

In the Context of Digital Intelligence, a Study on the Strategies for Stimulating English Learning Motivation among Undergraduates in Private Colleges

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Abstract: Digital intelligence technology is changing the environment of higher foreign language education and providing new research directions for the theory of learning motivation. Undergraduates at private colleges have all sorts of attributes in terms of their motivation to learn English, such as instrumentality dominance, low self-efficacy and external attribution, etc. It no longer meets the demand for autonomy in the age of digital intelligence, so motivating them has become a problem of great importance. The changes in the Learning Ecology due to the introduction of technology will be considered in light of the framework for field reconstruction in this paper, and further studies will be carried out to determine how elements of digital intelligence inspire motivation; technological empowerment can increase intrinsic motivation by satisfying the needs for autonomy, competence and relatedness; interactive enhancement can promote instrumental motivation through timely feedback and social recognition; and immersive experience can change learning engagement via the flow channel. Based on the concept of motivational adaptation to intelligence, the three ways to stimulate it put forward in this paper are dynamic intervention based on learning analytics, construction of meaning through connection with the lifeworld, and cultivation of self-regulation ability in a support system; thus, a theoretical foundation for foreign language teaching in private colleges in the digital intelligence era has been provided.

Keywords: digital intelligence, undergraduates in private colleges, English learning motivation, motivation stimulation, learning analytics, self-regulation ability.

Introduction

Systematic introduction of digital intelligence technology is bringing about many changes in the field of foreign language education. With the spread of intelligent terminals, mobile internet, big data analysis and artificial intelligence, the learning environment has been changing from a relatively closed classroom into a new type of field that is ubiquitous, personalised and intelligent. With the new environment of technology, the circumstances in which students are motivated to learn and how this motivation is sustained have changed, so traditional theories of motivation need to be revised. As a typical group of students at the higher education stage, undergraduates in private universities have some characteristics in their motivation to learn English, such as a strong sense of instrumentality, relatively low self-efficacy and external attribution. The above attributes do not meet the demand for autonomy in the era of digital intelligence, so adding technology will not automatically increase the motivation of the students. Research has only provided a general introduction to the application of technology so far, and it has not systematically explained why certain groups are involved in specific areas or what corresponding stimulation pathways have been established. Therefore, this paper will focus on the problem of motivating English learning for undergraduates at private colleges in the era of digital intelligence. First, reconstruction of the field is carried out at a high level; next, the reasons for this will be explained in detail; finally, the specific path design will be presented in this paper. The purpose of this paper is to extend the theoretical basis of the link between digital intelligence technology and learning motivation, and to provide both explanations and application guidance for foreign language teaching in private colleges abroad.

1. Digital Intelligence Learning Context and the Field Reconstruction of English Learning Motivation Among Undergraduates in Private Colleges

1.1 Ecological Transformation of the Foreign Language Learning Environment under the Embedding of Digital Intelligence Technology

With the deep development of digital intelligence technology, the basic form of higher foreign language education is changing, and an ecological transformation of the learning environment at the level of ontology is being created. With the regular addition of intelligent terminals, mobile Internet, big data analysis and artificial intelligence, the problems of traditional language learning caused by fixed times and places, scarce resources and rigid interaction models have been solved; thus, a new type of ubiquitous, personalised and intelligent learning has been created. In recent years, the amount of learning materials has been increasing steadily, and now all kinds of authentic language materials for learners are available; intelligent adaptation based on the comprehensibility and interest of the input content has also been realised.

The form of interaction has changed from teachers teaching students to a many-to-many collaboration of students and machines, and also among themselves; thus, virtual learning communities and intelligent dialogue systems have created a low-anxiety environment for language output. At the same time, the data of the learning process can also be saved and analysed; thus, learning paths can be displayed graphically to help find and correct problems in time. All of the above ecological changes are not only due to new technologies but also to a complete revision of the traditional model for teaching and learning foreign languages in terms of space, time, etc., providing new objective conditions and realms of possibility for undergraduate English learning at private colleges compared with the past^[1].

