

Research on the Application of AI Dynamic Evaluation in the Teaching Reform of Marketing Courses

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Abstract: The old way of testing in the marketing class can no longer tell us how much the students' strategic thinking and creativity have changed. Dynamic assessment can collect information on how a student behaves at a specific time and adjust the teaching content according to any changes in the student's circumstances. The following are the contents that will be covered in this paper: Differentiation of Dynamic and Static Assessment; Construction of a Cyclic Iterative Assessment and Learning Model; Development of Transformation Rules for Changing Difficulty and Modification Strategies of Learning Paths Based on Behaviour Data; Construction of a Three-Tier Multi-dimensional Indicator System; Analysis of the Positive Impact of AI Assessment on Students' Learning Enthusiasm; and Reconstruction of the Assessment Function in a Two-way Feedback System between Teachers and Students. Based on the above research, artificial intelligence dynamic evaluation can be used to integrate external scoring in the teaching process, and thus both a technical path and a theoretical basis for the reform of curriculum teaching have been established.

Keywords: AI Dynamic Assessment, Marketing Courses, Teaching Reform, Personalized Feedback, Learning Motivation

Introduction

Since the Marketing course is application-oriented, students should have mastered all levels of ability in theory, strategy and creativity. The old tests and group reports only cover the results of learning; they do not show changes in students' thinking or the effort they have put into problem-solving, so this evaluation model does not meet the actual needs of the course. Dynamic assessment technology can keep up with how well all the students are learning, automatically determine what they do not know at that time, and offer individualised remediation. AI Dynamic Evaluation in the Reform of Curriculum Teaching has achieved good results. First, it can solve the problems of traditional summative assessment and help teachers better understand the current situation of class learning and individual differences. Second, it will help the students learn earlier and reduce the lag in feedback. The marketing courses are generally too large now, so it is difficult to offer differentiated courses for different students, and the old manual test method is neither timely nor accurate. Therefore, building an AI dynamic evaluation framework that is in line with the characteristics of marketing courses and integrates the three-cycle loop of "technology-competency-ideological and political education" has become one of the main problems that the reform of marketing intelligent teaching urgently needs to solve.

1. Theoretical Basis of AI Dynamic Evaluation and Curriculum Adaptation Logic

1.1 Core Concepts and Technical Characteristics of AI Dynamic Evaluation

1.1.1 Definitional Differences Between Dynamic and Static Evaluation

Dynamic assessments can show us how students think in the process of learning and provide timely support; traditional tests only tell us the results after the test has been taken. Static evaluation is a single picture at a particular time; dynamic evaluation is a film. Artificial intelligence technology can save all the operations and modifications students make in their marketing tasks as videos during the process of completing these tasks, not just the final submitted plan^[1].

1.1.2 AI-driven Real-time Data Collection and Processing Mechanism

The three technical modules of the AI dynamic evaluation are Behaviour log collection, Natural Language Understanding and real-time scoring algorithms. Behavioural Log Collection records the clicks, dwell time and modifications students make to the information; Natural Language Understanding is used to analyse the text in the open-ended marketing case study answers, and then a real-time scoring algorithm turns this information into readable feedback signals. All the modules will work together to show the evaluation results promptly after the behaviour takes place.

1.1.3 Technical Path for Personalized Feedback Generation

Specific feedback should point out what the students have done well and how to improve in some areas. For example, if a student uses the wrong cost-plus pricing formula for demand-oriented pricing, a counterexample illustration will be shown in the system immediately. Therefore, it is a combination of conditional rule matching and a small machine learning model, and extensive data training is not necessary to achieve good results. In addition to the above, the case database for curriculum ideological and political education in the marketing intelligent teaching system will also be used; if the system finds that the decision-making plan does not consider social responsibility, it will automatically display ethical reflection prompts and add another type of feedback that is value-oriented guidance in addition to technical feedback.

1.2 Deconstruction of Evaluation Needs for Teaching Objectives in Marketing Courses

1.2.1 Layered Evaluation Requirements for Knowledge Memorisation and Theoretical Application

There are many terms in the marketing course that students need to learn and use in their study of cases. Traditional multiple-choice questions can only distinguish between memorisation and application; dynamic evaluation is a series of tasks that first select concepts and then match them with cases, and AI can automatically find out where students have had difficulties and correctly distinguish between deficiencies in knowledge and problems in transfer.

1.2.2 Difficulties in Process-Oriented Evaluation of Strategic Analysis and Creative Generation

There is only one correct answer to strategic analysis; for example, different students may put forward two alternative solutions to the same problem of market entry: low-end penetration or high-end differentiation. The problem of evaluation is to determine whether the process students have gone through to find a solution is reasonable. It is also difficult to judge the quality of the creativity in the produced works objectively. According to the dynamic evaluation of AI, the three stages of creative generation are divided into problem identification, information retrieval and solution combination, and each step is scored independently without a general note.

