

Cultivating Student Loyalty in Higher Education Through AI-Driven Service Quality and Learning Stickiness

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Abstract

With the development of artificial intelligence in recent years, many improvements have been made to the services offered by higher education institutions for students. Student loyalty is now an important index of the institutional competitiveness, as the more loyal the students, the stronger their sense of belonging to the school. Based on research, Artificial Intelligence is expected to meet the diverse learning needs and motivation requirements of all students for their studies and life better. Learning Stickiness is a necessary condition for the long-term engagement of students in the school system. The paper also raises problems such as privacy, technological imbalance and human-centered education in this situation to put forward some ideas for the development of universities under responsible AI.

Keywords

Artificial Intelligence; Higher Education; Service Quality; Learning Stickiness; Student Loyalty

1. Introduction

The new digital environment for higher education now needs to strengthen people's sense of belonging to the institution. Universities have started to pay more attention to nurturing students' sense of belonging and their will to study voluntarily.

Artificial intelligence (AI) will be used in all sorts of ways to improve the quality of services, such as personalised assistance and recommendations, intelligent recommendations, learning analytics, data-driven management, etc. Artificial intelligence can help the school know what students want better and provide timely study and life assistance. However, good service alone is not enough to motivate people to stay; continuous learning can also help[1]. Learning stickiness is the tendency of students to stay in the learning environment and helps to strengthen

institutional connections.

Based on the above research, a university can utilise new technologies such as artificial intelligence (AI) in education to boost students' sense of belonging and motivation to learn.

2. Literature Review

2.1. Student Loyalty in Higher Education

Student loyalty has been one of the subjects of study in higher education management because it shows how committed students are to their school. Loyalty among students is not about consumption, and in fact, has two types: behaviour and emotion. Behavioural loyalty refers to students' willingness to continue participating in university activities, their will to study well, and their desire to keep in touch with the school after graduation. Emotional loyalty is students' sense of belonging, trust and alignment with the values of the university.

Many factors determine the creation of student loyalty, such as the quality of education, campus life, study support, close relationships with teachers and classmates, etc. When students believe that the university offers them rich study materials and support, they will develop a good image of the university in their minds. Research in the past has found that student satisfaction is a reason for their loyalty, but it does not guarantee sustained participation. Students are somewhat satisfied with the services but do not have a sense of purpose. Therefore, the university should create continuous and meaningful experiences that motivate students to maintain an active relationship with the school.

Digitalisation has changed the development of student loyalty as well. Many new types of university life for students have been created in the form of online learning platforms, digital campuses and intelligent service systems. The new technologies will provide more reasons for communication and enable the school to offer extended services outside class. Therefore, the quality of digital services has gradually become one of the reasons why students feel that the institution has poor service.

2.2. AI-Driven Service Quality in Educational Institutions

Service quality has long been referred to as the five dimensions of reliability, responsiveness, assurance, empathy and efficiency. Service quality in higher education is no longer just about the administration; now it also includes support for studies and learning materials, communication channels, students' feelings, etc. The addition of artificial intelligence has expanded the concept of service quality by adding intelligence, personalisation and prediction.

AI-driven service quality is to increase the precision, speed and personalisation of educational services through intelligent technology. For example, an artificial intelligence virtual assistant can inform students which classes are offered and how

to sign up, study regulations, etc. at all times. The learning analytics system will discover problems in the study of a student and give an early warning. Based on the interests, abilities and learning situations of students, recommend suitable study materials through the recommendation algorithm[2].

The first goal of the AI-driven Service is to replace the old way of handling complaints. In the past, only after students had encountered problems would the service system react; now, based on data analysis, we can predict the need for help and provide timely assistance in advance. In this way, the students will be more aware of the care provided by the school and more willing to use the university's services.

However, the service quality of AI should not be thought of as replacing human contact. Higher education is fundamentally a people-oriented process of communication, motivation and emotional support. Therefore, the successful application of artificial intelligence should be in line with human values. Universities should utilise artificial intelligence to strengthen the sense of community and belonging for students, not weaken it.

2.3. Learning Stickiness and Student Engagement

Learning stickiness refers to how long students can keep learning on educational platforms, resources and activities. It shows how long students will continue to study and is related to their motivation, satisfaction and sense of purpose. Learning stickiness has begun to affect students' grades in the digital learning environment, and the participation of students is necessary for the success of the technology-based learning system.

The reasons a student is "stuck" in learning may be convenience, relevance, interaction, personalised feedback, etc. If the students find the learning system convenient and it can help them achieve their study goals, they will be more motivated to continue using it[3]. AI can adjust the learning path and study materials according to the different needs of individual students in their learning and offer prompt feedback.

Learning stickiness can also foster students' sense of purpose in life. Students who are frequently involved in the university's learning system and receive continuous study assistance are more likely to have a positive impression of the school. Through a few good experiences, the students gradually develop trust in and an awareness of institutions. Therefore, the learning stickiness function is to improve students' sense of purpose after experiencing good service from AI.

