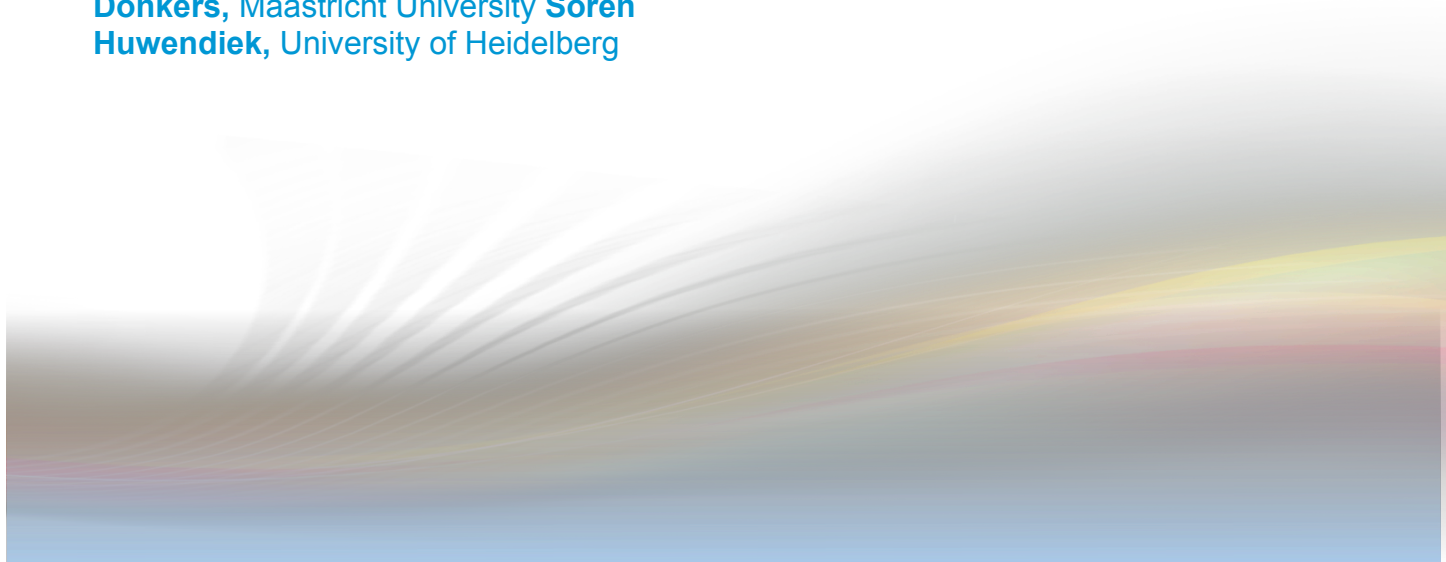# Guidelines for VP repurposing to different culture, language and scenario

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Introduction

This guideline is based on the repurposing of a Virtual Patient (VP) and the alteration of a VP scenario. The VP originating from the University of Heidelberg was repurposed from a familiarisation VP (fVP) for individual use to an in-session VP (iVP) for small group use. In addition the media was enriched from static images to interactive images. For the in-session implementation the VP was extended with electronic polling features in a Learning Activity Management system (LAMS). The repurposed VP and altered scenario were used at Maastricht University.

Description of original VP and original educational setting

The original VP represented a paediatrics VP case of a 7 weeks old infant named 'Lars' with Congenital hypertrophic pyloric stenosis. It was created for the paediatrics module at Heidelberg and is considered to be mandatory with the Heidelberg medical students.

Brief description of VP format

Both VP were build in Campus (www.campusvirtualpatients.com), the original German specially for the Java-based player (CAMPUS Classic-Player) and the repurposed Dutch version specially for the JavaScript-based player (CAMPUS Card-Player). The LAMS used in the altered scenario was Dokeos, a SCORM compliant open source learning suite (www.dokeos.com). The original VP case contained several JPEG images with static German annotations, the enriched images were flash applications using SVG-files to display interactive annotations (www.criticalthinking.nl\animage)

Methods and Materials

Below is description of the methods employed in this type of repurposing along with the electronic material used to facilitate this process.

