



Product Overview

Traditional learning at school focuses on rote memorization, not on hands-on learning opportunities. Similarly, online learning materials often are not engaging enough to truly pique student interests. Traditional schooling also does not do enough for students interested in gaining skills valuable to their personal career or higher education interests, as they lack abilities to personalize or showcase their unique learning paths. EduSphere complements in-class learning as well as online educational providers by delivering high-quality, pre-recorded video lessons across various high school subjects, combining effective pedagogy with engaging, production-quality videos. Our new product takes this a step further by adding a personalized, project-based learning component. Through custom project generation aligned with each student's curriculum, EduSphere enables learners to apply concepts in practical, hands-on ways that reinforce their understanding, build critical skills, and foster deeper engagement with the material. These projects would also allow students to build and present more authentic portfolios for college or career interests. This integration offers students a unique blend of structured instruction and experiential learning tailored to their individual academic needs.

Students, like Olivia, a junior in high school, express apprehension about college expectations: "I don't know if I've done enough; I don't really know what they're looking for." This fear is substantiated with Raunak, a senior, saying, "Classes are not giving me the opportunity to explore what I am interested in." Project-based learning answers this call by allowing students to take concepts and apply them to real-world problems, develop skills such as teamwork and adaptability, and construct portfolios of their unique talents. It is such hands-on education that shall help them not only in college but also lifelong in their careers.

Scope

Overview: EduSphere is expanding our platform interactions to include personal project generation, implementing AI to bring personalization into each user's learning path. We are adding in hands-on, project-based learning to supplement our audiovisual learning materials. This offering will be accessible as a digital subscription service- static projects will be available to free users to showcase our more premium offerings.

Personalization Survey: Our algorithm will first query students about their academic goals and interest to ensure the generated project is unique and personalized to the individual student. Our algorithm will primarily use a student's varied interests to create this unique project- relying on a database of previously generated projects as well to build this feature.

Project Guidance: As students progress through a lesson, the platform will automatically generate and guide the student through a project tailored to reinforce key concepts, encouraging deeper engagement and understanding. Each project would be based off of groupings of existing EduSphere videos, so students can easily learn from or refer back to videos as they work through the tasks.

Project Feedback: As the student works on the project, they will be able to get instant feedback on their work by the model, ensuring that they remain on track to complete the project. This integration of learning, application, and feedback supports a seamless, iterative process where project completion signifies mastery of the lesson.

Out-of-Scope

Non High-Schoolers: We are currently focusing exclusively on high schoolers as our audience to ensure we are able to serve one targeted group before diversifying.

New EduSphere Videos: We are focused on building project generation capabilities out of existing EduSphere material- any projects that require extensive knowledge beyond EduSphere's videos would be out of scope and not be generated by our algorithm.

AI Feedback Scope: We are currently looking solely into text-based, file-based, image-based or code-based projects due to our interest in introducing AI feedback into our projects. Projects that require more involved feedback (ex: projects that require spatial feedback or tactile feedback- such as larger mechanical or materials engineering-based projects) are out of scope and would not be generated.

Objectives

Primary Objectives

1. Expand our digital platform to deliver personalized projects: Deliver our new project features to our high school audience
2. Expand market reach and establish key partnerships: Secure partnerships with new districts and schools with our new feature, and launch targeted advertising campaigns to parents
3. Refine business model and improve customer retention: Implement tiered subscription plans and implement a pilot feature partnership program with current schools

Secondary Objectives

1. Enhance accessibility and localization features: Complete translation and localization of core lessons and projects in three Latin American and South American languages
2. Develop a strong feedback loop for continuous improvement: Establish a formal feedback collection system, creating a pipeline to ensure student and educator feedback is incorporated.

User Personas

Primary Customer Segment: High school students in the United States, aged 15-18, and their parents or caregivers represent our primary users. This is a diverse group that has been educated in the public, private, and magnet schools with a special focus on STEM. They are motivated by academic excellence, multidisciplinary interests, and the need to improve profiles for college applications.

Pain Points: In their academic journey, high school students face a number of challenges in their preparation for college. Many find themselves burdened by standardized teaching methods, which rely heavily on lecturing and rote memorization, failing to accommodate diverse learning styles and leaving students disengaged or struggling to retain knowledge. Advanced or multidisciplinary learners often find limited access to quality resources that encourage hands-on, practical exploration beyond the traditional curriculum. Furthermore, the lack of representation of students' identities and interests in school curricula can alienate students from schoolwork coming from multicultural backgrounds. Parents and caregivers who bear a very important role in supporting their children's education have their own frustrations. Most of them struggle to find intuitive, affordable platforms that can offer personalized and engaging learning plans suited to the needs of their children. This could be a very challenging task for those parents who have to balance full-time jobs while ensuring that their children do not lag behind academically. Together, these pain points highlight a need for an accessible solution that fosters engagement, personalization, and practical learning opportunities for students while easing the burden on their parents.

