Ecological Construction of Ideology Cultivation in EAP Curriculum under the Ubiquitous Learning Environment

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Abstract: As the most practical course in the university English curriculum, the English for Academic Purposes (EAP) course cannot neglect its scientific and humanistic nature in the context of curriculum ideology construction. Integrating curriculum ideology with EAP teaching, constructing an ecological EAP learning environment can effectively achieve the unity of practicality and humanism, reflect its scientific value, and achieve comprehensive education goals. This paper analyzes the current situation of ideology cultivation in EAP curriculum and its relationship with constructing an ecological curriculum environment. It also explores how to effectively utilize the ubiquitous learning environment to construct an ecological curriculum environment for EAP curriculum.

Keywords: Ecological construction; Ideology cultivation; EAP curriculum; Ubiquitous learning environment

1. Introduction

With the widespread application of information technology in the field of education, the various information technologies provided by the era of big data have revolutionized traditional learning methods, offering learners convenient and efficient access to data resources services anytime and anywhere [1,2]. Consequently, ubiquitous learning environments (ULE) have become a reality, empowering students to actively engage in learning [3] at their own pace and location while catering to their personalized educational needs. This concept aligns seamlessly with lifelong learning principles and has emerged as a highly advantageous pedagogical environment for college English education, which also serves as an effective technological tool for all-round cultivation of students [4].

As a language course closely related to students' professional learning and future career, the role of the English for Academic Purposes (EAP) course in cultivating students' social responsibility, innovative spirit, and practical ability [5] cannot be disregarded. The emergence and development of ULE has brought new challenges

and opportunities for traditional EAP teaching. In such an environment, learners can acquire information, communicate, and collaborate with greater flexibility [6], thereby undeniably enhancing the convenience and efficacy of their learning endeavors. However, this also necessitates corresponding innovations in teaching content and methodologies within EAP courses to align with this emerging mode of education.

There are numerous challenges and issues encountered in the implementation of EAP curriculum ideological education in practice. For instance, it is essential to rationally design the curriculum content within ULE [6], ensuring that it not only enhances students' academic English proficiency but also encompasses the fundamental aspects of ideological education. Additionally, exploring how advanced information technology can be effectively utilized to enhance the appeal and efficacy of ideological education [7] poses another challenge. Furthermore, devising appropriate methods for evaluating and providing feedback [8] on students' learning outcomes during curriculum-based ideological education necessitates systematic research and practical exploration.

A well-functioning teaching ecosystem is crucial for the development of ideological education in the curriculum, providing an enabling environment and serving as an effective platform to assess its efficacy. Establishing a robust curriculum ecosystem for EAP courses not only enhances students' domain-specific English knowledge but also nurtures their awareness of academic integrity, instills a correct understanding of the value of English learning for professional growth, and cultivates comprehensive academic qualities. Furthermore, it significantly contributes to fostering students' international academic communication abilities while promoting their scientific literacy.

2. Research objectives

The objective of this study is to construct an ecological model for ideology education in EAP courses within the u-learning environment, with the aim of enhancing course content and optimizing teaching effectiveness, thereby facilitating comprehensive student development encompassing academic language proficiency and scholarly literacy. There are three aspects concerned with the construction of the model.

Firstly, this study aims to elucidate the characteristics and challenges of EAP courses in the ubiquitous learning environment. With the rapid advancement of educational technology, the traditional teaching model has gradually become inadequate in meeting the learning needs of contemporary students. The ubiquitous learning environment offers new teaching opportunities while also presenting novel challenges for both educators and learners. Therefore, this research will investigate the content and instructional approaches specific to EAP courses within this emerging context, as well as address certain issues through a questionnaire survey conducted among students enrolled in such courses. This endeavor ensures that course design fully capitalizes on the advantages offered by ubiquitous learning and effectively caters to students' educational needs.

Secondly, this study aims to explore the effective integration of ideological education elements into EAP courses, which is considered a significant innovation in contemporary higher education [9]. The existing ideological practices will be analyzed, and an endeavor will be made to identify strategies for effectively combining them with the content and teaching methods of EAP courses, ultimately forming a feasible teaching model.