Selection criteria

This VP was chosen by the coordinator of the Paediatric clerkship at Maastricht University to fit the objectives of the 'wrap-up' week of the clerkship. During this week 4th and 5th year students present patient cases they encountered in practice. The presentations are meant to be interactive and are tutored by a paediatrician. Specific topics that are not covered by student presentations can be addressed with specially constructed VPs.

What type of repurposing was done

The repurposing of the 'Lars' case was three-fold and included some content enrichment (according to the eViP definitions):

- Repurposing to different cultures

- Repurposing for multilingual use

- Repurposing to different contexts

Steps involved in repurposing

Repurposing from a familiarisation VP (fVP) to an in-session VP (iVP) was done with CAMPUS and Microsoft Word. The SVG files or the media enrichment were created n Inkscape and for electronic polling we integrated the free PHP poll script DRBPoll (www.dbscripts.net/poll/) in Dokeos (www.dokeos.com). All original texts were in German and were translated to English for the Dutch context (translation done outside of eViP).

The steps involved in repurposing were:

1	VPs text export to MS Word/HTML
2	Selecting VPs prompts, questions and feedback to remain; formulating new questions.
3	VPs text translation from German to English
4	VPs text adaptation for the Dutch culture (e.g. growth chart etc.)
5	Content copyright clearance
6	VPs images with static German annotations transformed to interactive English annotations
7	Reformulating questions for electronic polling and building them in DRBPoll; testing questions in DRBPoll
8	Testing VP in CAMPUS Card-Player
9	Integrating VP in DOKEOS learning path; testing VP and electronic polling in DOKEOS.
10	Pilot with 11 students in 'wrap-up' week of Paediatric clerkship.

How the work was planned

The work was coordinated and supervised by the institutional lead of Maastricht University for the eViP project and executed in close collaboration with the program coordinator of the Paediatric clerkship of the Maastricht Medical curriculum.

Brief outline of skill set required

- Senior native German speaking medical student who (5th year) for first literal translation of German text to English, Professional English translator for correction of inappropriate phrasing arising from direct literal translation.

- Senior paediatrician to select a case appropriate for the Maastricht undergraduate medical curriculum and to adapt the case to Dutch medical context.

- Technician to design and build application for interactive images.

- Educational technologist to reformulate the questions and to build the electronic polling.

- Medical students to evaluate the case once repurposed.

Results

How a familiarisation VP was repurposed to an in-session VP

The highly interactive format of CAMPUS Classic-Player with long lists of controlled vocabulary to respond was replaced by the more presentational format of CAMPUS Card- Player with multiple choice answers to respond. This made an interactive group presentation of the VP by a tutor more feasible. Because the Card-Player is HTML-based it can be integrated with the LAMS Dokeos and viewed with a web browser.
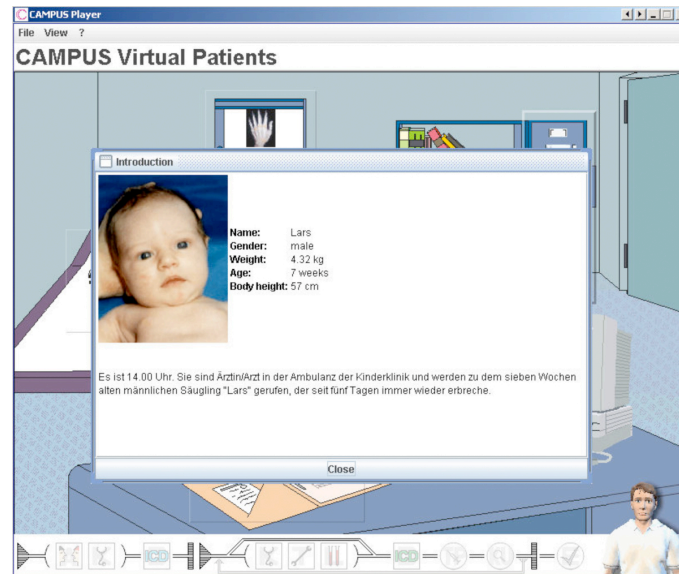