Sophia the Struggling Student

- **Demographics:** High school junior, 16 years old, public school.
- **Needs:** Struggles to retain concepts through traditional lectures and notes. She thrives when she can apply concepts more practically.
- **Pain Points:** Finds her school's rote teaching style and standardized tests overwhelming due to lack of engaging material that fits her learning style.

- **Goals:** Understand her courses better to prepare for college and boost her GPA.

Ryan the Robotics Club Leader

- **Demographics:** High school senior, 17 years old, attends a STEM-focused magnet school.
- **Needs:** Wants challenging projects that incorporate coding and engineering principles to enhance his technical skills.
- **Pain Points:** Limited access to quality resources for advanced learning beyond school curriculum.
- **Goals:** Use EduSphere to complement his robotics competition prep and build a strong college portfolio.

Mia the Multidisciplinary Explorer

- **Demographics:** High school sophomore, 15 years old, private school.
- **Needs:** Enjoys combining her varied interests in art, literature, and environmental science into fun learning projects, and is curious about what careers in these fields look like.
- **Pain Points:** Struggles to find tools that blend her interests with structured learning.
- **Goals:** Use EduSphere to find new ways to connect different subject areas and understand her field of interest from a project perspective.

Chris the Parent-Caregiver

- **Demographics:** Parent of two high schoolers, works full-time in finance.
- **Needs:** Wants to ensure his children are engaged in supplemental, practical learning activities that match their academic goals.
- **Pain Points:** Frustrated by platforms that aren't intuitive or don't offer personalized support.
- **Goals:** Find platforms for his children that can offer personalized learning plans and support that are cost effective and engaging that he can also keep up with even with his busy schedule.

User Stories

For Sophia the Struggling Student

"As a student who struggles with retention, I want to be able to learn in a more engaging and interactive way, so I can learn through my own learning style."

"As a high school junior, I want instant feedback on my project so I know if I'm on the right track before my exams."

- **Scenario:** Sophia uses EduSphere to strengthen her understanding of quadratic equations. The platform creates a project that involves designing a virtual parabolic water fountain using geometric principles. As she progresses, she gets instant feedback on her calculations.
- **Outcome:** Sophia completes the project and gains confidence in solving quadratic problems.

For Ryan the Robotics Club Leader

"As a robotics club leader, I want to find pre built project templates that integrate coding and engineering principles so I can enhance my skills efficiently."

"As a senior preparing for college applications, I want projects that are advanced and challenging to make my college applications stand out."

- **Scenario:** Ryan selects a project on building a robot arm simulation in Python. EduSphere integrates videos explaining torque and provides sample code snippets. He customizes the project for his competition.
- **Outcome:** Ryan refines his coding and engineering skills, helping his team win at regionals.

For Mia the Multidisciplinary Explorer

"As a student with diverse interests, I want projects that combine art and science to explore innovative ideas creatively."

"As a sophomore, I want to explore what careers in my interests might look like, so I can make more informed decisions about my future."

- **Scenario:** Mia chooses a project that combines environmental science and digital art: creating an infographic on climate change using data analysis tools provided by EduSphere.
- **Outcome:** She presents her project at a school exhibition, gaining insight and further curiosity in what a career in these fields might look like.

For Chris the Parent-Caregiver

"As a parent, I want clear metrics and a progress dashboard so I can track my kids' learning outcomes."

"As a busy professional, I want projects that require minimal parental oversight but are engaging for my kids."

- **Scenario:** Chris subscribes to EduSphere's premium plan. He uses the dashboard to track his kids' completed projects and learning milestones.
- **Outcome:** Chris can see the development of their chosen projects and skills right in front of his eyes, and feels reassured about their academic growth.

Functional Requirements

Unique Project Generation (Priority 0)

Purpose

The system should generate original, goal-aligned projects tailored to each student's curriculum, interests, and goals. This ensures projects are not only educational but also engaging and relevant, helping students differentiate themselves during college admissions or other evaluation processes.

Key Features

- **AI Generation Algorithms:** Utilize natural language processing (NLP) and generative models (like GPT or similar) to create unique, meaningful project descriptions and guidelines.
- **Uniqueness Validation System:** Implement plagiarism detection tools or a similarity-checking mechanism to ensure that each project is distinct from others.
- **Customization Options:** Allow students to input preferences, such as their academic goals, skill levels, or interests, for more personalized outputs.

Dependencies

- A robust AI system for project ideation and creation.
- Integration of tools like plagiarism checkers or uniqueness validation algorithms.
- A database to store existing projects and track generated ones to avoid redundancy.

Interactive and Real-Time Feedback (Priority 1)

Purpose

Enable students to receive instant and actionable feedback on their work, allowing for continuous improvement and a deeper understanding of concepts. This feature fosters engagement by mimicking an interactive and guided learning experience.