Thirdly, an ecological ideology model of EAP course is formulated. Taking into account the characteristics of a ubiquitous learning environment, such as the potential for ubiquitous information acquisition and communication, this study aims to develop a comprehensive ecological model that encompasses not only

course content design and teaching methods but also student interaction, technology utilization, evaluation mechanisms, and other aspects to ensure the effective implementation of curriculum ideological cultivation.

By accomplishing these research objectives, this study not only enhances the quality of EAP course instruction but also offers theoretical and methodological references for ideological education practices in higher education college English courses, thereby fostering an overall educational advancement and comprehensive enhancement of students' foreign language capabilities.

3. Characteristics and challenges of EAP curriculum under the ULE

3.1. Characteristics of EAP curriculum under the ULE

The ULE refers to an educational setting that leverages modern information technology, particularly mobile Internet and smart devices [4], to provide learners with learning opportunities anytime and anywhere. This environment is characterized by ubiquitous access, personalized learning experiences, and a high degree of interactivity and collaboration [10]. In such an environment, educational activities transcend traditional constraints of time and space, offering greater flexibility [11–13] and responsiveness to students' individual needs.

The EAP curriculum, also referred to as academic English courses, offers linguistic support to university students pursuing professional programs taught exclusively in English [14,15]. These courses aim to facilitate the acquisition of academic language proficiency and enhance students' abilities in professional learning and research endeavors [14]. In recent years, with the rapid advancement of technology, the development of strong academic English skills has become imperative to meet the demands of international scholarly exchanges [16]. Additionally, cultivating students' commitment to academic integrity, fostering a correct social and academic consciousness, and establishing an honest and trustworthy academic mindset [5] are indispensable responsibilities that EAP courses undertake in nurturing students. Overall, EAP courses equip students with language competencies required for engaging in academic activities conducted in English, enabling them to navigate the increasingly prevalent environment of internationalized higher education and fully English-medium instruction.

With the widespread use of information technologies, the ULE tends to develop a dynamic and engaging EAP curriculum that effectively utilizes technology and fosters learner-centered approaches. Within the ULE, electronic devices such as computers, phones, and tablets are utilized to access a wide range of online learning resources, including learning platforms, educational apps, information retrieval engines, digital dictionaries, e-libraries, etc. Consequently, both teachers and learners can employ diverse teaching and learning approaches such as Mobile and Flexible Learning, Personalized Learning, Blended Learning Approach, and Collaborative Learning. This enables students to easily access authentic learning materials embedded in real-world contexts alongside interactive multimedia resources. Moreover, systematic self-assessment and reflection by students is facilitated while instant feedback from teachers or learning platforms ensures continuous assessment. As a result of these advancements in instructional practices within the ULE environment tends towards becoming a Data-driven Instruction mode.

Therefore, in the ubiquitous learning environment, the teaching mode and content of EAP courses need to be adjusted and optimized accordingly to fully harness the potential of this environment.

First of all, ubiquitous access means that students can access learning resources anytime and anywhere, which requires that teaching content must be online and suitable for autonomous learning. Therefore, the digitalization and modularization of course materials should be considered when designing EAP courses, so that students can choose learning content according to their own learning progress and interests.

Secondly, the high degree of interactivity and cooperation requires that more collaborative learning and interactive discussions be included in the design of EAP courses. Through online learning platforms, virtual group assignments, and real-time interactive teaching, students can not only strengthen their communication and cooperation with classmates but also interact with teachers and scholars, which helps to enhance their critical thinking skills and cross-cultural communication skills.

Furthermore, a personalized learning experience is a pivotal characteristic of ULE. To meet the diverse learning needs of individual students, EAP courses should offer tailored learning paths and support. Leveraging data analysis and technology to monitor students' learning behavior, analyze their patterns, provide feedback on their progress, and adapt teaching strategies and content accordingly can significantly enhance the efficiency and effectiveness of the learning process.