Figure 1: The original VP 'Lars' in the Java-based player with German text


Figure 2: The repurposed VP 'Lars' in a web browser as part of a Dokeos learning path with English text

How the content was enriched

The flash application takes a specially prepared SVG file (created using Inkscape), displays the image mentioned in it and creates hotspots and labels specified in the SVG file. This makes it possible to reuse labelled images in several languages, without need to edit the image but also to offer authentic image materials (e.g. X-ray) with labels that can be temporarily removed by the author or learners themselves[1].
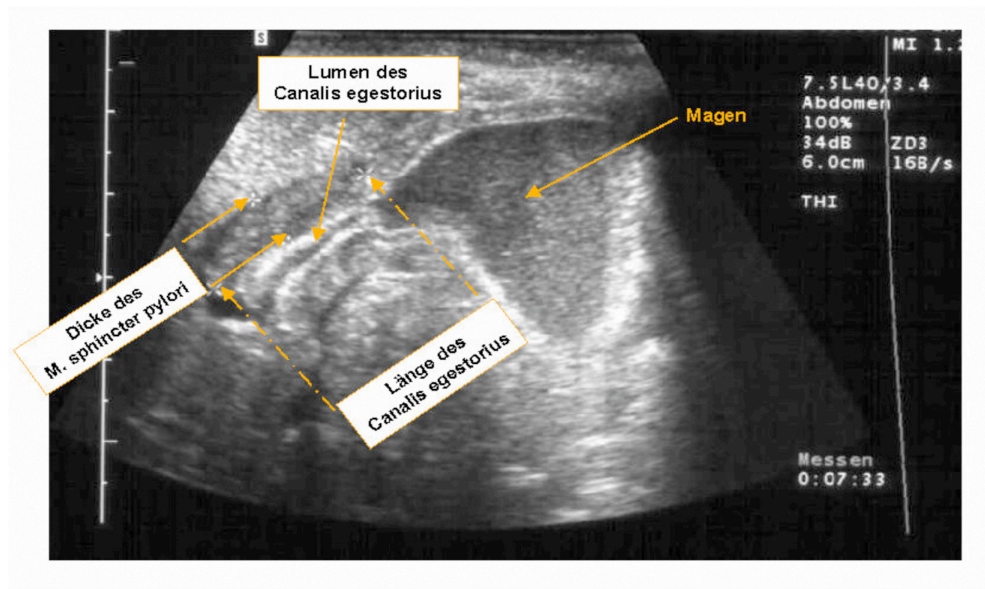
Figure 3: Original static image with German text
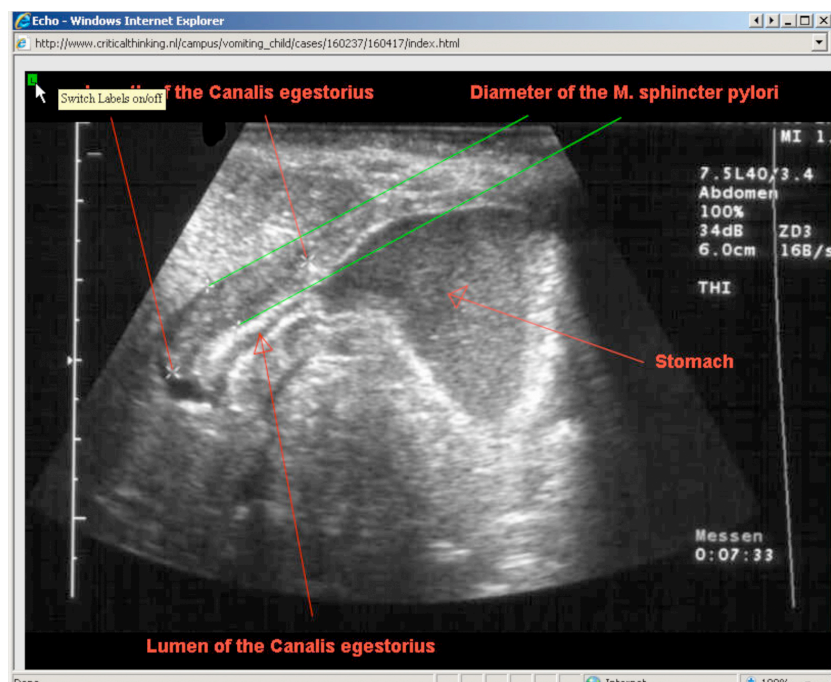
Figure 4: Enriched interactive image with English text