Key Features

- **Real-Time Data Processing:** The system should process and analyze student inputs, such as responses, progress in projects, or answers to questions in real-time.
- **Feedback Mechanisms:** Provide constructive feedback on errors, improvement suggestions, and reinforcement of correct concepts.
- **Interactive Features:** Include quizzes, checkpoints, or guided tasks to engage students actively and validate understanding.

Dependencies

- Fast data processing infrastructure capable of handling real-time analytics.
- An AI or rule-based system for generating accurate feedback tailored to student inputs.
- A user interface that supports interactivity, including dynamic hints and explanations.

Personalized Learning Paths (Priority 2)

Purpose

Create adaptive learning journeys tailored to each student's learning pace, preferences, and performance. This feature ensures the curriculum dynamically adjusts to optimize understanding and retention.

Key Features

- **Student Performance Tracking System:** Continuously monitor progress (i.e strengths, and weaknesses) using metrics such as quiz scores, project completion rates, and engagement levels.
- **Adaptive Learning Algorithm:** Use machine learning to recommend the next best activity or lesson based on student performance and preferred learning style.
- **Custom Learning Plans:** Allow students to view and modify their personalized paths to suit their goals.

Dependencies

- A comprehensive tracking system to gather and analyze student data in real-time.
- Machine learning models capable of adapting learning sequences dynamically.

Non-Functional Requirements

Performance and Scalability: The platform must deliver high performance under varying loads while maintaining responsiveness and scalability to accommodate a growing user base.

- **Response Time**
 - User interactions such as project generation or real-time feedback must occur within 2-3 seconds to provide a seamless and engaging user experience. This includes running AI algorithms, retrieving user-specific data, and generating output.
- **Scalability**
 - Support up to 1 million active users with simultaneous usage.
 - Handle 2 million queries per second during peak times, such as when schools launch system-wide activities.

Security and Compliance: The system shall give first priority to the security of user data and follow regulatory standards to protect intellectual property and sensitive information.

- **Data Protection**
 - All data should have end-to-end encryption to ensure that there is no unauthorized access to the data during transit.
 - Protect accounts of users using OAuth 2.0 and multi-factor authentication. Employ role-based access controls to ensure that users, admins, and developers only access data relevant to their roles.
- **Compliance**
 - FERPA (Family Educational Rights and Privacy Act): Protection of educational records and allowing students or parents to decide about their information (CleverBooks).
 - COPPA (Children's Online Privacy Protection Act): Ensure additional safeguards for users under 13, including verified parental consent (CleverBooks).
 - GDPR: User data in the EU should be protected, with guarantees of transparency and the right to be forgotten (CleverBooks).
 - Implement mechanisms for audit trails to track activities of compliance and data access.

Reliability and Availability: The system should offer a reliable service, having the least downtime, so as to ensure continuity in learning.

- **Uptime**

- Provide 99.9% availability, which can accommodate less than 8.76 hours of downtime per year.
- Establish monitoring and alert systems that should find and fix issues in real-time.

- **Data Backup**

- Schedule regular backup of user progress, generated projects, and other critical data to ensure restoration upon failures.
- Methods: Employ automated backup systems, running snapshots as frequently as every 6 hours, distributing them across multiple locations for minimizing data loss.

Accessibility and Adaptability: The platform should be inclusive for all users (including those with disabilities) and usable in any condition (including conditions with low internet connectivity).

- **Accessibility**

- To make sure the product is accessible to everyone, make sure that it follows the WCAG 2.1 AA standard. Some features include text-to-speech, compatibility with screen readers, keyboard navigation, high contrast, and variable text sizes.

- **Offline Support**

- Allow the core functionality of accessing previously saved lessons or projects viewed to be available offline. When it gets back online, automatic synchronization should silently update the progress and upload data.

Wireframes and MockUps

View mockups at the [Figma link here](#). Note that there are 2 pages: “UX” and “Key Screens”. The UX page showcases the user experience, from beginning to end, for both the free and premium users. The Key Screens page showcases specific UI that would be implemented to give designers and engineers a clear understanding of the execution of the feature.

Constraints

Technological Limitations

1. **High Computational Demands**

- The AI-driven features, such as real-time feedback, unique project generation, and adaptive learning paths, require significant computational resources, especially during peak usage. This can lead to:
 - Increased Hosting Costs: Scalable cloud infrastructure (e.g., GPUs for AI model inference) can be expensive to maintain, particularly for ensuring rapid response times for millions of users.
 - Latency Risks: High computational loads may strain servers, potentially causing delays in processing during simultaneous requests.