3. Theoretical Framework and Research Model

3.1. Relationship Between AI-Driven Service Quality and Student Loyalty

AI-based services help the students study better, and as such, they are more willing

to attend school. If the school can use artificial intelligence to provide convenient, accurate and individualised services for students, they will feel that the school cares and develop a sense of security. High-quality intelligent services will help to reduce the stress of students, provide more convenience, and increase their sense of security at the university.

An artificial intelligence-based teacher is also a kind. Based on the results of a student's study, interest and aspiration for life, personalised recommendations will be given. This way, the students will feel special and be more willing to remain in the institution. Smart administrative services will simplify the procedures and make it easier for students to obtain information, so they will be happier and more confident.

AI-driven Service Quality and Student Loyalty can be explained by the Theory of Perceived Value. Students will find out if the services provided by the university meet their demands. With the development of artificial intelligence, it will be possible to provide personalised learning support and improve the quality of education for students. Therefore, the institution will be more likely to remain with the individual for a long time.

3.2. The Mediating Role of Learning Stickiness

Learning stickiness is the link between the quality of AI-driven services and students' will to study. Intelligent services can directly enhance students' sense of the quality of their university; however, whether they will be motivated to study actively and continue doing so over time is not guaranteed. Learning stickiness is the extended stay of students in the education system; that is to say, short-lived service experiences have become long-term institutional relations.

Changes in the Learning Environment of Artificial Intelligence Will help All Students Learn Better in Their Own Way. The general form of the old-school teaching system is that all students are given the same resources, so it fails to consider their different learning abilities, interests and purposes. With the help of artificial intelligence technology, problems in learning can be identified and customised plans developed for them. When the learning materials are suitable for the students' needs, they will be more motivated to learn and form good study habits.

Learning stickiness can have some good psychological and emotional effects for the students. Many of the AI study aids can inform us about the results of our studies more often. These good experiences gradually increase the sense of belonging and recognition in the students towards their school. Therefore, the stickiness of learning can be considered an important factor in building loyalty in the environment of AI-driven service quality.

Theories suggest that for the cause of learning stickiness to be corrected at university level, other factors besides improved services also need to be addressed. Instead, the institution should create some good learning experiences that make

students want to learn more from the educational resources. Technology of artificial intelligence can be used to analyze the data and help students learn in different ways.

3.3. The Impact of Personalized Learning Experiences

One of the major merits of the use of artificial intelligence in higher education is personalisation. Students have different academic foundations, different learning speeds, different interests and career aspirations. A uniform way of teaching may not meet all the needs of the students. According to the study data of the students, the school can design custom study plans.

Based on the strengths and weaknesses of different students, the smart study plan can be personalised. For example, an artificial intelligence platform can know that a particular student has problems in a certain subject and then offer corresponding materials or practice problems for improvement[4]. Personalised assistance can help the students learn better and boost their confidence.

Personalisation can also give students a sense of purpose. When students believe that their school knows what is best for them and can help with problems, they will be more willing to cooperate. Therefore, the feeling will be one of gratitude and loyalty. Therefore, personalised learning with the help of artificial intelligence can help students achieve good study results and develop a lifelong interest in learning.

4. AI-Driven Strategies for Enhancing Service Quality and Learning Stickiness

4.1. Intelligent Academic Support and Personalized Services

One way to motivate the students is to build a good study-aid system. AI platforms can be built at the university to offer students various types of academic and life support. The system will learn about a student's grades in class, learning behaviour and so on to recommend personalised study plans for them.

More and more people use artificial intelligence to help them learn. Unlike the old service centre, which has short operating hours, an AI assistant will be able to answer some popular questions about enrollment, course information, campus services and other regulations promptly. A good system can help students find learning materials and services more easily to improve their university life.

Intelligent academic assistance can help people learn more attentively by providing them with convenient and favorable conditions for study. If the students can obtain the necessary materials easily and are promptly informed about any changes in their studies, they will be more willing to learn online. The above systems can help students form good study habits and be more motivated to learn at school over time. Universities need to ensure that the AI service is not too autonomous and will still communicate with the student. Many problems in academics and life are difficult to solve on one's own. Therefore, AI should act as a helping force to improve the

quality of service and not replace teachers and mentors.

4.2. AI-Based Learning Analytics and Student Engagement Enhancement

Learning analytics is also one of the uses of AI to motivate students. Based on the collected learning data, AI can offer some knowledge about the behaviour and learning results of students. Based on this, the university will know which students are struggling in their studies earlier and intervene in time.

AI algorithms can be used to analyse students' online learning behaviour, homework submission status, test scores, etc. If the system finds that the student is no longer interested, it will notify or offer some study assistance. The above are preventive measures to help students overcome difficulties in advance.

Learning analytics can help the school know how well different teaching tools work and improve the Design of teaching. To better know how students study, we will make adjustments to our teaching methods, update the learning materials, and build a favourable study environment. The changes in the quality of educational services have increased students' sense of value and participation.

