The Design of Video Enhanced Rubrics to Foster Complex Skills

Kevin Ackermans, Ellen Rusman, Saskia Brand-Gruwel, Marcus Specht
Open University of the Netherlands, Welten Institute

IV4VET workshop, Lugano, Switzerland
15 December 2016
Assignment

- You are the multimedia expert for a school for secondary education.
- The school is developing a multimedia application to foster a complex skill for kids aged 12 to 14, for this example we will use the skill of presentation.
- Specifically, the feedback quality, mental model accuracy and performance of presentation.
- The application collects peer and teacher-feedback, which is presented to the learner to foster the learners self-directed goal selection.
- You are specifically hired to develop the screens in which video and rubric are combined.
- The screens you are asked to develop have to support the formative assessment process, giving the learner insight in his own development over time.
Assignment

Considerations | Decisions | Design

A4 size | A3 size
Assignment

• You are the multimedia expert for a school for secondary education.
• The school is developing a multimedia application to foster a complex skill for kids aged 12 to 14, for this example we will use the skill of presentation.
• Specifically, the feedback quality, mental model accuracy and performance of presentation.
• The application collects peer and teacher-feedback, which is presented to the learner to foster the learners self-directed goal selection.
• You are specifically hired to develop the screens in which video and rubric are combined.
• The screens you are asked to develop have to support the formative assessment process, giving the learner insight in his own development over time.
perform or assess a complex skill

Digital tool

VER Pre-Assessment

VER Post-Assessment

receive feedback & assessment

Self Assessment

Expert Assessment

Peer Assessment

www.viewbrics.nl
The Dilemma’s

Purpose vs Multimedia

- **modality principle** (Mayer 2009)
- **redundancy principle** (Mayer 2009)

**Situational Interest** may have a greater effect than redundancy and modality (Dousay 2016)

**ARCS**
- ARCS model: attention, relevance, confidence, satisfaction build-up of multimedia video
- Supportive information must synchronously present itself with the task (Merrienboer 2009)

**4CID**
- Emotion, motivation and affect may regulate cognitive load (Moreno 2006)
- Implementing second-order scaffolding to develop SDL (Merrienboer 2009)

**CATLM**
- Minimise gaze shifts = higher working memory load and better memorisation

**SDT**
- Autonomy is crucial for intrinsic motivation (inauguratie Martens paragraph 2.4)

**Hoogerheide**
- Adult model gives a better perception of mastery (Hoogerheide & van Gog 2013)
- Perception of competence is essential for intrinsic motivation (inauguratie Martens page 51)

**4CID**
- Learner segmentation gives learners control over pace (Merrienboer 2009)
- 4CID specifically designed for durable acquisition of complex skills (Merrienboer 2009)

**CLT**
- Maximise gaze shifts & minimise working load (spatial split-attention principle) (Mayer 2009)

Multimedia theory has limited stability over time (Schweppe 2015)

- **SDT**
  - **4CID**
    - Personalisation principle_learning from peers (Mayer 2009)
    - Perception of competence is essential for intrinsic motivation (inauguratie Martens page 51)
  - **Hoogerheide**
    - Adult model gives a better perception of mastery (Hoogerheide & van Gog 2013)
    - Perception of competence is essential for intrinsic motivation (inauguratie Martens page 51)
  - **4CID**
    - Learner segmentation gives learners control over pace (Merrienboer 2009)
    - 4CID specifically designed for durable acquisition of complex skills (Merrienboer 2009)
  - **CLT**
    - Maximise gaze shifts & minimise working load (spatial split-attention principle) (Mayer 2009)
  - **SDT**
    - **4CID**
      - **CATLM**
      - **ARCS**
      - **SDT**
      - **Hoogerheide**
      - **4CID**
      - **CLT**
What is our solution?

VER

Pre-assessment

Post-assessment

Digital tool

Perform or assess a complex skill

Receive feedback & assessment

a) Position in the formative assessment process

- Pre-assessment
- Instructional
- Feed forward

b) Purpose in the formative assessment process

- Motivational
- ARCS
- CTML
- SDGS

c) Theory to meet the purpose

- Self Assessment
- Expert Assessment
- Peer Assessment

Pre-assessment

Post-assessment

VER Pre-Assessment

VER Post-Assessment

Digital tool

www.viewbrics.nl
However, when applied to their own respective purpose, (motivation and cognitive load), video can be fragmented into purposeful phases which we may expect to foster learning.

You have seen cluster 1, illustrating how to:
- Pick a topic
- Organise your presentation
- Find and use materials
- Use audiovisual aids
- Present the introduction

Time: approximately 10/12 minutes
Mock-up Pre-Assessment

Mock-up
VER

a) Position in the formative assessment process

- Pre-assessment
- Post-assessment

b) Purpose in the formative assessment process

- Instructional
- Motivational

- Feed-forward

- ARCS
- CTML
- SDGS

c) Theory to meet the purpose

Modelling example: Feed Up

Descriptive Scoring criteria

Tool

SDGS

Tip (Feed-forward from teacher)

Feedback

Rubric

Video

Time

www.viewbrics.nl
Mock-up Post-Assessment
Discussion

Situational Interest may have a greater effect than redundancy and modality (Dousay 2016).

Purpose vs Multimedia

- modality principle (Mayer 2009)
- redundancy principle

Learner segmentation gives learners control over pace (Merrienboer 2009).

Implementing second-order scaffolding to develop SDL (Merrienboer 2009).

Adult model gives a better perception of mastery (Hoogerheide & van Gog 2013).

ARCS

- Attention
- Relevance
- Confidence
- Satisfaction

4CID specifically designed for durable acquisition of complex skills (Merrienboer 2009).

ARCS model: attention, relevance, confidence, satisfaction build-up of multimedia video.

Emotion, motivation and affect may regulate cognitive load (Moreno 2006).

redundancy principle_only present material essential for learning (Mayer 2009).

Supportive information must synchronously present itself with the task (Merrienboer 2009).

Maximise gaze shifts & minimise working load (spatial split-attention principle) (Mayer 2009).

Minimise gaze shifts = higher working memory load and better memorisation.

Multimedia theory has limited stability over time (Schwepp 2015).

Perception of competence is essential for intrinsic motivation (inauguratie Martens page 51).

personalisation principle_learning from peers (Mayer 2009).

What dilemma’s have I missed?

1. Supportive information must synchronously present itself with the task.
2. Emotion, motivation and affect may regulate cognitive load.
3. Minimise gaze shifts = higher working memory load and better memorisation.

How would you improve our design?

1. Implementing second-order scaffolding to develop SDL.
2. Adult model gives a better perception of mastery.
3. Minimise gaze shifts = higher working memory load and better memorisation.

What elements are strong/do you value?

1. 4CID specifically designed for durable acquisition of complex skills.
3. Multimedia theory has limited stability over time.

#1 What dilemma’s have I missed?

#2 How would you improve our design?

#3 What elements are strong/do you value?
Thank you for your participation

Contact us for more information at:
Email: kevin.ackermans@ou.nl
Website: www.viewbrics.nl

Or fill in the contact form if you wish to receive an update about the project.