2. **Offline Functionality Limitations**

- Features requiring real-time data processing, such as instant feedback or project uniqueness validation, are inherently constrained in offline environments. Offline functionality may only support viewing previously saved lessons or projects, limiting the user experience for those with intermittent or no internet connectivity.

Regulatory Compliance

1. **Strict Data Handling Requirements**

- FERPA, COPPA, and GDPR: These regulations impose stringent rules on data collection, processing, and storage.

- User data must be encrypted and stored securely, potentially increasing storage and compliance costs.
- Parental consent mechanisms for COPPA add complexity in user onboarding workflows for younger audiences.
- GDPR mandates data deletion on request and restricts cross-border data transfers, complicating data management.

2. Plagiarism and Intellectual Property Concerns

- Ensuring the system generates unique projects while adhering to intellectual property laws requires robust plagiarism detection tools and real-time content validation.

Budget and Resources

1. Funding Constraints

- Limited financial resources may impact:
 - Infrastructure Investment: Scaling to support high computational demands and millions of users might be delayed.
 - Feature Rollout: Priority features like real-time feedback and unique project generation may require phased implementations.

2. Development Resource Constraints

- A small or limited team may slow down:
 - Building and testing AI models.
 - Ensuring compliance with accessibility and regulatory standards.
 - Debugging and maintaining high system reliability.

Assumptions

Educators Will Support Unique Project Generation

- **Explanation:** It's assumed that educators will see the value in unique, AI-generated projects and actively integrate them into their teaching. However, educators may have concerns about fairness, workload, or the pedagogical value of AI-driven solutions.
- **Potential Impact:** Resistance from educators may limit the adoption of the feature, particularly if they feel the projects do not align with curriculum standards or create disparities among students. This could affect partnerships with schools and reduce the platform's overall effectiveness.
- **Mitigation:** Involve educators in the design and testing phases to align features with their needs and expectations. Provide training and resources to demonstrate how unique projects enhance learning and reduce workload.

Students and Educators Will Actively Engage with Features

- **Explanation:** The assumption is that users will consistently interact with the platform's tools, such as real-time feedback, personalized learning paths, and project generation.
- **Potential Impact:** Low engagement from students or educators could result in underutilized tools, leading to poor retention and reduced perceived value of the platform. Without sustained use, the platform's ability to provide meaningful insights or create impactful learning paths diminishes.
- **Mitigation:** Implement gamification elements, such as points or rewards, to boost student engagement. Use targeted communication (e.g., reminders, tutorials) to help educators integrate the platform into their workflows.

Students Will Provide Accurate and Complete Performance Data

- **Explanation:** The platform assumes that students will honestly and thoroughly input their performance data, such as quiz results or progress updates, which are critical for adaptive learning and feedback.
- **Potential Impact:** Incomplete or inaccurate data undermines the effectiveness of personalized features, leading to irrelevant recommendations and suboptimal learning paths. This could reduce trust in the platform's effectiveness and lower retention rates.

- **Mitigation:** Use automated data collection wherever possible (e.g., integrating with learning management systems or tracking in-platform activities). Include data validation mechanisms and prompts to encourage

Milestones and Timeline

Phase 1: Need finding and Design (Fall 2024, Q1): This phase lays the foundation for the platform by thoroughly understanding user needs and aligning the design with those insights.

- **Key Objectives**

- Through direct user research, define which skills, topics, and module video types are most requested by the students.
- Engage in stakeholder consultations through surveys, interviews, and focus groups to collect qualitative and quantitative data from students, educators, and parents.
- Perform competitor analysis to understand the lacuna in existing platforms and identify opportunities for differentiation.
- Design user personas and journey maps to model typical user interactions and expectations.
- Develop initial wireframes and prototypes for core features, focusing on simplicity and usability.

- **Deliverables**

- A prioritized list of skills and topics for video modules and projects.
- Wireframes and a high-level design for the user interface.
- Documentation summarizing user needs and technical feasibility assessments.

Phase 2: Beta Release (Summer 2025, Q2): The goal of this phase is to launch the Minimum Viable Product (MVP) and establish a functional backend system to support static project generation and basic user interactions.

- **Key Objectives**

- Build the Project Pathways Backend, enabling static project generation based on predefined templates and student-selected preferences.
- Develop the MVP with all core UI functionality, including navigation, project viewing, and user profile management.
- Test and iterate on the system using feedback from a limited group of beta users (students and educators).
- Ensure basic data tracking and storage systems are in place to monitor user engagement and collect performance metrics.

- **Deliverables**

- A functional backend capable of generating and delivering static projects.
- A polished user interface for the MVP, ready for beta testing.
- Feedback reports from beta testers, highlighting areas for improvement.

Phase 3: Second Release (Winter 2025, Q3): This phase focuses on integrating AI-driven features and feedback mechanisms to deliver personalized, adaptive learning experiences.

