LEARNER-GENERATED COMIC: A PRODUCTION MODEL

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Universiti Utara Malaysia
27 July 2017
Overview

1) Research Motivation
2) Problem Statement
3) Research Objectives and Research Questions
4) Research Methodology
5) Research Findings
6) Research Contribution
7) Research Limitation and Suggestion
8) Research Publication
Motivation

Comics as Instructional Tool

Academia Community Support

Preliminary Study

General Views
- 85% interested in LGC production
- 88% personal connection
- 90% balance between academic content and story
- 95% resource for others

Difficulties
- 96% illustration
- 92% educational content
- 90% comic elements
- 87% stories

Problem Statement

Challenges in LGC Production

- LGC production is viewed to be impractical and onerous.
- Learners do not understand the key features of LGC.

Key Elements of LGC

- Current LGC production in classroom practices were varying in adopting comic, story, and learning elements; and showed no cohesions among each other.

LGC Production Methods

- Absence of LGC production methods that should not only guide learners to grasp the gist of LGC; but also transfer their knowledge into an assessable digital educational comic which is both educational and entertaining.

Kane(2013)

There is a lack of conceptual models and methods that comprehensively tailor the crucial theories, elements, techniques, technological, and systematic processes of LGC production.
### Research Objectives & Research Questions

<table>
<thead>
<tr>
<th>Primary Objective</th>
<th>Sub Objective 1</th>
<th>Sub Objective 2</th>
<th>Sub Objective 3</th>
<th>Sub Objective 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>To propose a LGC production model that serves as a guideline for learners to design and develop digital educational comics.</td>
<td>To determine the core components for LGC production model.</td>
<td>To construct a systematic LGC production model based on the identified components.</td>
<td>To evaluate the quality of the proposed LGC production model.</td>
<td>To assess the learning and entertaining aspects of LGC products developed through applying the proposed model.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Research Question 1</th>
<th>Research Question 2</th>
<th>Research Question 3</th>
<th>Research Question 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the core components of LGC production model?</td>
<td>How to construct a systematic LGC production model based on the identified components?</td>
<td>How to evaluate the quality of the proposed LGC production model?</td>
<td>How to assess the learning and entertaining aspects of the LGC products?</td>
</tr>
</tbody>
</table>
Research Methodology

Phases & Activities

1. Problem Awareness
   - Preliminary Study
   - Literature Review & Content Analysis
   - Comparative Study

2. Suggestions & Development
   - Comparative Analysis of Models & Frameworks
   - Expert Consultation
   - User Participation
   - Instrument Construction

3. Evaluation
   - User Experience Testing
   - Expert Review

4. Conclusion
   - Communicate Results & Findings
   - Review Documentation

Outcome

Sub-Objective 1
- Research Problems, Scope & Key Issues
- Core Components of LGC Production Model

Sub-Objective 2
- Proposed LCG Production Model
  - Verified Evaluation Instruments

Sub-Objective 3
- LGC Production Model Evaluation Results
- LGC Product Assessment Results

Sub-Objective 4
- Analysis of Results
- Report & Publication
LGC production model should be aligned with various issues such as comic principles, storytelling elements, learning theories, tools for digital comic production, and others.

Consistent with learner-generated content concepts that emphasis on process, reflection, personalization, and assessment, appropriate learning approach, DST techniques, and comic principles must be carefully selected for constructing a quality LGC production model.
LGC Production Model Construction

<table>
<thead>
<tr>
<th>Components</th>
<th>Approaches</th>
<th>Details</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phases</td>
<td>- Comparative study of LGC Production in classroom</td>
<td>11 strategies</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>- Comparative analysis of DST models and frameworks (story and learning elements)</td>
<td>10 models &amp; frameworks in total</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>- Comparative analysis of professionals’ creative process (comic elements)</td>
<td>5 processes</td>
<td></td>
</tr>
<tr>
<td>Tasks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Expert Consultation</td>
<td>2 comic practitioners</td>
<td>C</td>
</tr>
<tr>
<td>Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- User Participation</td>
<td>30 students</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Diagrams

#### A
- Pre-Production
  - Context Setup
  - Narrative Brainstorming
  - Scriptwriting
  - Storyboarding
  - Composing
  - Publishing
  - Assessment

#### B
- Pre-Production
  - Context Setup
  - Purpose
  - Scope

#### C
- Context Setup
  - Purpose
  - Topic & Objective
  - Scope
  - Length & Tool
- Narrative Brainstorming
  - Knowledge
  - Storyline
  - Characters
  - Personality & Physical
- Script Writing
  - Basic Description & Dialogue
  - Comic Panel Sequence Breakdown
- Thumbnailing
  - Layout
  - Shot, Posture, Direction & Pace
  - Text Placement
- Composing
  - Pictorial
  - Gesture, Expression, Iconography
  - Lettering
  - Balloon, Sound, FX & Font
- Publishing
  - Modes
  - Exploitation & Source
  - Medium
  - Platform
- Assessment
  - Learning Intention & Outcome
  - Entertainment Enjoyment & Aesthetics
### Phase 1: CONTEXT SETUP

