# Common AI Use Case by Industry: Education

In the table below we list the most common AI uses cases by industry. The ‘Business Value Score’ column rates expected business impact on a scale from 1 (least impact) to 10 (highest impact). The ‘Difficulty to Implement Score’ column rates the difficulty to implement (time, cost, effort, etc.) on a scale from 1 (easiest to implement) to 10 (hardest to implement). Note these are estimates and will vary from customer to customer.

| **Business Metric** | **Use Case** | **Description** | **Microsoft AI Solutions** | **Microsoft AI Solution Description** | **Business Value Score** | **Difficulty to Implement Score** | **Enhance with Azure OpenAI** |
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| Student Enrollment Rate | Enrollment Prediction | Predict student enrollment numbers. | Azure Machine Learning | Uses predictive models to forecast enrollment trends based on historical data. | 8 | 6 | Enhance Enrollment Prediction by analyzing historical data and trends to accurately forecast student enrollment numbers, providing actionable insights for planning and decision-making. |
| Student Retention Rate | Churn Prediction | Predict students likely to drop out. | Azure Machine Learning | Applies machine learning algorithms to identify patterns and predict dropouts. | 9 | 6 | Enhance Churn Prediction by analyzing student data to identify at-risk students and provide personalized recommendations for interventions to improve retention rates. |
| Graduation Rate | Learning Pathway Recommendations | Use of AI to recommend personalized educational content and learning materials tailored to individual students' needs, preferences, and academic goals. | Azure AI Language | Uses natural language processing to recommend appropriate learning materials. | 9 | 6 | Enhances Learning Pathway Recommendations by providing personalized, engaging, and adaptive educational content and support, leading to improved student outcomes and higher graduation rates. |
| Course Completion Rate | Progress Monitoring | Monitor student progress to ensure course completion. | Azure Machine Learning | Tracks and analyzes student performance data to identify at-risk students. | 8 | 5 | Enhance Progress Monitoring by analyzing student performance data in real-time, providing detailed progress reports and personalized recommendations to ensure timely course completion. |
| Student Engagement | Sentiment Analysis | Analyze student feedback to gauge engagement. | Azure AI Language | Processes and analyzes text data to determine sentiment and engagement levels. | 8 | 5 | Enhance Sentiment Analysis by processing and interpreting student feedback to gauge engagement levels and provide actionable insights to improve the learning experience. |
| Teacher Performance | Performance Analytics | Analyze teacher performance data. | Azure Machine Learning | Evaluates performance metrics and provides insights for improvement. | 7 | 4 | Enhance Performance Analytics by analyzing teacher performance data and generating comprehensive reviews and actionable feedback to support continuous improvement. |
| Curriculum Effectiveness | Curriculum Analysis | Evaluate effectiveness of the curriculum. | Azure Machine Learning | Analyzes curriculum data to measure effectiveness and suggest improvements. | 8 | 6 | Enhance Curriculum Analysis by evaluating curriculum data to generate insights and recommendations for improving its effectiveness and alignment with student needs. |
| Learning Resource Utilization | Resource Optimization | Efficient allocation and use of educational resources to maximize their impact on student learning | Azure Machine Learning | Applies optimization algorithms to allocate resources efficiently. | 7 | 6 | Enhances Resource Optimization by predicting demand, efficiently allocating resources, automating redistribution recommendations, and matching resources to student needs based on usage patterns and performance data. |
| Student Attendance Rate | Attendance Prediction | Predict student attendance patterns. | Azure Machine Learning | Uses historical attendance data to forecast future attendance trends. | 8 | 6 | Enhance Attendance Prediction by analyzing historical attendance data and identifying patterns to forecast future attendance trends and suggest interventions to improve student attendance rates. |
| Student Satisfaction | Sentiment Analysis | Analyze student feedback for satisfaction. | Azure AI Language | Processes and analyzes feedback to assess satisfaction levels. | 8 | 5 | Enhance Sentiment Analysis by processing and analyzing student feedback to accurately gauge satisfaction levels and provide insights for improving the student experience. |
| Academic Performance | Performance Prediction | Predict academic performance of students. | Azure Machine Learning | Utilizes predictive analytics to forecast academic outcomes. | 9 | 6 | Enhance Performance Prediction by analyzing student data to forecast academic outcomes and provide personalized study recommendations to improve performance. |
| Resource Allocation | Resource Planning | Plan and allocate resources effectively. | Azure Machine Learning | Uses predictive models to optimize resource planning and allocation. | 7 | 6 | Enhance Resource Planning by analyzing data to optimize the allocation of educational resources, ensuring efficient use and strategic distribution based on predicted needs. |
| Budget Management | Financial Forecasting | Forecast budget needs accurately. | Azure Machine Learning | Applies predictive analytics to forecast financial requirements. | 7 | 5 | Enhance Financial Forecasting by analyzing historical financial data and trends to provide accurate budget predictions and strategic insights for effective budget management. |
| Student Well-being | Well-being Monitoring | Monitor and analyze student well-being. | Azure AI Language | Analyzes text data from surveys and feedback to monitor well-being. | 8 | 5 | Enhance Well-being Monitoring by analyzing student feedback and survey data to identify well-being issues and provide personalized support recommendations. |
| Teacher-Student Ratio | Ratio Optimization | Optimize teacher-student ratios for effective learning. | Azure Machine Learning | Uses optimization algorithms to balance teacher-student ratios. | 8 | 6 | Enhance Ratio Optimization by analyzing enrollment and staffing data to provide insights and recommendations for achieving optimal teacher-student ratios. |
| Extracurricular Participation | Participation Analysis | Analyze and predict participation in extracurricular activities. | Azure Machine Learning | Analyzes historical participation data to predict future trends. | 7 | 5 | Enhance Participation Analysis by analyzing historical participation data to identify trends and provide insights and recommendations for increasing student involvement in extracurricular activities. |
| Online Learning Engagement | Engagement Tracking | Track and enhance online learning engagement. | Azure AI Language | Uses NLP models to recommend engaging online learning materials. | 8 | 6 | Enhance Engagement Tracking by analyzing online interaction data to provide insights and recommendations for improving student engagement in online learning environments. |
| Exam Performance | Performance Analytics | Analyze and predict exam performance trends. | Azure Machine Learning | Applies predictive models to forecast exam outcomes. | 8 | 6 | Enhance Performance Analytics by analyzing exam data to identify performance trends and provide personalized study recommendations to improve student outcomes. |
| Alumni Success Rate | Success Prediction | Predict and analyze alumni success rates. | Azure Machine Learning | Uses predictive analytics to identify factors contributing to alumni success. | 8 | 6 | Enhance Success Prediction by analyzing alumni data to identify factors contributing to success and providing insights and recommendations to improve future alumni outcomes. |
| Parent Satisfaction | Sentiment Analysis | Analyze parent feedback for satisfaction. | Azure AI Language | Processes and analyzes text data to gauge parent satisfaction levels. | 8 | 5 | Enhance Sentiment Analysis by processing and interpreting parent feedback to gauge satisfaction levels and provide insights for improving parent engagement and satisfaction. |