- **Key Objectives**

- Implement AI models for personalized project generation, ensuring each project aligns with user goals, learning styles, and past performance.
- Introduce real-time feedback mechanisms to provide actionable insights and encourage iterative learning.
- Integrate adaptive learning algorithms to construct dynamic learning paths based on individual performance data.
- Expand the project library with new templates and unique content, offering greater variety to users.
- Ensure compliance with accessibility and regulatory standards before the full release.

- **Deliverables**

- Fully operational AI-driven features, including real-time feedback and adaptive learning paths.
- A comprehensive library of unique, goal-aligned projects.
- Finalized documentation detailing the system architecture, AI integration process, and user engagement strategies.

Phase 4: Full Release and Scaling (Spring 2026, Q2): This phase focuses on releasing the platform at a larger scale and making adjustments based on the feedback from Q3

- **Key Objectives**

- Launch the fully operational platform to handle large-scale usage.
- Optimize performance and user experience based on Q3 feedback.
- Expand outreach to schools, educators, and parents through marketing and partnerships.
- Provide training and resources for educators to integrate EduSphere effectively.

- **Deliverables**

- Fully optimized platform ready for public release.
- Marketing materials and partnership agreements with educational institutions.
- Training resources and onboarding guides for educators.
- Reports on user engagement and learning outcomes.

Resource Requirements

Human Resources (Note the total cost for Human Resources is ~\$1.3 million which is ~7% of our \$20 million revenue in 2023.)

1. **Project Management Team**

- Project Managers (1): Overseeing project development timelines and milestones, resource allocation, and risk management (~\$100,000/year for one project manager).
- Product Managers (1): Knowledge of user needs, oversees the launch and development of new features (~\$120,000/year for one product manager).

2. **Technical Team**

- AI/ML Engineers (2): Development of AI-driven features, including project generation, uniqueness validation, real-time feedback, and adaptive learning algorithms (~\$280,000/year for two AI/ML Engineers).
- Backend Developers (2): Development and maintenance of the backend to ensure scalability and real-time data processing (~\$260,000/year for two Backend Developers).
- Frontend Developers (1): Create the user interface and ensure accessibility compliance (~\$130,000/year for one Frontend Developers).
- Data Engineers (1): Create and maintain the data pipelines that track performance, create feedback, and enable adaptive learning (~\$120,000/year for one Data Engineer).
- Quality Assurance Engineers (1): Perform extensive testing regarding usability, reliability, and compliance with FERPA, COPPA, and GDPR regulations (~\$110,000/year for one Quality Assurance Engineer).
- User Experience (UX) Designers (1): Perform needfinding, user journey mapping, and prototype testing (~\$90,000/year for one UX Designer).

3. **Content Support Team**

- Teachers and Subject Matter Experts (2): Give insight and help provide project content aligned with educational standards (~\$110,000/year for two Subject Matter Experts).

Technical Resources (Note the total cost for Technical Resources is ~\$16,500 which is <1% of our \$20 million revenue in 2023.)

1. **Key Technologies**

- AI/ML Models: GPT-like models for project generation and personalization, plagiarism detection systems, and adaptive learning algorithms (~\$2,000/year for 2000 credits).
- Adaptive Learning Algorithms: Reinforcement learning-based models to tailor learning paths (~\$2,500/year because of computing resources).
- Real-Time Feedback Tools: Libraries for data processing and insights generation (e.g., TensorFlow, PyTorch) (~\$1,500/year because of computing resources).
- Plagiarism Detection: Tools like Turnitin API or custom similarity-checking algorithms (~\$1,000/year).

2. Key Development Tools

- Frontend Frameworks: React, Angular, or Vue.js for responsive and interactive user interfaces (*No cost, open source*).
- Design Tools: Figma, Adobe XD for wireframes and prototypes (~\$1,000/year).
- Backend Frameworks: Django, Flask, or FastAPI for API development and data processing (*No cost, open source*).
- Data Storage and Processing:
 - PostgreSQL, MongoDB for structured and unstructured data storage (~\$3,000/year).
 - Data Pipelines: Apache Kafka, AWS Glue for real-time data analytics (~\$1,000/year).
- Cloud Infrastructure: AWS, Azure, or Google Cloud for hosting, scalability, and high availability (~\$2,000/year).
- Performance Monitoring: New Relic, Prometheus for real-time application monitoring (~\$1,000/year).
- Security Tools:
 - Encryption Libraries: OpenSSL for end-to-end encryption (*No cost, open source*).
 - Authentication Tools: OAuth 2.0, JWT for secure user authentication (*No cost, open source*).
- Collaboration Tools:
 - Version Control: Git and GitHub/GitLab for source code management (~\$500/year).
 - Project Management: Jira, Trello for tracking progress and team coordination (~\$500/year).
 - Communication Tools: Slack, Zoom for team communication and collaboration (~\$500/year).

