Guidelines for VP repurposing to different culture, language and structure

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Introduction

This guideline is based on Virtual Patient (VP) case, originating from the University of Heidelberg, repurposed from a linear style to a branched style to be used with paediatric students at St George's, University of London.

The original German linear VP system is called CAMPUS1 and the UK branched VP system is called OpenLabyrinth2.

Description of original VP and original educational setting

The original VP represented a paediatrics VP case of a 1-day old newborn named 'Florian' with Respiratory Adjustment Syndrome. 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

The original VP was created with the CAMPUS authoring tool and, due to the nature of the CAMPUS system, represented a linear case allowing multiple options (i.e. choosing multiple examinations at a time).This particular VP case (i.e. Florian) contained several images in GIF and JPEG format.

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 Paediatric module organiser at St George's to fit the objectives of a 'learning week' for 3rd Year medical students during their clinical rotations. This VP was needed to fill a gap in the curricula and to satisfy specific learning objectives.

What type of repurposing was done

The repurposing of the 'Florian' case was three-fold (according to the eViP definitions3):

- Repurposing to different cultures
- Repurposing for multilingual use
- Repurposing for different VP structures

Steps involved in repurposing

The repurposing work was done mainly using a combination of the Visual Understanding Environment (VUE) tool4, Microsoft Word, CAMPUS and OpenLabyrinth VP systems. The VPs were already made available to the St George's team in English, albeit in a literal translation from German to English. Table 1 outlines the steps involved in repurposing.

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[1] CAMPUS Virtual Patient official site, accessed on 15th February 2009, www.campusvirtualpatients.com

[2] OpenLabyrinth Virtual Patient official download site, accessed on 15th February 2009, http://sourceforge.net/projects/openlabyrinth/

[3] eViP Electronic Virtual Patients official website, glossary page, accessed on 15th February 2009 http://www.virtualpatients.eu/about/glossary/

[4] Visual Understanding Environments official website, accessed on 15th February 2009, http://vue.tufts.edu/

1	VPs text export to MS Word/HTML
2	VPs text adaption for the UK culture
3	VPs text import into VUE application
4	Storyboarding and creating additional pathways for the branching scenario
5	Content identification in the UK
6	Content copyright clearance
7	Testing in the OpenLabyrinth system

Table 1: Steps involved in repurposing virtual patients.

How the work was planned

The repurposing process was realised and managed within following an evidence-based project management methodology (based on PRINCE2 - PRojects IN Controlled Environments 2)5.

Brief outline of skill set required

- Native language speaker to correct some inappropriate phrasing arising from direct literal translation.
- Doctor in the UK National Health Service setting to make the VP realistic and to find suitable alternative pathways for the branched version.

Results

How the content was enriched

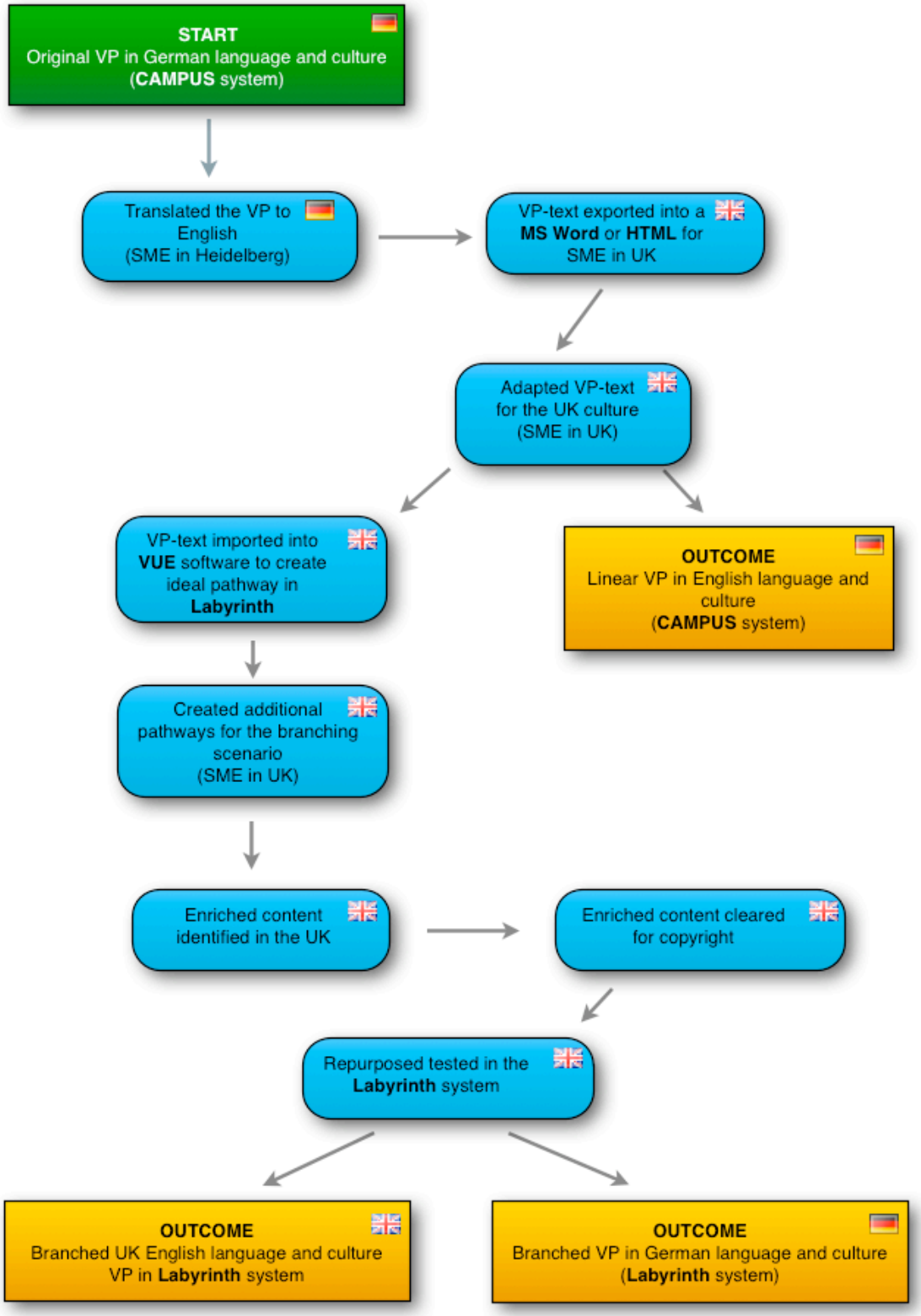
Yes, the content was enhanced by transforming the original linear cases into branched versions which allowed the students to take clinical decisions while following the case through and explore the consequences of those decisions.