<table>
<thead>
<tr>
<th>Aim</th>
<th>Task &amp; Activity</th>
<th>Output/Deliverable Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCRIPT</strong></td>
<td><strong>Identify the specific topic given by the instructor.</strong></td>
<td><strong>Why do orthopedists hate?</strong></td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Decide how to answer the driving question on the script.</td>
<td><strong>The character will describe common orthopedic issues.</strong></td>
</tr>
<tr>
<td><strong>SCENE</strong></td>
<td>Determine the length of the scene to be developed.</td>
<td><strong>Comic Strip: 2-3 panels.</strong></td>
</tr>
<tr>
<td><strong>Text</strong></td>
<td>Specify the scene, characters, and settings.</td>
<td><strong>Storyboard: sketchbook, size, location, background.</strong></td>
</tr>
</tbody>
</table>

### Phase 2: NARRATIVE BRAINSTORMING

| **CONCEPT** | Gather, choose relevant, and relevant scenes. | **Ear, nose, and throat.** |
| **Presentations** | Select a narrative type and plan on how to arrange, how to highlight, and present the knowledge educational content. | **Man on a train.** |
| **STORYLINE** | Develop a conflict, a theme, or an event that drives the plot until the final resolution. | **The character solves a mystery.** |

### Phase 3: SCRIPT WRITING

| **Description** | Develop the action, location, and audience of the scene according to the story. | **A character in a park.** |
| **Dialogue** | Write the speech and thoughts of every character. | **Character A: How was your day? Character B: It was great.** |

### Phase 4: THUMBNAILING

| **Panel Sequences** | Transform the mental script into comic strip form. | **Characters and actions in each panel.** |
| **Text** | Specify how many panels fit into one page and which dialogue or action occur in each panel. | **The conversation is split across two panels.** |

### Phase 5: COMPOSING

| **Character** | Communicate the character's emotional expressions. | **Character A: I'm happy.** |
| **Expression** | Display expression of character's textual expression. | **Character A: sad.** |

### Phase 6: PUBLISHING

| **MODES** | Expert | **Fit** |
| **Medium** | 2D Art | **Print** |
| **Platform** | Windows, Android, iOS | **Webpage, Desktop** |

### Phase 7: ASSESSMENT

| **Evaluation** | Review the narrative in terms of storyline and programming. | **The story is engaging and complete.** |
| **Analytics** | Review the characters' effectiveness. | **The character's dialogue is clear and engaging.** |
Instruments Construction

A. LGC Production Model Quality Evaluation Instrument
   - Item Design
   - Content Validity (5 academicians)
   - Face Validity (10 students)
   - Reliability (98 respondents)
      - KMO & Bartlett
      - Cronbach’s Alpha

B. LGC Production Model Expert Review Instrument

C. LGC Product Assessment Instrument

Results
User Experience Testing

Participants (87 participants)

- Experimantal Group
  - 57 participants
    - (17 LGC products)

- Control Group
  - 30 participants
    - (13 LGC products)

LGC Products Assessment (Learning & Entertainment)

- Instructor Evaluation
  - 30 products

- Peer Review
  - 6 total product samples = (3 from experimental + 3 from control group)
  - 12 respondents

LGC Production Model Evaluation (Quality)

- 57 respondents
  - 57 respondents

- 30 products

- 12 respondents

- 6 total product samples = (3 from experimental + 3 from control group)
# LGC Production Model Quality Evaluation Results

## Level of Agreement Indicator

Median values > **6.33** determine whether LGC production model is significantly generalizable, flexible, complete, usable, and understandable.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Median Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Disagree</td>
<td>1.00 – 2.32</td>
</tr>
<tr>
<td>Disagree</td>
<td>2.33 – 3.65</td>
</tr>
<tr>
<td>Slightly Disagree</td>
<td>3.66 – 4.98</td>
</tr>
<tr>
<td>Slightly Agree</td>
<td>4.99 – 6.32</td>
</tr>
<tr>
<td>Agree</td>
<td>6.33 – 7.65</td>
</tr>
<tr>
<td>Highly Agree</td>
<td>7.66 – 9.00</td>
</tr>
</tbody>
</table>

**Summary of One Sample Wilcoxon Signed Rank non-parametric hypothesis test on Generality, Flexibility, Completeness, Usability, and Understandability collectively (Quality).**

- Users highly agreed that the proposed LGC production model as having quality.
- LGC production model has significantly served as guideline for learners to design and develop digital educational comics.
LGC Products Assessment

Instructor Evaluation Results

LGC Product Score Range = 0-100 marks
Experimental Group = 17 Products
Control Group = 13 Products