In a word, the ULE offers novel pedagogical opportunities for EAP courses, and by fully harnessing the distinctive features of this environment, the quality and efficacy of EAP instruction can be significantly augmented. Nevertheless, this also imposes elevated demands on educators who must continually acquire and master new educational technologies and instructional methodologies to adapt to this rapidly evolving teaching environment as well as confront fresh challenges posed to learners in effectively leveraging these innovative technologies and resources.

3.2. Challenges of EAP curriculum under the ULE

Based on the characteristics of the EAP curriculum under the ULE, a questionnaire survey was conducted among 155 sophomore students to investigate their utilization of u-learning resources in EAP courses. The results revealed that over 50% of respondents rely on Internet sources for accessing course content information. Moreover, more than 80% of participants prefer utilizing AI or information technology to fulfill their assignment requirements, with nearly 70% directly relying on technological solutions for answers. The primary reasons cited were lack of confidence in language abilities (61.45%), limited study time (61.45%), and trust in technology (31.33%). Notably, databases specifically related to academic studies were not popular among respondents; however, they favored online tools such as search engines and electronic dictionaries for resource retrieval purposes. Consequently, this survey highlights several significant issues.

Self-discipline and motivation: U-learning necessitates students to exhibit self-discipline and intrinsic motivation due to the increased autonomy and flexibility in managing their learning process. Some students may encounter challenges related to time management, procrastination, or lack of motivation, which can potentially result in a diminished enthusiasm for learning and even unethical practices such as plagiarism.

Access to and application of resources: The issue can be bifurcated into two diametrically opposed facets: restricted access to resources and information overload. Not all students may possess equitable access to technology, dependable internet connections, or requisite digital devices. This disparity can engender inequalities and curtail students' capacity for comprehensive engagement in the educational process. Conversely, certain students may have unfettered access to vast amounts of information and resources online, thereby presenting them with the challenge of discerning appropriate and credible sources.

Digital literacy and skills gap: The successful implementation of a u-learning environment necessitates students and teachers to possess proficient digital literacy skills, particularly in the context of EAP courses, where students require the essential competencies to effectively utilize digital academic tools and platforms. However, it is worth noting that some individuals may lack the necessary skills and confidence to navigate and exploit digital tools and platforms, thereby resulting in a significant digital skills gap.

Assessment and academic integrity: The advent of learning platforms has brought convenience in assessment, but it has also introduced the potential risks of cheating or unauthorized assistance in the u-learning environment. Effective measures to maintain academic integrity become crucial. Ensuring academic integrity and fair assessment in the u-learning environment can be challenging. With the increased use of online assessments, there is a higher risk of cheating or unauthorized assistance. Implementing effective measures to maintain academic integrity becomes crucial.

Addressing these challenges necessitates a comprehensive approach encompassing continuous technical assistance, digital literacy training, individualized student support, and pedagogical adaptation to foster an inclusive and efficacious ULE.

4. The ideological education in EAP courses

EAP courses serve as a transitional program bridging basic English proficiency to bilingual or fully English-medium instruction, with the primary objective of fostering students' academic communication abilities for professional learning in English [17]. The curriculum not only encompasses comprehensive language skills training but also incorporates the development of language skills applicable to professional and academic domains. Based on the teaching contents, ideology cultivation elements of the EAP course should cover academic norms, including academic integrity consciousness and correct and academic ethics and behavior norms, academic competence, including innovative thinking ability and critical thinking ability, and academic perspectives, including a correct outlook on scientific values and a global perspective.

Therefore, as the most practical course within the college English curriculum system, emphasizing its humanistic and scientific value while implementing effective ideological education necessitates addressing the following issues:

(1) Incorporating ideological goals into the objectives of the EAP course. In comparison to general English courses, EAP courses are more pragmatic and closely aligned with learners' professional growth, featuring specialized content. Embracing a comprehensive approach to ideological education, EAP courses should not solely focus on language training for instrumental purposes or improving academic abilities but also encompass scientific principles, humanistic concern, and an international perspective.

