Game Description

A Game has a purpose (education topic/domain, target player, target difficulty) and one or more learning objectives (e.g. SWEBOK design); each learning objective has one or more learning taxonomy category (e.g., Bloom’s understanding).

A Game has one or more Characters.

A Game has one or more Acts.

Each act has zero or more learning objectives (e.g. SWEBOK design); each learning objective has one or more learning taxonomy category (e.g., Bloom’s understanding).

An Act has one or more Scenes.  
Each Scene has zero or more learning objectives (e.g. SWEBOK design); each learning objective has one or more learning taxonomy category (e.g., Bloom’s understanding).

A Scene has one or more Screens.  
Each Screen has zero or more learning objectives (e.g. SWEBOK design); each learning objective has one or more learning taxonomy category (e.g., Bloom’s understanding).

A Screen has zero or more Challenges.

Each Challenge has zero or more learning objectives (e.g. SWEBOK design); each learning objective has learning taxonomy category (e.g., Bloom’s understanding).

One kind of a Challenge is a multiple choice quiz. A quiz is optionally timed; a quiz is optionally competitive (in other words, player vs. one or more non-player characters).

Learning objectives and their learning taxonomy categories are traced from the Game, Acts, Scenes, Screens, and Challenges.

In multiple choice quizzes, learning objectives and their taxonomy categories are traced from the Challenge to the items in the quiz.

One transitions or cut is defined from Act to Act, Scene to Scene, Screen to Screen. Transitions and cuts have a type and duration. The default is a straight cut, MEDIUM duration.

Transitions:

Fade in

Fade out

Dissolve

Wipe

Morph

Cuts:

Straight Cut

Contrast Cut

L Cut

Form Cut

Match Cut

Parallel Editing Cut

Jump Cut

Transition and cut durations are SLOW, MEDIUM, and FAST.

The sequencing of Acts, Scenes, Screens, Challenges is explicitly specified.

For example, at the end of Screen 1, the following can be specified:

If condition 1, then proceed with Screen 2.

If condition 2, then proceed with Screen 3.

…

If condition n, then proceed to Screen x.

One transitions or cut is defined from Act to Act, Scene to Scene, Screen to Screen. Transitions and cuts have a type and duration. The default is a straight cut, MEDIUM duration.

A Scene has one backdrop.

A Scene has zero or one background music (music can be played throughout a scene).

A Screen has game elements.

A Screen has zero or one background music (music can be played on a screen by screen basis). The screen’s background music has priority over the scene’s background music.

Game elements are characters and props.

A game element has one name, one location, one size, and zero or one hints.

Hints can be presented/hidden to/from the player upon request from the player or after a specified amount of time.

The location can be in absolute co-ordinates (x,y,z) or in stage directions.

Stage directions:

B backdrop

C center

U up

D down

R right

L left

O off

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Backdrop | | | | | | |
| OSR | UUR | UURC | UUC | UULC | UUL | OSL |
| UR | URC | UC | ULC | UL |
| R | RC | C | LC | L |
| DR | DRC | DC | DLC | DL |
| DDR | DDRC | DDC | DDLC | DDL |
| Apron | | | | |

The size can be a pre-defined scale (small, medium, large), where medium is the default size of the image in the repository or a percentage scale in x%, y%.

Characters are either a player character or a non-player character.  
A Game has one player character; zero or more non-player characters.

The character has:

name

location

size

optional hint

type

protagonist

antagonist

interlocutor

director

constructor

trickster

prop

pose, expression

profile

    resume image

    education list (subject, degree, school)

    title

level (e.g., junior, intermediate, senior)

number of years of work experience

    skills (e.g. requirements engineer, architect, tester, manager)

rewards

points

trophies

certificates

promotion/demotion

behavior

level of engagement (very positive, positive, neutral, negative, very negative)

The character profile, rewards, and behavior persist throughout the game. If the profile, rewards, or behavior are being displayed to the player when their values are changed, then the updated values are presented to the player.

The profile can be displayed/hidden to/from the player.

The rewards can be displayed/hidden to/from the player.

The behavior can be displayed/hidden to/from the player.

There are three kinds of props: generic interaction elements (information boxes, information bubbles, buttons, conversation bubbles); education interaction elements (blackboard, whiteboard, projection screen, PC/laptop/ tablet/ phone screen); and domain specific props (desks, chairs, podium, tables), also called set decorations.

A multiple choice quiz has zero or one introductions, one or more items (questions), and zero or one summaries.

Each item is one type (interactive dialogue, deliberation, or composition).

Each item has one or more learning objectives; each learning objective has one or more learning taxonomy categories.

Each item has a stem and two or more options (answers). The stem has zero or one text (description or vignette), zero or more images, and a question.

The stem text has zero or one hint.

The stem question has zero or one hint.

Each option has an assessment (correct, incorrect, or partially correct).

Each option has zero or one hint.

Each option has a reward.

Each option has feedback.

Each item has zero or one follow-up question.

The sequencing of items is explicitly specified.

For example, at the end of item 1, the following can be specified:

If condition 1, then proceed with item 2.

If condition 2, then proceed with item 3.

…

If condition n, then proceed to item x.

Hints can be presented/hidden to/from the player upon request from the player or after a specified amount of time.

A multiple choice quiz has zero or more characters.

A multiple choice quiz is presented using a layout template. The layout templates are:

// non-competitive quizzes

Option

Option

Stem description, figure; question

Option

Option

Option

Option

Stem description,

Figure; question

Option

Option

Option

Option

Stem question

Option

Option

Option

Option

Stem description,

Figure

Stem question

Stem question

Stem description, figure

Option

Option Option Option

Option Option Option

Stem description, figure; question

Option

Option

feedback

*// timed, multiple choice quizzes*

Option

Option

Option Option

Option Option

Stem description,

Figure; question

Option

Option

Option

Option

Stem description, figure; question

Option

Option

Option

Option

Stem description,

Figure

Stem question

Option

Option

Stem description, figureStem description, figure

Option

Option

Stem question

Option

Option

Stem description, figure; question

Option

Option

Option

Option

Stem question

Stem description, figure

Option

feedback

*// Competitive quizzes*

Option

Option

Stem description, figure; question

Option

Option

Option

Option

Option

Option

Stem description, figure; question

Stem question

Stem description, figure

Option

Option

Player feedback

NPC feedback

*// Timed, competitive, multiple choice quizzes*

Option

Option

Option

Option

Stem description, figure; question

Option

Option

Stem description, figure; question

Option

Option

Option

Option

Stem question

Stem description, figure

Option

Option

Player feedback

NPC feedback

A game element (character, prop) can be animated.

Animations are SLOW, MEDIUM, and FAST.

Animation movements:

walk

glide

sit down

stand up

talk

hand wave

hand shake

dance

animation effects:

fade in

fade out

twinkle

shimmer

A game element has zero or one sound effects.

There is a game asset repository of graphic images and audio files (music, sound effects).

There is a game asset repository of quiz items.

There is a game asset repository of games.