1.2 Motivational Features and Attribution of the English Learning Group Among Undergraduates in Private Colleges

As a learning group in a particular area of higher education, undergraduates at private colleges have certain characteristics in the structure and form of their English learning motivation. In terms of the reasons for learning English, this group is more strongly motivated by instrumentality; that is to say, they generally hope to achieve practical results such as meeting the demands of their studies, obtaining good grades and performing well in English tests, rather than being driven by interest in the culture of English-speaking countries or appreciation for the language itself.

In terms of the strength and stability of motivation, the students have a relatively low starting level of motivation, and this motivation is likely to fluctuate during the course of learning due to frustrating experiences and external factors. They have a low general sense of self-efficacy and are more likely to be unwilling to face problems and avoid them.

In terms of the pattern of attribution, some learners attribute the results of their English studies to external factors, such as the quality of teaching, curriculum design or innate intelligence, fail to recognise the influence of their own efforts and strategies, and thus tend to make external attributions.

The reasons for the formation of the motives above are related to the students' previous learning experiences and their background in exam-oriented education, as well as to their cognitive positions on the attributes of private education and expectations for future development; thus, this provides a logical foundation for the next step of motivation stimulation.

1.3 Analysis of the Tension Between the New Field and the Traditional Motivational Mechanism

There is a serious conflict between the construction of a digital intelligent learning environment and the students' innate desire to learn English in private colleges.

On the one hand, the demands of the field of digital intelligence require learners to have good self-study habits, the ability to filter information and long-term attention. However, the main deficiencies in learning autonomy and metacognitive regulation abilities of the group of undergraduates in private colleges are obstacles to the effective use of technology empowerment. Too many learning materials may not motivate students to study independently and explore by themselves; instead, they may feel overwhelmed and anxious.

At the same time, the instant feedback and short interactions in the environment of digital intelligence do not align with the delayed gratification, deep thinking and systematic construction that

the traditional motivational factors are based on. Learners will be interested in the low-effort, game-like parts, but they will lose interest in learning over time.

A reduction in the social presence of virtual environments will also decrease the old type of motivation that is based on face-to-face interaction and emotions. The structural tension between the new field and the old mechanism shows that designing current motivation stimulation strategies is also very complicated; that is to say, the simple introduction of technology will not automatically increase motivation, so one needs to study in depth how the two interact and what kind of harmony can be achieved to find effective intervention paths^[2].

2. The Deep Mechanism of Generation for English Learning Motivation by Digital Intelligence Elements

2.1 Autonomy Support under Technological Empowerment and the Triggering of Intrinsic Motivation

The Digital Intelligence Learning Environment offers various forms of autonomy support for students through technology and is also in line with the induction of intrinsic motivation according to theory. Based on the theory of self-determination, the reasons for students' behaviour can be divided into the three basic needs: autonomy, competence and relatedness.

In the era of digital intelligence, students can manage their own study progress and choose teaching materials according to their difficulty; they can also adjust the speed of study and customise learning paths. An intelligent recommendation system will recommend some materials based on the student's current ability and interests to help them choose suitable courses freely.

Prompt feedback and the display of learning progress on the platform can help students know how well they are learning the language at any time. Badges and points can be given out to recognize good study habits and meet people's needs for achievement. Collaboration among learners in the area of collaborative learning, recognition of identity in virtual communities, and emotional support from intelligent learning companions are all ways of using technology to promote relatedness.

The three necessary psychological needs do not occur in isolation but work together in the course of learning digital intelligence; thus, students can be motivated from the outside in to be motivated from the inside out and develop an interest in learning English. The operation of this mechanism is especially necessary for the group of undergraduates in private colleges; given that their autonomy has long been suppressed and they have experienced a general lack of competence in their previous studies, systematic empowerment in the digital intelligence environment can be used to provide a new space for the emergence of intrinsic motivation.

2.2 Interactive Enhancement and the Sustained Motivation of Instrumental Motivation

Boost student interest in the teaching materials with intelligent digital technology to arouse the interest of young children in music class and keep their enthusiasm for learning. Instrumental motivation is about achieving an external goal through language learning, and it is motivated by the clear visibility and ease of achieving goals and receiving feedback; however, in the old mode of teaching, both are often delayed in time and space. With the development of the digital intelligent environment, things have changed. Intelligent learning systems have broken down the original goal of proficiency tests or professional qualifications into many small tasks, and through progress tracking and result visualisation, this abstract goal has been made concrete and visible; real-time analysis of learning data can be carried out to provide personalised diagnostic reports that show the link between investment in learning and improvement in performance, thus increasing learners' confidence in the instrumental value of learning^[3].