(2) Enhancing the teaching content of EAP by incorporating the concept of ideological education. While the academic and popular science aspects of EAP are well-developed, there is a need to further explore and emphasize its ideological elements. Teachers should consciously integrate the concept of ideological education into the teaching materials. Given the unique nature of EAP, teachers can begin by fostering students' correct scientific research concepts and academic ideas, or expanding upon textbook topics to include national achievements in science and technology, as well as cultural development. This approach will help enhance students' national confidence and pride.

(3) Utilizing technology to facilitate immediate feedback in the evaluation process. The EAP course materials encompass complex content, involving multiple interconnected components within the teaching process. In addition to acquiring fundamental academic vocabulary and terminology, it also encompasses the development of academic language skills such as reading, writing, and translation. Regarding the assessment of ideological teaching effectiveness, there is an overemphasis on explicit evaluations while neglecting implicit evaluations, resulting in challenges in establishing effective process evaluations, inadequate feedback provision, and ineffective refutation of evaluation outcomes.

Solving the aforementioned issues can enhance the effectiveness of the EAP course in achieving its objectives of ideological instruction, fostering students' academic prowess, and enhancing their scholarly capabilities, thereby facilitating holistic development.

5. An ecological model of ideology education in EAP courses

From the perspective of eco-linguistics, the ecosystem of English language teaching comprises three essential components: teachers, students, and the instructional ecological environment [18]. Teachers and students, as integral parts of this ecological system, need to establish a cohesive unity with their surrounding environment. This necessitates the establishment of a collaborative learning community for teachers that fosters collaborative teaching practices, research endeavors, and innovative approaches. The construction of an instructional ecological system in language teaching should strive for harmonious coexistence and consistency through competition and symbiosis [19]. The content, design, evaluation, and management aspects of teaching interact with each other while also constraining the participants involved in the teaching process. Therefore, building a harmonious instructional ecological environment must consider all elements encompassed within effective pedagogy. Employing efficient teaching strategies and methods is crucial in addressing issues at hand while fully harnessing students' initiative and enthusiasm throughout the entire educational process.

The Instructional ecological environment encompasses teachers, students, and the management of the teaching process, as **Figure 1** presents. The construction of the ecological model aims to effectively integrate ideological elements into EAP courses.
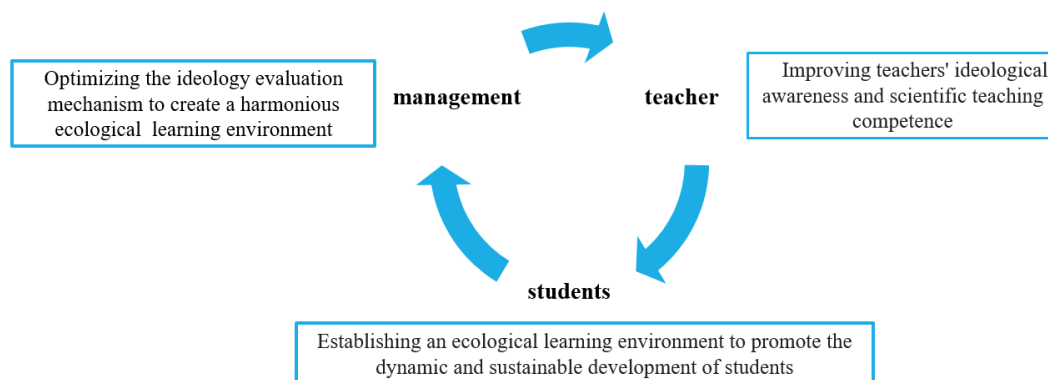

Figure 1. Instructional ecological environment model

Teachers' self-development: Cultivating teachers' ideological awareness and enhancing their scientific teaching competence are crucial for the smooth development of ideological education within the curriculum [20]. Teachers play a pivotal role in the instructional ecosystem, as their grasp of teaching content, implementation of classroom instructional design, and achievement of teaching objectives directly impact their personal teaching competence. It is essential for teachers to continuously enhance their teaching philosophy and competence through continuous learning, while correctly understanding their significant role within the instructional ecosystem. In order to achieve a harmonious development of the instructional ecosystem, teachers should integrate ideological education objectives with other cultivation goals of the curriculum, skillfully incorporate them into the teaching process, rather than pursuing them solely for their own sake.