1.2.3 Limitations of Traditional Examinations and Group Reports in Capturing Process

Most marketing courses have final exams or group reports at the end of the semester, but both ways tend to hide the actual effort process of individual students. The paper only shows whether the answer is correct or incorrect, and the report displays only the last few submitted pages. Over the course of the semester, the student has collected many materials and prepared several drafts of the plan, but in the end, they lose points because of poor formatting, and all that effort has gone to waste. Dynamic evaluation of AI can also be used for the intermediate products mentioned above^[2].

1.2.4 Implicit Evaluation Needs for Goals of Ideological and Political Education

The purpose of the Marketing course is to educate students in the spirit of social responsibility and business ethics. The old way does not consider the students' sense of consumer rights and fair competition in the marketing plan. AI dynamic evaluation can extract value keywords and reasoning paths by way of semantic mining of decision-making plans and ethical scenario simulation; thus, ideological and political literacy can be added to the process of evaluation to provide quantitative evidence of the assimilation of ideological and political education in the "technology-competency-ideological and political education" loop.

1.3 Intrinsic Correlation Model of the Dynamic Evaluation Mechanism and Learning Process

1.3.1 Evaluation Start Logic of Behavior-Triggered Evaluation

Teachers do not carry out random dynamic assessments; instead, they spontaneously observe the

important activities of all the students and then make evaluations. For instance, when a student clicks the "increase advertising budget" button in the simulated marketing decision-making software, it will immediately let them know whether this operation is reasonable according to the current market situation. The start logic will make the evaluation an internal part of learning and not an external demand; thus, the students will not even know that they have been tested.

1.3.2 Correction Path of Feedback Signals on Cognitive Structure

The two kinds of corrective effects that feedback signals have on students' cognitive structure are first reinforcement; that is to say, after confirming that a correct behaviour has occurred, a stable knowledge node is established, and second replacement; that is to say, erroneous cognition is erased and reconstructed through explicit negation. A typical error in the marketing course is to believe that lowering the price will increase sales; however, as shown by the AI, we also need to consider how competitors will react to the price reduction and whether profit margins will be affected.

1.3.3 Cyclical Iterative Closed-Loop of Evaluation and Learning

The general form of the above model is that of a closed-loop system: learn behaviour → AI evaluation → provide feedback → adjust behaviour → and so on. The closed-loop process above can be repeated many times in a short period; for example, students can change the marketing mix five or six times in ten minutes and get feedback after each modification. High-frequency iteration can increase the speed of learning; that is, students do not have to wait for next week's homework to be graded to find out what they did wrong and can correct it immediately.

2. Design of Teaching Reform Path Based on AI Dynamic Evaluation

2.1 Real-time Collection of Learning Behavior Data and Mapping to Evaluation Indicators

2.1.1 Design of a Multi-Source Behavioral Data Collection Framework

The first kind of learning behaviour data is the clickstream data of the online learning platform, revision paths in the assignment system and participation records of classroom interaction tools. The online platform will count how many times students pause and play back a video; the assignment system will save the modified version in draft mode before submission; and the classroom interaction tool will record the response time of quizzes and polls. Based on the above data, we can construct a reasonable profile of a student's self-study conditions outside of class and their level of participation in class.

2.1.2 Transformation Rules for Mapping Behavioral Data to Evaluation Indicators

Click data alone is not very informative; it needs to be turned into an understandable evaluation index. The three kinds of conversion rules are frequency thresholds, time windows and sequence patterns. For example, if a student has to redo the cost-plus pricing exercise five times before submitting it, the system will map this behaviour sequence to the indicator "difficulty understanding the formula", and some noisy data in the transformation process, such as accidental clicks or a large number of operations after a long break, will be ignored to ensure the accuracy of the indicator^[3].

2.1.3 Dynamic Adjustment Mechanism for Indicator Weight Allocation

The weights of the indicators in the learning behaviour data are not fixed; for example, at the beginning of the course, the weight given to the completion rate of videos is relatively high, but in the middle of the course, this weight has decreased, and towards the end, more attention has been paid to how often students retrieve knowledge from other chapters. The weights will be automatically adjusted according to the overall performance distribution of the classes and will not be set manually; thus, the evaluation bias caused by different levels of question difficulty will be avoided. An independent weight channel has also been added for the dimension of ideological and political education to combine all kinds of factors, such as participation in business ethics discussions and the frequency of social responsibility keywords, in an all-encompassing way and avoid the influence of knowledge and skill indicators on the evaluation of ideological and political literacy.