Testing and Quality Assurance

Performance Testing: Ensures the platform's responsiveness, scalability, and stability under various conditions.

1. Proactive Quality Assurance

- **Load Testing**
 - Simulates typical and peak user loads to ensure performance meets requirements using Apache JMeter, and Locust.
 - Helpful to validate the system can handle large amount of queries and users on the platform.
- **Stress Testing**
 - Pushes the system beyond maximum capacity to identify breaking points to evaluate how the platform behaves under extreme conditions and its recovery mechanisms.
- **Scalability Testing**
 - Validates the platform's ability to scale resources dynamically (e.g., increasing users from 500,000 to 1 million).

2. Reactive Quality Assurance

- **Incident Analysis**
 - Reviews logs and metrics after performance issues to identify root causes.
- **Real-Time Monitoring**

- Uses tools like New Relic, Prometheus to monitor server performance and detect issues before user impact.

Functional Testing: Ensures the platform's features and operations align with functional requirements.

1. Proactive Quality Assurance

- **Unit Testing**
 - Validates individual components, such as the AI project generation or real-time feedback systems using Pytest to catch bugs early in the development process.
- **Integration Testing**
 - Tests interactions between components, such as backend APIs with the AI engine or frontend to ensure smooth communication between systems.
- **Compliance Testing**
 - Verifies adherence to regulations like FERPA, GDPR, and COPPA before deployment to ensure legal and ethical compliance.

2. Reactive Quality Assurance

- **Error Log Analysis**
 - Verifies adherence to regulations like FERPA, GDPR, and COPPA before deployment to ensure legal and ethical compliance.
 - Monitors logs for unexpected errors or API failures to identify issues that were missed during proactive testing.
- **User Feedback Evaluation**
 - Collects reports from users about issues like incorrect feedback or project duplication to address gaps in functionality based on real-world use cases.

User Experience (UX) Testing: Evaluates how users interact with the platform to ensure accessibility, usability, and engagement.

1. Proactive Quality Assurance

- **UI/UX Design Validation**
 - Tests prototypes and wireframes with users to ensure the layout and features meet user expectations to validate design and product choices before full development.
- **Customer Validation**
 - Gather feedback from educators and students during the design phase to align features with user needs early in development.

2. Reactive Quality Assurance

- **User Feedback Collection**
 - Monitors user complaints and suggestions post-launch through surveys to gather feedback and improve functionality of the UI.
- **Data Analysis**
 - Uses tools like Hotjar to observe where users click, scroll, or drop off to identify underused or confusing features.

Metrics

User Engagement KPIs

- **Completed Projects:** Measures the number of projects fully completed by students. A high completion rate indicates strong engagement and effective project pathways that keep students motivated.

- **Feedback Activity:** Tracks the amount of feedback provided to students, whether automated, peer, or educator feedback. High feedback activity demonstrates the platform's ability to offer actionable insights and maintain interactivity.
- **Active Users (DAU/WAU/MAU):** This KPI indicates the overall usage and the stickiness of the platform.
- **Time Spent Per Session:** The average duration of user sessions on the platform. Longer sessions suggest deeper interaction and engagement with the learning content.

Learning Effectiveness KPIs

- **Success Rate:** The number of students that progress at the appropriate rate from stage to stage in their learning path. This shows the effectiveness of adaptive learning paths at guiding students through material.
- **Quiz/Assessment Scores:** The average performance on quizzes or assessments embedded in projects or lessons. Higher scores indicate effective learning and content comprehension.

Platform Growth and Scalability KPIs

- **New User Registrations:** The number of new student and educator accounts created in a given period. This KPI tracks growth and market penetration.
- **Retention Rate:** A high retention rate (or percentage of people returning to the platform) shows a positive user experience.
- **Churn Rate:** Looking at churn (or number of users who stopped using the platform) allows us to identify what is causing disengagement

Community Engagement KPIs

- **Peer Collaboration Rate:** This KPI tracks the platform's ability to foster collaboration among students in terms of completing projects and communicating about content.
- **Educator Participation Rate:** The percentage of educators who actively engage with the platform by creating and assigning projects and providing feedback.

Financial KPIs

- **Monthly Recurring Revenue (MRR):** The total subscription revenue generated on a monthly basis to measure if steady income is maintained.
- **Customer Acquisition Cost (CAC):** The average cost of acquiring a new user. Lower CAC is better as it indicates effective marketing strategies.
- **Revenue Growth Rate:** Percent revenue increase in a specified time period, showing financial growth in the platform

Success Criteria

EduSphere's success will be measured by primary and secondary goals achieved through measurable key results. In terms of scaling the digital platform and providing personalized projects, it is targeted that 80 percent of project completions among high school users on board are achieved within six months and onboard 1,000 active users. Key results for expanding market reach and creating partnerships include: partnership with at least 10 new districts or schools, running three targeted advertisement campaigns to parents that bring in a total increase of 20% more registered users. To refine the business model, improve retention: implement tiered subscription plans; hit \$50,000 monthly recurring revenue in the first year; pilot feature partnerships in a minimum of five schools. Secondary objectives include improving accessibility by translating lessons into three Latin American and South American languages, with a 90% satisfaction rate from users in these regions, and developing a strong feedback loop by collecting and incorporating feedback from at least 500 students and educators within the first six months. These outcomes will position EduSphere as a scalable, inclusive, and user-focused platform.