How VP was extended with electronic polling features

With DRBPoll we built the poll forms of which the data are stored in flat files, so no database is required. The flat files were linked in Dokeos.

Figure 5: Student view in Dokeos with the learning path on the left, and on the right the content of the second step: the poll form.

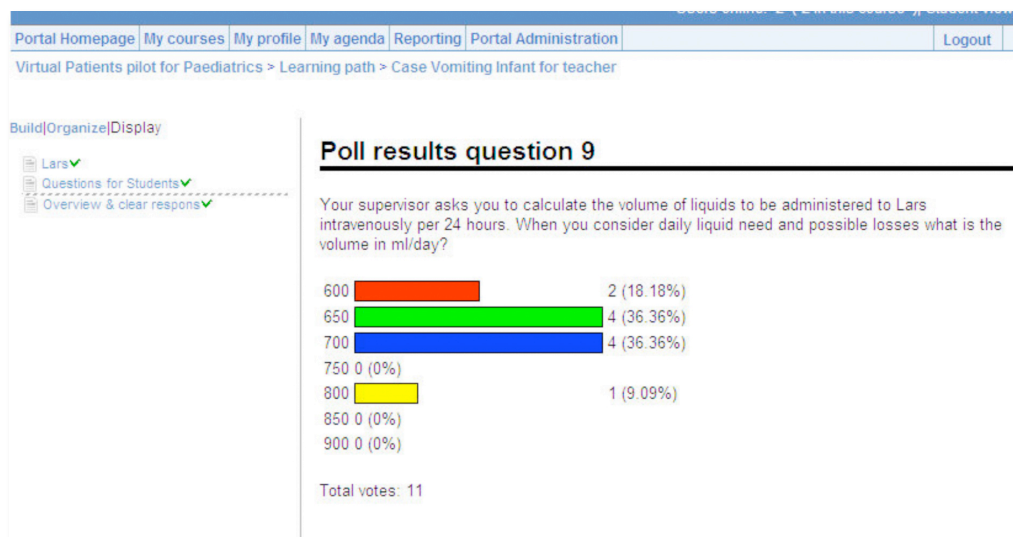**Figure 6: Tutors view in Dokeos with aggregated results of the polling.**

How long it took per step and in total

Step	Time
VPs text export to MS Word/HTML	30 mins
Selecting VPs prompts, questions and feedback to remain; formulating new questions.	60 mins
VPs text translation from German to English	Not relevant
VPs text adaptation for the Dutch culture (e.g. growchart etc)	60 mins
Content copyright clearance	30 mins
VPs images with static German annotations transformed to interactive English annotations	180 mins
Reformulating questions for electronic polling and building them in DRBPoll; testing questions in DRBPoll	60 mins
Testing VP in CAMPUS Card-Player	30 mins
Integrating VP in DOKEOS learning path; testing VP and electronic polling in DOKEOS.	30 mins
Pilot with 11 students in 'wrap-up' week of Paediatric clerkship.	60 mins
Total	**9 hours**

References

(1) Jeroen Donkers, Bas de Leng and Arno Muijtjens (2008). *Animage: Learner-adaptable Scaffolding in Interactive Images supporting Individual Learning Styles*. In: Alfons Maes and Shaaron Ainsworth (eds). Exploiting the Opportunities, Learning with Textual, Graphical and Multimodal Representations. Proceedings of the Bi-annual conference of Earli-SIG2, pp 174-175. Tilburg University, Tilburg, Netherlands. ISBN 978-90-74029-33-9.