2.2 Strategies for Dynamic Adjustment of Teaching Content in light of Individualized Feedback

2.2.1 Matching Logic of Feedback Types and Teaching Content

The four kinds of individualisation are corrective, extensive, value-oriented and affirmative. Corrective feedback can correct conceptual errors and immediately provide some explanatory materials; extended feedback can offer advanced cases or additional reading materials after the student has reached a certain level in basic proficiency; value-guidance feedback can cover marketing decisions related to social responsibility or ethical conflicts, present cases of ethical dilemmas and key points in industry norms, integrate micro-resources for ideological and political education to inspire students to reflect on social impact, and offer encouraging feedback to motivate them in their studies. According to the current accuracy rate of the students, how quickly they can complete the tasks, and the values they have proposed for the alignment of professional ability and value education, the matching logic will be adjusted dynamically.

2.2.2 Real-Time Adjustment Rules for Ascending and Descending Content Difficulty

If the AI evaluation finds that the student's accuracy rate in the three consecutive pricing exercises is less than 50%, then it will decrease the difficulty level of the practice problems provided to that student by one level and add micro-lectures covering the relevant knowledge points. At the same time, if the student has some cognitive energy left after completing the first few problems, an extra competition module will be unlocked. The Rule of Adjustment takes the form of steps and is not changed all at once, so it will not be too difficult for the students at any one time.

2.2.3 Generation and Dynamic Correction of Personalized Learning Paths

The first learning path for each student will be based on the results of the placement test, and it will be modified regularly according to changes in their performance. The correction of the path is based on the learning efficiency index, which is the number of correctly learned skill points per unit of time. If the efficiency is below the threshold, then the path will be modified to break down the knowledge points more finely; if it is above the threshold, some redundant repeated practice will be omitted. The whole correction process does not need to be done manually by the teacher; periodically, summary reports will be issued for reference in teaching.

2.3 Integration of Evaluation Results with Classroom Interaction Activities

2.3.1 Import Mechanism for Evaluation Data in the Pre-class Questioning Session

Five minutes before class, according to the weak-knowledge items in the students' self-tests from the previous period, the AI system will present a list of common errors to the course instructor in the interactive terminal of the classroom. The teacher can immediately start a discussion based on these error questions and does not need to ask if everyone has understood; thus, the import mechanism will connect the previously loose pre-class preview with in-class questioning and reduce the time of awkward silence in the classroom.

2.3.2 Real-time Scoring and Intervention Strategies for Group Discussions

Collect speech and keywords from all the groups in the discussion using AI, then determine how active and accurate the discussions are. If a group does not have a good speech for two consecutive minutes or frequently uses incorrect marketing terms, a prompt question will be displayed in the interactive window of the group. Do not tell them the answer directly; instead, ask some questions and have the group come up with the answer^[4].

2.3.3 Reverse Adjustment of Teaching Pace According to In-class Quiz Results

Conduct a quiz in class, and then immediately show the distribution chart of students' scores and clustering results for all types of errors in the AI dynamic evaluation system. If the accuracy rate of a particular question is less than 60%, the system will have the teacher stop the next lesson and re-explain this part of the knowledge in about three to five minutes. If a certain kind of error (e.g., confusing market penetration with market development strategies) is frequently made by several students, the system will be aware that this content is a common problem and needs to be addressed together. Based on the above, the teacher will slow down the speed of the second half of the class and deviate from the lesson plan.

3. Improvement of Teaching Effectiveness and Directions for Reconstruction of the Evaluation System

3.1 Hierarchical Construction of a Multi-dimensional Dynamic Evaluation Index System

3.1.1 Basic-Level Indicators: Knowledge Mastery and Skill Proficiency

The first level of indicators is whether students have learned the basic knowledge and tools of marketing; that is to say, whether they can use marketing terms correctly, remember some basic models, and promptly carry out simple calculations. The indices in the list above are the results of automatic scoring by the AI-automatic scoring system.

3.1.2 Advanced Indicators: Strategic Reasoning and Contextual Transfer Ability

The upper end of the index is students' ability to apply knowledge in new marketing circumstances; it includes the rationality of the reasoning process for case studies, the trade-off results of multiple-factor decisions, and the adaptability of strategy adjustment in light of changes in the market. Based on the attributes above, the AI system will construct context-transformation tests. It is not easy to assign a number to the level of these indicators, so we can take the real-time monitoring of dynamic evaluation as an example.

3.1.3 Extended-Level Indicators: Creative Generation and Cross-Module Integration

At the extended level, the indices include the originality score of the advertising slogan, the density of cross-chapter knowledge retrieval in the promotional plan, the innovativeness of resource allocation in simulated entrepreneurship, and the quality of embedding ideological and political elements in the plan, such as awareness of social responsibility and the concept of sustainable development. Determine whether the semantics and knowledge graph paths are similar for the purpose of evaluation by the AI system, identify themes of values, avoid giving very general answers with high scores, and prevent the use of shallow expressions of values. The weight of this layer of indicators is relatively small at the beginning and gradually increases with the improvement of ability over time; among them, the weight of value-judgment indicators reaches its peak during the period of real project practice and thus completes the cycle of "technology - competency - ideological and political education".

