext can be a powerful tool for pedagogic change, teachers often consider it to be simply a means for supplementing teaching materials. Such a reductive application limits the potential of hypertext, undermining its inherent flexibility and non-linear structure.

3.1.2 Hypertext and personalized learning

Due to its non-linear and interlinked structure, hypertext offers users an opportunity to access and support multidimensional information, which makes it useful for constructing individualized learning environments. When connected to the Internet, hypertext can become a smart, adaptive learning engine. Several studies indicate that a hypertext-based model of grammar instruction can lead to better, situationally specific grammar supplementation, the ability to customize individual learning experiences, and the possibility of adding collaborative, interactive features to learning environments. Besides making resources available, it also helps students acquire skills related to self-driven inquiry and digital literacy [9].

Nevertheless, applying this type of instruction model successfully calls for applying the ideas of personalized instructional design. Teachers need to take the students' cognitive levels into consideration and make adjustments dynamically to the difficulty of the hypertext-based materials. This means that an appropriate personalization-cognitive load ratio, with the risk of overwhelming the learner caused by the information overload, is maintained. Hypertext, if designed correctly, can be a powerful tool in instructional design, but at the same time, it can have some drawbacks.

3.1.3 Contextual learning supported by hypertext

From a constructivist learning theoretical perspective, hypertext technology is of specific significance because it helps craft situations where grammar, the topic in this case, is contextualized. Studies have shown that current models of learning grammar instruction frequently have serious weaknesses in terms of contextualized learning. While most teachers agree with the necessity of teaching grammar in certain contexts, traditional approaches generally induce the design of quite homogeneous situations with a low degree of interactivity, which hampers classroom activity [2].

Hypertext technology provides a path toward an effective solution to this pedagogical problem. Hypertext, being deeply embedded in the web, breaks the boundaries of traditional classrooms regarding time and space and allows the creation of realistic and lively scenarios of grammar use employing various types of resources. This kind of technology-based context creation has proven highly effective in helping students transfer and communicate grammatical knowledge in real life.

3.2 Difficulties in applying hypertext in grammar instruction

Based on the interview analysis, technical issues are identified as the predominant barriers to the effective integration of hypertext in grammar instruction.

First, some teachers lack sufficient proficiency in applying hypertext technologies. Despite being aware of the potential benefits of hypertext-based instructional models, their limited technical skills constrain the actual implementation of such approaches.

Second, there is a notable absence of well-developed hypertext resource repositories. Teachers often spend excessive time searching for, reviewing, and selecting appropriate hypertext materials, which significantly hinders the effective use of hypertext in classroom practice.

4 Suggestions

Based on the current research results, this study proposes that the optimization path of hypertext-assisted English grammar teaching in secondary schools should be carried out from four dimensions.

Firstly, at the level of teacher cognition, it is necessary to change teachers' teaching concepts. Teachers should not only recognize the basic function of hypertext as a tool for grammar teaching, but also deeply understand its characteristics, such as nonlinearity and flexibility, and creatively transfer these features into teaching practice. Teachers should break through the limitations of traditional grammar teaching that is centered on textbooks by innovatively integrating hypertext resources and organically combining grammar knowledge instruction with the cultivation of digital literacy. At the same time, teachers should organically integrate the cultivation of digital literacy into the process of grammar teaching, to achieve the coordinated development of language competence and information literacy [8].

Secondly, at the level of teachers' technical ability, emphasis should be placed on improving the application level of hypertext technology, including the ability to develop course resources and instructional design. In the process of resource construction, the principle of student-centeredness should be upheld, and personalized learning support should be provided based on students' cognitive development levels and individual differences. Meanwhile, teachers should make full use of the media integration function of hypertext to design grammar models based on specific contexts, and use real and interactive grammar scenarios to improve the quality of grammar teaching. When designing contexts, teachers need to flexibly adjust the complexity of the context according to teaching objectives and student characteristics, to ensure that instructional design can both leverage the technical advantages of hypertext and effectively improve the effectiveness of grammar teaching.

Thirdly, at the level of student development, emphasis should be placed on cultivating their thinking ability and learning ability. By guiding students to independently construct hypertext learning resources, they can be led to actively identify and fill in knowledge gaps, thereby promoting comprehensive improvement of cognitive levels [10].

Finally, at the level of technical support, relevant educational institutions should establish a sound training system and develop targeted hypertext teaching courses to provide professional development support for teachers who lack technological application ability, ensuring that they can adapt to the development needs of educational informatization.

5 Conclusion

This study focuses on the theme of "The Application of Hypertext in Secondary School English Grammar Teaching", systematically examining its specific use, significant advantages, and practical challenges from the perspective of teachers. Through in-depth interviews, the research found that hypertext, as a nonlinear and multimodal innovative teaching tool, can effectively enhance classroom interaction and vividness, while also helping to reduce students' learning anxiety and cognitive load. However, the study also revealed that

the current promotion and application of hypertext still face three major obstacles: insufficient teacher technical competence, the absence of a professional training system, and significant differences in students' cognitive abilities.

The results indicate that by establishing a systematic teacher training mechanism, optimizing strategies for integrating teaching resources, and effectively improving teachers' ability to apply hypertext in teaching while transforming their pedagogical concepts, hypertext has the potential to become a key breakthrough driving innovation in secondary school English grammar instruction. The value of this study lies not only in providing practical teaching guidance for frontline teachers but also in offering important theoretical foundations for educational administrators in policy-making, curriculum designers in developing teaching resources, and teacher training institutions in setting up training programs. Against the backdrop of educational informatization, actively exploring and reasonably applying innovative teaching technologies such as hypertext is not only an inevitable choice to meet the demands of the new era but also a crucial pathway to achieving a leap in teaching quality.

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