Learning analytics can be used to know more about the students' learning situations and help the school provide tailored support for their growth. Promptly supporting the students will make them feel cared for and valued, so they will be more loyal.

4.3. Digital Communication and Interactive Learning Environments

Good Communication will be necessary to build a good relationship between the school and students. New forms of digital communication and interactive learning have been formed through the application of artificial intelligence technology. Chatbots, intelligent message systems and automatic reply functions can be employed to maintain contact with the students of the university.

To motivate the students to cooperate and take part, a talking robot will be introduced. An intelligent discussion system can suggest some relevant study topics and organise students to speak in groups, etc. The above functions will add some new life to the digital study Environment.

A good experience of digital communication will increase students' sense of belonging to the school. When students can communicate more freely with teachers, school staff and others in the learning community, they will be more included. Thus, there is an emotional bond in the learning process and an intention to learn.

Digital communication platforms can also be used to better know what students want at the university. Artificial intelligence can learn how students talk and figure out what is bothering them. Then, in light of the demands from students, changes will be made to the service and policy systems.

5. Challenges and Considerations in AI Implementation

5.1. Data Privacy and Ethical Issues

Although artificial intelligence is to be beneficial for higher education, data privacy and ethics are still problems. In order to provide personalised services for the students, a large amount of data such as school grades and study habits needs to be collected. Poor Data Management will result in risks to the information security and personal information of individuals.

Universities need to have good rules for the use of artificial intelligence data. Students should know that the collection and use of their information are legitimate. Open communication will help the students feel safer about the use of artificial intelligence. Expand the scope of application for computers and networks in all sections of the school to reduce security risks.

Ethics are also related to others' rights. AI algorithms may have biases and thus recommend or decide for people differently. The Algorithm is flawed and thus cannot offer equal chances for learning to all students. Therefore, the university should regularly evaluate the AI system and guarantee fairness, transparency and accountability.

5.2. Digital Inequality and Technological Barriers

Another problem is that some students are digitally disadvantaged. Although artificial intelligence education service has added new learning paths, not all students can use these technologies due to various reasons. Different situations of Internet access and other reasons will lead to the appearance of new types of educational inequality.

Universities should consider how easy it is to access the AI system for people. Offer digital training, technical support, all-weather learning resources, etc., so that all students can take part in the AI revolution. The spread of artificial intelligence needs to promote fairness in education as well.

The Institutional Sector also has a problem of technological barriers. The development and operation of the AI system need funds, high-end talents, a good organisation, etc. Some universities will be unable to integrate artificial intelligence into their schools. Thus, in order to achieve the aim of AI construction, there will be strategic planning and staggered implementation.

5.3. Balancing AI Efficiency and Human Interaction

AI can improve the efficiency and individualisation of education; at the same time, it should not be overused. Universities are places to learn, but they are also places where one can receive support and emotional care from others. People need to feel that they are part of a group to be motivated.

Therefore, universities should take the direction of a human-centred AI. AI can complete the boring work for us, provide data-driven recommendations and support decisions, but we still need to lead and inspire our students emotionally. In

the combination of technology and care, we hope to create all-round growth for children.

To do so, the improvement of AI in education should not harm the quality of higher education services. Students are more likely to be loyal when they can use technology conveniently and have some good people around them.

6. Discussion

Artificial intelligence has been used in recent years to improve college life for students and other services. Artificial intelligence technology can be employed to enhance the quality of services and learning stickiness to improve students' sense of belonging. AI can improve the convenience of study and the speed of response by means of intelligent support systems, learning analytics, personalised resources, etc., to help students feel more valued and happy in their studies. To help universities better guide students in their studies and provide some support and guidance, AI can be employed.

Learning stickiness can boost students' interest in learning and make them want to stay in the learning environment longer. When students can obtain the resources conveniently, are given personalised learning paths and effective study support, they will be more willing to maintain a good relationship with their school. Therefore, universities should build all-weather AI systems for the support of study and life in college. To help the new AI to run properly, we also need to train teachers, manage it responsibly, and keep checking whether students are learning well. Later studies can investigate how long the effects of artificial intelligence in education will have on students' sense of belonging and willingness to learn. Responsible innovation will help the university continue to develop and maintain good relationships with students in the digital age.

7. Conclusion

AI can help the school provide more services and enhance students' sense of belonging. With the help of personalisation, intelligent communication and adaptive learning resources, data-driven management can be carried out to meet the different needs of students. Technology alone cannot inspire students to be loyal; thus, we will continue to create good learning experiences for them and keep them interested.

Learning Stickiness is the main mediating factor of AI-driven service quality and student loyalty in this paper. When students actively use the intelligent learning environment and receive customised support, they will feel more trust, a sense of belonging, and will be motivated to participate in school life.

The future application of AI in higher education needs to be in line with human-centered values and serve people. Universities should safeguard the personal information of students, ensure digital fairness, and provide good

human-to-human contact. By combining artificial intelligence, personalised learning and high-quality services, institutions can enhance the relationship with students, improve their study results and foster all-round development of the students in the digital age.

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