Intelligent feedback can be used to correct pronunciation errors, fix grammatical mistakes and improve writing at the same time; thus, the original delay in providing evaluation feedback has been reduced to almost nothing, and we can now address errors promptly and positively reinforce learning behaviour. More interaction among students and teachers in virtual environments, observation and comparison of others' behaviour, peer support in online learning communities, etc., are all kinds of continuous social facilitation effects that can help promote instrumental motivation when one is alone in learning. Undergraduates at private universities are generally aware of the practical uses of learning English, but their motivation is often unstable; due to all sorts of reasons, it can fluctuate or decline

over time. The interactive promotion mode of the digital intelligence environment can give quick feedback and social recognition to continue encouraging people in this way.

2.3 The Moderating Effect of Digital Intelligence Immersive Experience on Learning Engagement

The sense of immersion in learning provided by digital intelligent technology has increased students' interest in studying, and they are more eager to learn; this can be explained by the theory of flow. Immersive experience is a type of psychological state that involves deep concentration and a loss of self-awareness, and to achieve this, there need to be problems to solve and skills to solve them; fortunately, the digital intelligence foreign language learning environment has been built with all these conditions in mind. Simulated communication scenarios in virtual reality and augmented reality technology are close to real life, so students can concentrate more on what is being discussed in class and feel less anxious about speaking in class.

Gamified learning modes can adjust the difficulty of the material according to the current ability of the students by providing various levels, tasks and immediate feedback, thus keeping the students in a state of flow. Sensory participation in all kinds of information and embodied experience through interactive operation can enhance the sense of immersion and presence in learning, motivate students to take a more active role in their studies, etc. The two levels of the moderation effect on learning engagement are as follows:

Cognitively, it is hoped that immersion can activate more profound cognitive functions in students and improve the learning effect of language through exposure; emotionally, a pleasant experience of immersion can promote positive emotions and make students feel good about participating in English classes, reducing anxiety or aversion^[4]. Undergraduates at private colleges lack the motivation to learn English not because they are incapable of doing so, but because they have set a very high affective filter and are not deeply engaged in their studies; thus, immersive digital intelligence experiences can be employed to reduce this barrier and increase their will to learn.

3. Pathway Design Based on the Concept of Motivational Adaptation to Intelligence

3.1 Motivation Monitoring and Dynamic Intervention Mechanism Based on Learning Analytics

The accuracy and timeliness of the motivation stimulation should be based on the current motivation level of the students, so learning analytics technology has been introduced to help achieve this goal. A Motivation-Monitoring Mechanism based on learning analytics can collect and analyse data on students' online learning behaviour systematically, construct a multi-dimensional index system of motivation, etc. Login frequency and the length of study can be indices of students' motivation; preferences for resources and ways to complete tasks may be different kinds of motivational factors, and the extent of participation in group activities and the speed of responding to feedback can also indicate students' interest in learning.

Based on the behaviour data and learning results above, we have determined the critical threshold and the main reasons for the decline in motivation to build a motivational profile for individual students. Based on the above, a dynamic intervention mechanism will automatically adjust its response according to different circumstances; for small changes in motivation, it will offer encouragement and easier problems; if the motivation is too low, an alert will be sent to the teacher for help; and if there is a problem with the structure of motivation, the learning path will be individually modified. The general idea of the above way is to change the source of motivation from experience-based judgment to data-driven practice, and to move from post-hoc correction to proactive prediction; thus, a technical support system that is observable, analyzable and intervenable can be built to keep the English-learning motivation of undergraduates at private colleges high^[5].