Go to Market

Market Analysis: High school students often feel pressure to stand out in college admissions but lack opportunities to showcase problem-solving abilities, as traditional learning focuses on memorization rather than real-world application. This gap is evident in modern education, where nearly 40% of

students entering college report feeling unprepared for college work, and only 11% of business leaders believe graduates are ready for the workforce (National Center for Education Statistics). Project-based learning addresses these deficiencies, improving problem-solving and critical thinking skills by 8% (Education Endowment Foundation) and boosting retention by 60% compared to traditional methods (Harvard Study of Adult Development). By enabling students to take initiative, explore interests, and develop valuable skills like teamwork and adaptability, it helps students build unique portfolios and prepare for diverse career paths. For instance, Olivia, a junior, expresses uncertainty about college expectations, saying, "I don't know if I've done enough; I don't really know what they're looking for," while Raunak, a senior, notes, "Classes are not giving me the opportunity to explore what I am interested in." While platforms like Khan Academy and Udemy provide valuable educational resources, they fall short in offering the integrated, personalized project-based learning that EduSphere delivers. Khan Academy focuses on high-quality, standards-aligned video lessons and practice exercises, with limited hands-on learning components. Udemy offers project-based courses in technical fields like programming, but these are not part of a cohesive, curriculum-aligned learning path. In contrast, EduSphere combines structured instruction with personalized, project-based experiences, enabling students to apply concepts in practical, hands-on ways that reinforce understanding and build critical skills. This tailored and experiential approach uniquely positions EduSphere to prepare students for success in both college and their future careers.

Target Audience and Segmentation: EduSphere is “bridging learning and real-world readiness.” It targets high school students who wish to apply classroom learning to a real-world environment through projects in which the students explore a wide range of career options and develop professional skills. This amounts to around 3-5 million students out of approximately 15 million American high schoolers. We seek to engage students in meaningful project-based opportunities that go a step further in developing practical skills, critical thinking, and college and career readiness.

Value Proposition and Messaging: EduSphere empowers high school students to excel in college admissions and career preparation by integrating traditional classroom learning with innovative, personalized, project-based experiences. Leveraging cutting-edge AI technology, EduSphere offers unique project generation tailored to students' interests and goals, real-time interactive feedback to enhance learning, and adaptive personalized learning paths. These features ensure students develop practical skills, critical thinking abilities, and career insights, making their education both impactful and future-focused.

Marketing and Promotion Plan: EduSphere's marketing strategy leverages digital channels to maximize engagement, targeting, and measurable impact. Key channels include SEO marketing, social media platforms, and Google Ads. SEO, a cornerstone of online visibility, will improve search rankings, drive organic traffic, and build credibility (Search Engine Land). Social media platforms like Instagram, TikTok, and YouTube are critical for engaging students, as up to 95% of youth aged 13–17 use social media, with many reporting near-constant use (National Center for Biotechnology Information). These platforms will be used to deliver interactive, relatable content to boost awareness and conversions. Google Ads will enable targeted, cost-effective campaigns by focusing on high-intent keywords such as "best online video lessons," which are particularly effective in the education industry due to their measurable results and affordability (Team Meritto, 2024). Traditional channels like TV, radio, billboards, and direct mail are excluded due to their high cost, lack of precise targeting, and limited engagement compared to digital alternatives. The marketing budget, based on 5–10% of annual revenue (\$20 million), is divided strategically to support growth goals. For a conservative approach, \$1 million will be allocated annually, while aggressive growth allows for \$2 million. SEO will receive 15–20% for long-term investment, social media 30–40% as the primary engagement channel, and Google Ads 40–50% for high-impact campaigns. A 5% contingency is reserved for testing new opportunities. In Year 1, efforts will focus on building SEO foundations, launching social media awareness campaigns, and refining Google Ads targeting. Scaling successful campaigns, targeting key periods like back-to-school, and expanding email outreach will follow. Year 2 will leverage insights from Year 1 to scale campaigns further, expand into new markets with localized strategies, and collaborate with

influencers or host webinars to enhance brand authority. This focused approach ensures precision targeting and impactful engagement, aligning with EduSphere's digital-first vision.