In the case of EAP courses, given the specialized and academic nature inherent in EAP, teachers need to enhance their scientific literacy significantly. Depending on the subject matter being taught, they should

pay meticulous attention to cutting-edge scientific and technological information within relevant fields, particularly focusing on information and materials pertaining to remarkable contributions made towards national development and progress. These valuable resources should be seamlessly integrated into their daily teaching process or utilized as supplementary course materials, which can be shared with students for engaging discussions and exchanges. This approach will effectively cultivate students' cultural confidence while enhancing their sensitivity towards professional frontiers. Simultaneously, teachers should serve as exemplary role models in fostering academic awareness consciously and nurturing students' scientific consciousness along with a scientific spirit.

Students' dynamic and sustainable development: Utilizing ubiquitous technology to establish an ecological classroom enables instructional participants to optimize the utilization of diverse teaching resources and foster dynamic and sustainable development of students' language knowledge, thereby creating a pedagogical environment that is characterized by diversity, harmony, interactivity, and symbiosis [1]. The primary advantage of a ubiquitous learning environment lies in its immediate accessibility to resources, effectively addressing the need for ideological expansion in EAP course materials. By judiciously harnessing ubiquitous resources, the instructional ecological environment can be fortified, facilitating the full realization of mutual enhancement among various ecological factors.

The curriculum design primarily relies on classroom instruction. Teachers should meticulously analyze and examine the teaching materials, utilizing them as the foundation and framework, while effectively leveraging abundant and high-quality ubiquitous resources to expand the teaching resources based on student needs. With the support of ubiquitous technology, teachers can employ flexible and diverse instructional approaches within the classroom to accomplish this objective. As the most crucial ecological setting for learning, teachers should consider the rationality of classroom instructional design by fostering a harmonious coexistence between collaboration and competition, maintaining a balance between in-class and out-of-class activities, and proficiently utilizing various digital teaching platforms' functionalities. To provide opportunities for students to engage in academic exploration and practice, teachers can implement various pedagogical methods such as task-based instruction, cooperative learning, and flipped classrooms. Additionally, competitive teaching strategies like individual or group presentations can be employed to cultivate students' critical thinking abilities alongside their academic presentation skills.

In terms of course resources, educators can offer students a diverse range of resources or resource platforms to supplement classroom instruction, thereby providing additional avenues for accessing materials. Simultaneously, teachers can foster discussions and critical thinking among students regarding the acquisition of extracurricular resources within the classroom setting, thus expanding their perspectives, broadening their horizons, and enhancing their enthusiasm and sense of accomplishment in learning. Consequently, this approach improves the overall quality of course-based education. Furthermore, instructors can effectively utilize extracurricular activities by employing various online communication tools to share and discuss cutting-edge scientific and technological information that is currently debated. They can also organize student participation in relevant competitions as an extension of classroom learning and ideological cultivation beyond traditional boundaries. This comprehensive approach creates an all-encompassing curriculum ecological system.

Management: Optimizing the ideological evaluation mechanism of the curriculum to foster a harmonious and symbiotic classroom ecological environment. Evaluation within the instructional ecological environment should extend beyond individual student performance assessment [21,22], encompassing various ecological factors throughout the teaching process. The aim of evaluation in the ecological classroom is to promote harmonious

development within the entire curriculum ecosystem, as well as among students, teachers, and the curriculum itself, with a particular emphasis on student growth. Therefore, evaluation elements should be diverse and include assessments of students, teachers, and the overall curriculum. Additionally, evaluation methods should be varied to incorporate both qualitative and quantitative approaches.

Evaluating the effectiveness of ideological education in curricula has always posed challenges due to variations in students' cognitive abilities, comprehension levels, and educational backgrounds that can influence their reception of ideological content. Consequently, subjective assessments often become necessary for evaluating outcomes related to ideological learning.

