Version 1.0

Revision History

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| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 06/09/2011 | v1.0 | Initial Release | Monica Gloudemans  Ekaterina Schwartz |
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# Introduction

The purpose of this document is to collect, analyze, and define the high-level needs and features of the ACS 560 Academic Measurement and Achievement Tool (AMAT). This document focuses on the capabilities needed by the stakeholders and target users, and why these needs exist. The details of how the ACS 560 AMAT fulfills these needs are described in the use-case and supplementary specifications.

## References

Indiana Department of Education. Indiana Standards & Resources. Retrieved September 2, 2011 from http://dc.doe.in.gov/Standards/AcademicStandards/index.shtml

Compass Learning. Compass Learning Odyssey 2011. Retrieved September 2, 2011 from http://compasslearning.biz/content/odyssey2011

# Positioning

## Problem Statement

| The problem of | the lack of timely and iterative assessments of a student’s performance against Indiana state academic standards;  the absence of readily available remediation or enrichment materials linked directly to specific standards;  the failure to engage parents in the process of academic standards achievement |
| --- | --- |
| affects | proactive parents wishing to support their child’s academic success;  students who need to demonstrate mastery of the state academic standards;  support staff (teachers, home school directors, resource personnel, tutors) who work to remediate an individual’s academic deficiencies or develop a student’s strengths |
| the impact of which is | a “failing" standardized test score may be parents’ first warning of a child’s deficiencies;  students are promoted to the next grade level without mastery of the requisite skills;  an individual may be retained at the current grade level for an additional year;  resources are spent reviewing standards for which a student is proficient, at the expense of standards for which the student is truly deficient and in need of remediation. |
| a successful solution would be | a web-based tool which could provide iterative assessments of a student’s mastery of specific academic standards, immediate feedback linked to tutorial and enrichment modules, and a progress monitor to document student achievement. |

## Product Position Statement

| For | any person (student, parent, tutor, teacher, support staff) |
| --- | --- |
| Who | participates in or facilitates a student’s mastery of specific state academic standards. |
| The (product name) | is a web-based application |
| That | Provides assessments of a student’s mastery of specific Indiana academic standards and generates timely analyses with links to appropriate tutorial, remediation and enrichment modules. |
| Unlike | ISTEP testing coupled with traditional classroom instruction |
| Our product | Provides assessments that are iterative, feedback that is immediate and remediation that is targeted at specific standards. |

# Stakeholder and User Descriptions

## Stakeholder Summary

| **Name** | **Description** | **Responsibilities** |
| --- | --- | --- |
| Dr. John Tanik | Sponsor | The sponsor is responsible for monitoring the project’s progress and providing input and guidance as the project proceeds. Responsible for overseeing and evaluating project performance. |
| Monica Gloudemans | Owner | Responsible for preparing the vision document and project proposal, preparing the business plan, obtaining funding to support the project, and addressing legal issues such as intellectual property rights. |
| Ekaterina Schwartz | Owner | Responsible for preparing the vision document and project proposal, preparing the business plan, obtaining funding to support the project, and addressing legal issues such as intellectual property rights. |
| Monica Gloudemans | Software engineer | The software engineer is responsible for conducting the feasibility study, preliminary research, requirements analysis, validation of the project, architectural analysis and design, and overseeing the development, deployment and maintenance of the project. |
| Ekaterina Schwartz | Software engineer | The software engineer is responsible for conducting the feasibility study, preliminary research, requirements analysis, validation of the project, architectural analysis and design, and overseeing the development, deployment and maintenance of the project. |
| Outsourced | Software developer | Responsible for developing and implementing the software. |
| Outsourced | Software testers | Responsible for verifying the correctness of the software including functionality unit testing, integration testing, regression testing and user acceptance testing. |
| Outsourced | Software manager | Responsible for deployment and maintenance of the software. |

## User Summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Description** | **Responsibilities** | **Stakeholder** |
| Student | Primary user | The student will take assessments, complete tutorial and enrichment modules and monitor personal progress. | Represented by team members |
| Parent | Primary user | The parent will initiate the application registration, review assessment summaries, assist in choosing tutorial or enrichment modules, and monitor student progress. | Represented by team members |
| Tutor (teacher, support staff) | Primary user | The tutor will review assessment summaries, assist in choosing tutorial or enrichment modules, and monitor student progress. | Represented by team members |

## User Environment

The typical user will utilize the application from a home or classroom desk equipped with a computer that has access to the Internet; however, because the tool is web-based, a tablet, laptop, or any mobile device with access to a data network could also be used as a gateway device to the application. The application will be deployable on most major platforms. The application is designed for student assessment so the primary user will be the student. Younger students will require an adult user to initiate the first session. A typical user session would range from 15 minutes to about 1 hour. Tasks include registering an individual user, providing minimal personal information, logging on to the application for subsequent sessions, taking an initial assessment, reviewing the assessment summary, completing tutorial or enrichment activities, repeating assessments as needed, and monitoring student progress.