3.2 Strategies for Meaning Construction Linking the Learning Context and the Lifeworld

Deep activation of the English-learning motivation should not be based solely on external incentives provided by technology; at the same time, it also needs to be established in a way that is meaningful to the learner's life and integrated into the general framework of their life experience. Most people's perception of the value of English for undergraduates at private colleges is limited to how it will be graded in class and whether it can help them achieve good grades; they have not connected it with their real lives, interests or future aspirations. Therefore, no such purpose will be set, and thus

there will be no will. All the resources and simulation functions in the digital intelligence environment can be employed to solve the problem mentioned above.

According to the professional interests, leisure activities and other daily life needs of the students, develop English learning materials and create resonance among the input materials for language learning and students' actual life situations. Technology for creating virtual scenarios can build a simulated work environment or an overseas study situation, etc., so that students can experience how to use English in such contexts and learn about the instrumental value and cultural connotations of English for broadening horizons and achieving their own goals. Collaborative tasks in project-based learning communities are used to face real-life problems and create works together in English; thus, students' language skills will be developed naturally in the process of learning^[6].

The main idea of building this meaning is to integrate English learning into students' lives and motivate them to study English earnestly; it will help them broaden their sense of self through language and provide a foundation for the English-learning motivation of undergraduates at private colleges.

3.3 Cultivation of Self-Regulation Ability in the Digital Intelligence Support System

The purpose of motivating students is not to make them depend on external factors and other people for studying forever; rather, it is to foster a habit of self-study and allow them to learn independently. In order to achieve the above goal, cultivation of the ability of self-regulation in the digital intelligence support system needs to be carried out. According to the theory of self-regulated learning, the components of self-regulation include goal setting, strategy selection, self-monitoring and reflective adjustment, etc.; a good environment for all of them can be created by digital intelligence.

In terms of the dimension of goal setting, the intelligent system can help students set all kinds of learning goals according to their own abilities and wishes, divide the general goal into several stages, and make it more feasible; thus, the goal system will be both motivating and achievable. In terms of the dimension of strategy selection, the learning platform can record the history of learners' use of various strategies and, based on data analysis, show the correlation among different strategies and learning results to help learners develop metacognitive awareness of the effectiveness of strategies.

A learning dashboard can show how much one has learned, their current level of understanding, changes in motivation, etc., so they can be more aware of their own learning. To see how far the adjustment of reflection has gone, e-portfolios and records of the learning process can be used to have students look back on their studies, consider what went well and what problems occurred, and then revise their future study plans.

The first idea of the cultivation model is to use intelligent digital tools as external stimuli for self-awareness and scaffolds for self-regulation; by constantly interacting with the technological system, undergraduates in private colleges will gradually learn to be goal-oriented, strategic and self-aware. Finally, it will help us move from being externally motivated to intrinsically motivated, and we will be able to keep cultivating our own will to learn English.

Conclusion

Given the dual coordinates of the digital intelligence era and the group of undergraduates in private colleges, this paper systematically studies the problem of motivating English learning motivation. The purpose of this paper is to examine how the ecological environment for learning foreign languages has been changing with the development of digital intelligence technology, identify the different types of English-learning motivation among undergraduates at private colleges, and study the structural conflict between the new field and traditional motivational mechanisms in general, as well as other motivational problems in the technological era.

At the level of mechanisms, this paper studies how the components of digital intelligence promote the generation of motivation; for example, technological empowerment can give students autonomy, competence and relatedness and thus motivate them intrinsically; interactive enhancement can keep students motivated instrumentally by providing timely feedback and social recognition; and immersive experience can create a state of flow in learning. The three ways can work together to give people the desire to learn in the era of digital intelligence. Based on the idea of motivational adaptation to intelligence at the pathway level, three stimulation pathways are put forward in this paper. First, the reasons for driving and changing motivation will be uncovered through learning analytics and will no

longer be based on assumptions. Second, a construction of meaning will be made to connect the learning context with people's lifeworld and promote the integration of language learning in their lives. Third, by nurturing the self-regulation ability of the digital intelligence support system, students will be less reliant on external motivation and be able to manage their own motivation independently.

The theoretical exploration and path design put forward in this paper do not need to be verified or improved by empirical studies in later work. In the future, more research will be conducted to explore all kinds of effects of digital intelligence tools on students' motivation in various ways, as well as the moderating role of individual differences among learners on path adaptability, expanding the study of foreign language learning motivation in the era of digital intelligence.

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