To establish an ecological EAP ideological education classroom, teachers should implement a comprehensive classroom management and evaluation system to create an optimal educational environment for students' development. Moreover, teachers can adopt a more comprehensive, objective, and scientific approach to evaluate students from various perspectives and angles. The integration of technology into the evaluation process facilitates convenience, allowing teachers to incorporate self-evaluation and peer evaluation sessions through the learning platform after each learning or presentation activity. This not only cultivates students' habit of self-reflection and self-adjustment but also enables them to accept team opinions in order to comprehensively and objectively assess their own learning progress while developing skills such as teamwork and effective communication of ideas. Simultaneously, it is crucial for teachers to regulate the entire evaluation process comprehensively while guiding it towards positive development by providing valuable feedback and guidance. Additionally, data collected from the learning platform can be utilized by teachers to establish student growth records as well as evaluate both students' achievements in ideological learning, along with their own teaching accomplishments through reports on self-evaluation, peer evaluation, statistical achievement reports on learning progress, etc. Furthermore, evaluating teachers' performance alongside courses is an essential aspect of constructing an ecological classroom environment. By engaging in peer evaluations between both teachers themselves as well as with students, educators can effectively assess teaching effectiveness while promptly addressing student feedback; this allows for continuous improvement in classroom design through reflective practices based on teaching experiences, thus ensuring precision in education delivery, ultimately enhancing its quality.

In all, the construction of an ecological ideology model for the EAP curriculum necessitates a systematic approach encompassing teaching content, methods, technology application, and evaluation mechanisms. This model not only effectively integrates curriculum content with ideological education but also leverages the advantages of ubiquitous learning environments to enhance teaching effectiveness and student satisfaction.

6. Conclusion

Ubiquitous learning environments present novel educational opportunities and challenges for EAP courses. The distinctive features of this environment necessitate adjustments in the design and implementation of EAP courses, such as enhancing the accessibility of online resources, offering personalized learning pathways, and devising more interactive learning activities. In the ubiquitous learning environment, given technological advancements and evolving student needs, the integration approach between EAP curriculum and ideological education demands constant refinement. By thoughtfully designing course content and instructional activities, ideological education can be effectively conducted without compromising academic English teaching. Establishing effective evaluation and feedback mechanisms ensures alignment between teaching strategies,

educational objectives, and students' needs.

Teachers are the implementers of ideological education in the classroom. In addition to developing students' academic language skills, EAP course teachers should also assume a crucial role in shaping their academic ideals and beliefs, as well as guiding them towards adopting appropriate values and scientific perspectives. It is essential for teachers to establish clear goals for ideological education and create an inclusive EAP curriculum and teaching environment. Starting from the teaching content, educators should thoroughly explore educational elements, optimize instructional design, and incorporate ideological education into all aspects of teaching—from content delivery to classroom management, instructional evaluation, and even through their own words and actions—thereby emphasizing the ideological functions of instructional assessment. Consequently, teachers must continuously enhance their personal teaching competence by effectively utilizing ubiquitous resources provided by the current era of big data while optimizing instructional content, improving instructional design, and enhancing educational quality based on students' developmental needs, fostering talent for national development objectives, and promoting harmonious growth within the learning environment.

As future work, this study needs to further validate the proposed mode in the ubiquitous learning environment and design appropriate in-class and online activities, assessments, and tests to evaluate the efficacy of the learning model. Additionally, with advancements in teaching technology and evolving student needs, existing models need constant evaluation and optimization. Future research can explore data-driven methods and artificial intelligence technologies for enabling automatic model adjustments and personalized teaching. The construction of an ecological model of ideology education for EAP courses involves multiple disciplines such as linguistics, psychology, and educational technology. Future research can further deepen integration and application across these disciplines. Currently, the model focuses on short-term teaching effects; however, long-term follow-up studies are needed to assess its sustained impact on students' academic English proficiency as well as their ideological literacy. Furthermore, investigating the model's influence on teachers' instructional approaches, along with its overall impact on students' learning attitudes, is also an important area for future research. By pursuing these research prospects, future work will not only enhance our understanding of the ecology model of ideology education in EAP courses in ubiquitous learning environments but also contribute to theoretical innovation and practical improvement in this field, while making significant contributions to global education development.

Funding

Disclosure statement

The author declares no conflict of interest.

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