3.2 The Logic of the Positive Effect of AI Assessment on Long-term Learning Motivation

3.2.1 Prompt feedback reduces the time it takes to take action and observe the results

In the old evaluation mode, after the students submitted their homework, it took several days for them to find out the grades and notes; as a result, it was too late, and many people lost the desire to study. AI dynamic assessment has a short feedback delay of a few seconds, so students will be notified that the answer is incorrect after finishing a multiple-choice question in the pricing section. Therefore, it is more convenient for students to associate "correct operations" with "receiving praise", and they will be more willing to learn continuously^[5].

3.2.2 Dynamic Difficulty Adjustment Can Avoid the Problem of Learned Helplessness

If a student makes the same type of mistake in the marketing analysis problem several times, the AI will reduce the difficulty of the next question and offer some relevant background knowledge. Thus, the students will not be demotivated by the fact that they cannot solve it now. At the same time, there are many difficult and long problems for the fast learners, so they do not get bored. In short, it keeps all students in their own zone of "being able to learn without feeling tired" and thus learning interest can be maintained more easily.

3.2.3 Visualisation of the Growth Path and the Development of Ideological and Political Literacy Increase the Sense of Learning Meaningfulness

According to the ability curve chart of the AI dynamic evaluation system, not only have the marketing skill points risen, but separate development paths have also appeared for ideological and political literacy, such as "social responsibility sensitivity" and "ethical decision-making tendency". Even if the absolute score at a certain time is not high, as long as the general trend of the curve is upward, students will know that there is joint growth in both professional ability and values; thus, it can boost their sense of purpose in learning and self-confidence. The above visualisations of progress in both career and life will likely motivate people to continue improving rather than just giving a final grade.

3.3 Repositioning of the Evaluation Function in the Two-way Teacher-Student Feedback Loop

3.3.1 Change in Role: From One-way Scoring to Two-way Information Exchange

The old way of evaluation is one-sided; teachers grade, and then the students are informed. Dynamic evaluation by AI will be a two-way communication channel; that is to say, the behaviour data of students will inform the system of their learning progress, and then the system will provide analysis results for both teachers and students. Teachers will no longer have a single score for the class; instead, there will be a whole-class map of abilities, and students will be able to recognise problems in their own learning proactively. Therefore, assessment is no longer an external evaluation but a way of communication in teaching, and by presenting the distribution map of ideological and political literacy along with the map of professional competence, teachers can obtain all-round information on the educational results.

3.3.2 Support for Teacher-side Data Analysis in Class Teaching Decision-Making

Clusters and annotations of teaching recommendations are provided by the AI system; we did not collect the original data. For example, if the system finds that "40 per cent of the students have the same bias in predicting the effectiveness of the promotional mix", the teacher can spend five minutes of class time discussing this problem with the class. Therefore, the support mentioned above can reduce the time cost of speculating on students' learning conditions based on experience, free up teachers' time to focus on real problems in the classroom, avoid "guessing students' confusion", accurately locate the root of their thinking, and at the same time, provide relevant starting points for ideological and political education, such as the ethical connection of this bias and the risk of excessive promotion, thus naturally guide values during knowledge clarification.

3.3.3 Cultivation Path for Students' Self-Assessment Ability

AI has been used in many ways to help students think about what they have learned. If the assessment results are not in line with what the students believe they have achieved, they will be asked to explain why there is a discrepancy, and through all sorts of comparisons, they will voluntarily learn to correct their own shortcomings. Therefore, in the course of study, there will be an external tool to help us learn after completing this course. If self-assessment includes the attribute of values, students will be more aware of the social consequences of their marketing plans, and at that time, both the ideological and political dimensions will be internalised rather than merely observed from the outside.

Conclusion

Application Logic of AI Dynamic Assessment in the Teaching Reform of Marketing Courses: Theoretical Foundation, Reform Path and Effectiveness Improvement at the Three Levels are presented in this paper. Dynamic assessment is learning and assessment that happen at the same time, are caused by behaviour and immediate feedback, and form a cycle. Gather behaviour data and indicators from all sides, adjust the teaching content according to changes in behaviour, and incorporate the results of assessment into the daily class. The three levels of the built indicator system are: knowledge mastery, strategic thinking and creativity; prompt feedback, adjustment of difficulty and display of growth curves can all motivate students to keep learning. Teachers are no longer the sole assessors of students, and at the same time, some students have begun to learn how to self-evaluate with the help of teachers. In the future, more research will be conducted on the transfer effects of AI dynamic evaluation in all kinds of marketing courses, and the granularity of data collection and storage will be increased, user privacy protected, interpretability and simplicity improved, etc.

Fund Projects

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