## Summary of Key Stakeholder or User Needs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Need** | **Priority** | **Concerns** | **Current Solution** | **Proposed Solutions** | |
| Availability | 1 | Assessments not administered on an as-needed basis | Infrequent scheduled in-school assessments | | Iterative assessments available to measure individual student’s understanding of academic milestones |
| Parental Awareness | 1 | Parents unclear on student’s current progress | Results available based on scheduled assessments | | Provide parents with real-time assessment results |
| Precision | 1 | Unspecified areas of academic weakness | Standardized testing and assessments linked to a few high level standards | | Tutoring suggestions targeting precise standards needing improvement |
| Centralization and Efficiency | 2 | Obtaining of appropriate resources | Availability of variety of government and private resources | | Centralized collection of valid assessment and tutorial tools |
| Adjustment to changing standards | 2 | Change in academic standards | Available on educational web sites | | Provide users with most up-to-day academic standards |
| Clarity | 3 | Difficult to interpret assessment reports | Reports lack detailed information and difficult to interpret | | User-friendly progress reports available at any time |

## Alternatives and Competition

ISTEP testing is administered yearly; some school systems administer additional testing (such as NWEA) throughout the year. The results of these tests are not immediately available and not linked to specific skills associated with each high-level standard. The testing summaries provided by ISTEP are often difficult for parents to access and interpret and are clearly not created for student use. Classroom teachers are resources for remediation; however, with class sizes increasing and teachers responsible for large numbers of students, appropriate individualized attention may be difficult to obtain. Currently, a variety of academic web-based applications for K-12 grade students is available, each encompassing parts of the Academic Measurement and Achievement Tool. The Compass Learning Odyssey is an assessment-tutorial tool most comparable to the Academic Measurement and Achievement Tool. The Odyssey provides students with personalized learning paths, teachers and administrators with assessment and management tools, however, fails the component of parental support and involvement that the Academic Measurement and Achievement Tool provides.

# Product Overview

The Academic Measurement and Achievement Tool is a web-based application that assists students, parents and support persons in assessing and promoting a student’s mastery of the Indiana state academic standards. Students interact with the web-based Academic Measurement and Achievement Tool, through an age-appropriate user interface. The application is accessible wherever an Internet connection is available. Upon registration, initial assessments are conducted in any or all of 4 basic subject areas: English/Language Arts, Mathematics, Social Studies, and Science. Student assessment results are kept confidential. Immediate feedback is provided through graphical and textual summaries that associate a proficiency rating with each academic standard. Tutorial resources are linked directly to standards for which the student has demonstrated deficiencies; enrichment resources are linked to standards which the student has mastered. Student assessment is ongoing and iterative with progressive achievement documented and displayed.

## Product Perspective

The Academic Measurement and Achievement Tool provides users with proactive tools to assess academic needs and improve student performance to meet mandated academic standards. It is a web-based application, adhering to pertaining internet standards that the user can access from any computer or device with internet access. The application utilizes a database to store student progress information and web services to deliver real-time assessments and analysis of student performance. Plug-ins will be implemented for extending its functionality.

## Assumptions and Dependencies

It is assumed that all the necessary jar files and software that are required for developing a web application are available. Off-the-shelf assessment and report-generating software will be adapted for the specific needs of the product to streamline the development process. Tutorial and enrichment modules will be constructed from a combination of free software, web-links, instructional videos and off-the-shelf software. Online resources will be monitored and updated as links are added or deprecated. Failure to procure appropriate remediation or enrichment materials will result in custom development of the desired software.

Assessment results will be linked to individual academic standards through customized software. The Indiana Academic Standards will be monitored for changes and product software updated as needed.

Student data will be maintained in a database. It is assumed that an appropriate database server is available. If security of personal data cannot be assured, an alternative method for storing data will need to be deployed.

Due to the importance of confidentiality, the application will be used over a secure internet connection with the implementation of a digitally signed security certificate.

Changes to the Vision document may result if all of the stated assumptions and dependencies are not met.

# Product Features

* User-friendly interface—age appropriate graphical interface
* Secure storage of user data—user account and password required
* Remote Accessibility—login with username and password
* Initial Assessments—baseline in 4 subject areas
* Real-time analysis—immediate scoring
* Results linked to specific standards—at the specific skill level
* Easy to interpret reports—usable by student and parent
* Tutorial and enrichment links—videos, games, skill drills, linked directly to each standard
* Tools for reassessment—on going assessment
* Progress reports and charts-- to demonstrate changes in proficiency

# Other Product Requirements

The Academic Measurement and Achievement Tool is a web-based application adhering to current Internet standards, which can be accessed from typical contemporary computers with internet access. The performance and response times of The Academic Measurement and Achievement Too are to be compatible with current user expectations. User-friendly navigation and efficiency are essential to the success of the application. The application is to implement standard common plug-ins as to keep the requirement for installation of external applications to a minimum.

The application is to include brief “Getting Started” tutorials and demonstrational videos to aid users in becoming familiarized with the application’s properties. Any demand for detailed application manuals would indicate a violation of the user-friendly interface feature, thereby requiring application redesign.

Online help is to include subsections on Getting Started, Trouble-Shooting, and Plug-in installation instructions with their respective references for downloading.