Distribution Strategy: EduSphere will distribute its software through an online SaaS platform, leveraging eCommerce self-service for marketing, sales, and fulfillment via a company-owned website. This approach aligns with the target audience's preference for convenient, global access and supports the software's need for continuous maintenance, updates, and user interaction. Customers will be drawn to premium features through the website, while partnerships with businesses will grant premium access to their audiences. Additionally, EduSphere will expand its B2B outreach by partnering with schools and districts, enabling premium platform access to large student groups, fostering community networks, and tailoring solutions to shared educational needs (Cheng, 2022).

Sales Strategy: EduSphere combines B2B partnerships with schools and districts and B2C outreach to parents and students, supported by a freemium tiered subscription model. The B2B strategy efficiently reaches large student populations by embedding EduSphere into curricula, reducing marketing costs and fostering adoption, as seen in successful EdTech companies like Newsela and ClassDojo (HolonIQ, 2023). On the B2C side, digital advertising on platforms like Google and Facebook targets parents, while visually engaging content on Instagram, TikTok, and YouTube attracts students, aligning with EdSurge's (2023) findings on effective digital outreach. The freemium model offers a free tier to reduce entry barriers, with \$5 and \$9 tiers for premium features, mirroring successful strategies by Khan Academy and Duolingo (HolonIQ, 2023). Rejecting outbound sales, account-based marketing, and third-party resellers, EduSphere focuses on scalable, affordable, and personalized engagement. To enhance its strategy, EduSphere could create inbound marketing content, such as blogs or videos on college admissions tips, to organically attract and build trust with its audience.

Launch Plan: EduSphere's launch will begin with a beta testing phase targeting a select group of students and educators, focusing on those with diverse academic needs and engagement levels. Schools and districts will have the opportunity to apply for early access to participate in this beta phase, allowing EduSphere to test the MVP's static project generation, user interface, and interactions across various educational contexts. Feedback from beta testers will be collected to refine the platform. After the beta phase, pre-launch marketing will kick off with outreach to high schools, education influencers, and academic organizations. Collaborations with teachers and administrators will help create promotional content, while targeted social media campaigns and event-based promotions will highlight EduSphere's unique benefits in preparing students for college and careers. During launch week, EduSphere will host a main kickoff event featuring virtual workshops and guest speakers from academia and industry to showcase its impact. Individual projects created by beta testers will be spotlighted across social media and targeted ads, emphasizing the platform's personalized learning approach. Short-form videos featuring student success stories and educator endorsements will drive engagement and encourage new users to explore EduSphere's project-based learning features. This phased approach, starting with a carefully selected group of early-access schools, ensures a strong entry into the market while building momentum and trust among the target audience.

Customer Support and Service: To address the variety of user questions about the UX, including generating and refining project ideas, navigating project paths, interacting with tools and lessons, and sharing projects, EduSphere will implement a multi-faceted customer support strategy. This includes animated previews to offer high-level feature overviews, interactive pop-ups to familiarize users with functionality, and FAQs to address common issues, supplemented by video demonstrations when necessary. If these strategies don't resolve user concerns, users can access online chat support or an "Email Us" option, avoiding costly phone support. Additionally, feedback pop-ups will continuously collect input from users, allowing for continuous improvement.

MVP and First Release: The MVP for EduSphere will debut in Summer 2025 and will serve as the foundation for user testing and system optimization. The MVP will include static project generation through predefined templates and a core UI that supports navigation, project viewing, and user profile

management. Feedback from beta testers will guide refinements, while basic data tracking systems will monitor user engagement and performance metrics. By Winter 2025, the platform will evolve into a more advanced product with AI-powered features for personalized project generation and real-time feedback. Adaptive learning algorithms will dynamically tailor learning paths, and the expanded project library will offer diverse, goal-aligned options. These enhancements, combined with rigorous compliance and accessibility standards, will prepare the platform for a full-scale launch, ensuring a highly personalized and impactful learning experience for users.

Product Evaluation: EduSphere's product evaluation will rely on the KPIs and success criteria outlined earlier, such as student engagement, project completion rates, and paid conversion rates, to measure its effectiveness in delivering personalized, project-based learning experiences. These metrics will help determine how well the platform meets its goals of fostering critical skills, increasing student readiness for college and careers, and driving user satisfaction. Additionally, retention rates and feedback from beta testers will provide insights into areas for refinement, ensuring continuous improvement.

Qualitative feedback from students, educators, and parents will further guide evaluation efforts. Surveys, focus groups, and direct user testimonials will help assess satisfaction with project quality, relevance, and learning outcomes. A/B testing against platforms like Udemy will benchmark engagement and highlight EduSphere's unique value proposition. By combining KPIs with qualitative insights, EduSphere will maintain a user-centered approach, ensuring it delivers meaningful and impactful educational experiences.

Sample Surveys

- [Educator Survey](#)
- [Student Survey](#)

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