[5] PRINCE2 description on the Office of Government Commerce UK website, accessed on 15th February 2009 http://www.ogc.gov.uk/methods_prince_2.asp

How long it took per step and in total

Step	Time
VPs text export to MS Word/HTML	30 mins
VPs text adaption for the UK culture	1 hour
VPs text import into VUE application	30 mins
Storyboarding and creating additional pathways for the branching scenario	10 hours
Content identification in the UK	30 mins
Content copyright clearance	30 mins
Testing in the OpenLabyrinth system	1 hour
Total	**14 hours**

The repurposing workflow



How the repurposed VPs were evaluated

The evaluation was primarily to establish the worth of what had been achieved. The eViP team felt that it was important to capture the experiences of the students, academic staff and subject matter experts to provide data which would inform any future developments in repurposing. A mixed-methods approach was employed to provide a cost-effective approach to collecting and analysing data. This included the following evaluation studies:

Student individual VP questionnaire

Student collective VP questionnaire

Student focus group report

Staff interview

The overall feedback from the students was in favour of such learning resources. The students used both types of VP systems (i.e. CAMPUS and OpenLabyrinth) to feedback on. The majority of students who took the individual VP questionnaire (n=12) felt that after completing such a resource, they were better prepared to care for a real life patient. This is a bold statement that shows that these types of resources fit a gap in the curricula with regards to teaching students clinical decision making skills. In fact, over 90% of the students who completed the questionnaire reported back favourably again by adding that resources were a worthwhile learning experience.

Interestingly 40% of the students who completed the collective questionnaire (n=25) felt that VPs were an effective way to learn data interpretation. Another interesting statistic that arose from this questionnaire was that over 56% of the respondents used electronic resources more often than and about the same as a traditional textbook.

Students who took part in the focus group (n=3) were enthusiastic to try out the VPs, and once started, highly motivated to choose correct options. They believed VPs provided excellent learning, in a context which mimicked the making of their profession. It provided them with opportunities to practice clinical reasoning, then take decisions and explore the consequences of their decisions.

Finally, as a result of the staff interviews, the subject matter experts (n=2) commented that this was a worthwhile experience. They felt that the more repurposing they did the easier and more efficient they would become. The experts added that it takes a creative person with years of clinical experience in order to storyboard and make the best branched VPs.

Discussion and conclusions

In practice, the straightforward repurposing of a linear virtual patient from one healthcare culture to another (i.e. from Heidelberg to St George's) was an efficient use of time and resources. The 'Florian' VP case demonstrated that even though there is often a strong requirement for contextualisation each time a learning resource is repurposed, it can still be worth the time and effort, if the learning resource has sufficient value in its new context.

However in the case of Florian, the repurposing went further and took on the task of turning the linear VP into a branching VP with options and consequences. In effect this was new work, and so the same time and effort was required as if an English linear case was being similarly adapted.

It was clear that the value attached to VPs arose from the possibility of learning something that was essential to future practice, but difficult to acquire by other methods. This learning was the opportunity for decision-making, exploring consequences of actions, and for safe practice. Students were enthusiastic to use these resources in a variety of different ways and learning styles, and recognised the value of a resource that mimicked practice. It clearly personalised their learning. Teachers, subject matter experts, developers and students described the outcome as highly successful.