SGSEAM Assessment Improvement Action Report for Makahiki

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This document describes the improvement action report after applying the SGSEAM assessment to Makahiki. It is the deliverable for the final step of the SGSEAM process. It first describes the strengths and weaknesses of the Makahiki framework from the perspectives of different stakeholders, then suggests the actions to improve the Makahiki framework from these stakeholders' perspectives.

Table 1 lists the strengths and weaknesses of the Makahiki framework from the perspectives of different stakeholders.

Stakeholder	Assessment Result
Player perspective	Strengths: 1. literacy improvement is effective 2. found self-reported awareness and behavior effectiveness 3. player engagement level is high for the duration of 3-4 weeks Weaknesses: 1. reduction of energy consumption is small. 2. player engagement is low for long duration. 3. performance downgrade and some usability issues in the latest release.
System admin perspective	Strengths: general good experience with improved cloud installation document Weaknesses: 1. database installation documentation could be better 2. issues in usability of the installation script 3. difficulty in integrating an organization's LDAP and email server 4. difficulty in using the SSL
Game designer perspective	Strengths: most of the game design interface are easy to use Weaknesses: 1. difficulty and lack of documentation in the predicate system 2. difficulty in generating event attendance code 3. content creation is not WYSIWYG 4. designing the smart grid game could be time consuming
Game manager perspective	Strengths: 1. the submission approval interface is straight forward 2. the batch approval feature is useful 3. the game analytics "Status" page is very useful Weaknesses: 1. not easy to find the event confirmation code 2. the game site not available after the competition is over 3. did not support automatically sending out game status emails
Game developer perspective	Strengths: can be used to develop other serious games with less effort Weaknesses: difficult to develop enhancements with the current documentation. documents have missing, confusing and inconsistent parts. steep learning curve.

Table 1: Strengths and Weaknesses of Makahiki

Improvement Actions from Player stakeholder perspective:

- 1. design a better way to measure the effectiveness of resource consumption
- 2. research the benefits and approaches to maintain high level of engagements for long competition duration
- 3. investigate the performance downgrade in the latest release
- 4. investigate alternative to improve the rotating scoreboard display
- 5. fix the broken links to the educational video or provide a content validation tool to prevent content related issues

Improvement Actions from System Admin stakeholder perspective:

- 1. address the database installation and configuration difficulty, either with better documentation or automate the process as much as possible
- 2. improve the usability of the installation script, with clear error message, redirect the verbose output into installation log
- 3. improve the documentation on LDAP and email server integration
- 4. automate the configuration of SSL as much as possible, improve documentation

Improvement Actions from Game Designer stakeholder perspective:

- 1. improve usability in event confirmation code generation admin interface
- 2. provide a WYSIWYG content authoring and design tool
- 3. improve the documentation on how to use the predicates
- 4. fix the reported bugs

Improvement Actions from Game Manager stakeholder perspective:

- 1. improve usability of the interface for looking up event confirmation code
- 2. support the access to the game site after game over
- 3. support automatic emailing of game status periodically

Improvement Actions from Game Developer stakeholder perspective:

- 1. create documentation widget development overview, data model, subclassing
- 2. improve documentation on existing structure, modules, APIs.
- 3. more examples or tutorials in developing with the framework

Figure 1: SGSEAM Assessment Improvement Actions for Makahiki