Result of Independent-Samples Mann-Whitney U Test on Scores

The distribution of Scores is the same across categories of Experimental and Control group

Sig. .000

There is a significant difference in LGC product assessment scores between the experimental group and the control group.
LGC Products Assessment

Peer Review Results

LGC Product Score Range = 0-100 marks
Experimental Group = Comic A, B, C
Control Group = Comic D, E, F

Results of one way analysis of variance (ANOVA) test

There was a significant differences in **learning** aspect score between all LGC products

There was a significant differences in **entertainment** aspect score between all LGC products

By using LGC production model, users were able to systematically design and develop digital educational comic with well-framed story, organized educational content, and effective comic visual storytelling techniques.
### Expert Review Results

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Experts’ Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flexibility</strong></td>
<td>Scriptwriting phase is useful but not essential because this process can be carried out in thumbnail sketches. Plus, Text and Lettering tasks seem to be overlapping. Character Task is considered as a Storyline element.</td>
</tr>
<tr>
<td><strong>Understandability</strong></td>
<td>Confusing phase shapes in the diagram. Model should be in monochrome. “Iconography” is not suitable for visual metaphor representation in comic process.</td>
</tr>
<tr>
<td><strong>Completeness</strong></td>
<td>Include the content analysis element. Include narrative models. Include anthropomorphism element. Include symbol and semiotic elements. Add target audience element. Include theme element.</td>
</tr>
<tr>
<td><strong>Generality</strong></td>
<td>Include discussion activity. Add a specific process in making sure the comic run smoothly in variety platforms in every screen size of gadgets. Specify the difference between Layout and Pictorial task.</td>
</tr>
<tr>
<td><strong>Usability</strong></td>
<td>Provide video or interactive infographic version of the model along with component examples.</td>
</tr>
</tbody>
</table>

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**Revised Production Model of LGC**

1. **Phases Relevance**
   - Context Setup
   - Narrative Brainstorming
   - Scriptwriting
   - Composing
   - Thumbnailing

2. **Tasks Relevance**
   - Purpose
   - Scope
   - Knowledge
   - Storyline
   - Characters
   - Basic
   - Text
   - Layout
   - Pictorial
   - Comic

3. **Revised Model Diagram**
   - Context Setup
   - Narrative Brainstorming
   - Scriptwriting
   - Composing
   - Thumbnailing
   - Publishing
   - Assessment
   - Purpose
   - Scope
   - Knowledge
   - Storyline
   - Characters
   - Basic
   - Text
   - Layout
   - Pictorial
   - Comic

   - Revised arrows for
     - This phase should be optional.
     - Overlapping. Be clear about their similarities & differences.
     - Should change into a more understandable keyword that reflects visual metaphor.
Main Objective
To propose a LGC production model that serves as a guideline for learners to design and develop digital educational comics.

RQ1
What are the core components of LGC production model?

Sub Obj. 1
Determine the core components for LGC production model.

Method
- Literature review & content analysis.
- Comparative study.

Outcome
Components of LGC production model which are classified into phases and supported by task and activity subcomponents.

RQ2
How to construct a systematic LGC production model based on the identified components?

Sub Obj. 2
Construct a systematic LGC production model based on the identified components.

Method
- Comparative study.
- Expert consultation.
- User participation.

Outcome
The proposed LGC production model.

RQ3
How to evaluate the quality of the proposed LGC production model?

Sub Obj. 3
Evaluate the quality of the proposed LGC production model.

Method
- Instrument to evaluate the quality of LGC production model.
- Instrument for expert review.

Outcome
- User experience testing (LGC production model quality) results.
- Expert review results.

RQ4
How to assess the learning and entertainment aspects of the LGC products?

Sub Obj. 4
Assess the learning and entertaining aspects of LGC products developed through applying the proposed model.

Method
- Instrument to assess the learning and entertaining aspects of LGC products.

Outcome
- Instructor evaluation results.
- Peer review results.
Means for educators to adopt systematic model of LGC production into their project-based classroom practice.

Instrument to Measure LGC Production Model Quality
- Generality
- Flexibility
- Completeness
- Usability
- Understandability

Adaptive Instrument for LGC Product Assessment
- Learning
- Entertainment

LGC Product Prototypes

Contributions

LGC Production Model

Evaluation Instruments

Instrument to Measure LGC Production Model Quality

Adaptive Instrument for LGC Product Assessment

Means for educators to adopt systematic model of LGC production into their project-based classroom practice.
Limitations, Suggestions and Recommendations for Future Works

**LGC Production Model**
- Selected research for comparative analysis.
- Experts involvement in consultation activity.
- Participants in user experience testing.

**LGC Product Prototypes**
- Relation between model components & product.
- Specified tools & topic.

Means for educators to adopt solid model of LGC production into their project-based classroom practice.
Peer-Reviewed Journals

Publications

Conference Proceedings


* Scopus Indexed
Q & A Session

Thank you!