Guidelines for VP repurposing to a different educational level

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Introduction

Description of original VP and original educational setting

The original German case has been obtained from LMU.

ID	evip:vp:1000201
Title	Der Kuss
Description	A 3 yr old girl with diarrhoea and pulmonary infections
Authors	A. Kraxner, T. Müller, S.
Classification	ICD10: E84 (Cystic fibrosis)
Context	Undergraduate

This case was repurposed to Polish language and culture by Zofia Mazurek and Henryk Mazurek. Repurposed case named “Słony pocałunek” (“Salty kiss”).

ID	evip:vp:1000365
Title	Słony pocałunek
Description	A 3 yr old girl with diarrhoea and pulmonary infections
Authors	Z. Mazurek, H.Mazurek
Classification	ICD10: E84 (Cystic fibrosis)
Context	Undergraduate, 5th year

Next the case was repurposed to different educational level. The new case, based on the second edition of the patient, was named "Kaszląca dziewczynka").

Brief description of VP format

Linear case authored and stored in the CASUS system. The case contains text and images.

Methods and Materials

Selection criteria

The chosen VP presents the clinical picture of cystic fibrosis, a disease with a well known pathology and link to genetics. This made the VP suitable for repurposing to lower educational levels, when the students have wide knowledge about physiology and biochemistry and are at the beginning of the clinical part of the medical curriculum. The case is also useful to show the students the characteristics of paediatric patients.

What type of repurposing was done

This guideline focuses on the repurposing of the case from the educational level of the 5th-6th year in an undergraduate medical curriculum to the 3rd year level.

	Original German case	Case after language and culture	Case after educational level
System	CASUS	CASUS	**CASUS**
Structure	Linear	Linear	**Linear**
Cards	22	27	**29**
Words	3212	5473	**6285**
Characters (without spaces)	21311	35390	**40841**
Images	9	30 (4 tables, 5 diagrams)	**30 (3 tables, 4 diagrams)**
Questions	8 (6 MCQ, 1 Evaluated Text, 1 Non-evaluated Text)	11 (9 MCQ, 2 Non-evaluated)	**16 (13 MCQ, 3 Non-evaluated)**

Steps involved in repurposing

The repurposing was done mainly in Microsoft Word and on paper. Then the case was exported back to the CASUS system. Repurposing involved:

- Downloading the case from the CASUS system in Microsoft Word format
- Analysis of clinical problems covered in the VP and locating their place in the curriculum
- Corresponding modifications:
  - Simplification of clinical information
  - Enrichment of the case by adding questions about basic medical knowledge
  - Extension of the case by explanations of advanced clinical topics
  - Addition of new images showing basic medical equipment
- Feedback from subject matter expert
- Refinements of the case based on the obtained feedback
- Insertion of the case back into the CASUS system
- Presentation of the case to students (planned March 2009)
- Students' evaluation of the case (planned March 2009)
- Refinements of the case based on the obtained feedback

How the work was planned

The aim of repurposing was to make the case more suitable for students with basic clinical knowledge while retaining all the important clinical information.

After comparison of the curriculum of the 3rd and 5th year questions pertaining individual parts of the case were brought up - e.g.:

- Are 3rd year students able to interpret X-rays, blood count and other medical data?
- How much do the 3rd year medical students know about clinical examinations, medical procedures, microbiology, pharmacology (specific drugs/drug groups) and paediatrics?

- Are the biochemical and biophysical foundations of the disease well known? Are these facts part of the present curriculum?

The introduced modifications were driven by comparison between the curricula and answering of the above posed questions.

Students' assignments consisting of questions about practical knowledge were replaced by questions testing elementary medical information. Selected cards concerning diagnosis and treatment were enriched with questions about basic medical knowledge. Part of clinical content was moved into the “expert” section or transformed in order to promote the educational impact of the VP. Attempts were made not to eliminate advanced medical subjects entirely but to make them more comprehensible for 3rd year students.

The description of medical history and physical examination was enhanced by adding hints useful in clinical practice.

The story of the patient was slightly shortened in order to prevent the cognitive overload of the 3rd year student who might be not familiar with complicated patient histories.

The case was sent to a subject matter expert for consultation by e-mail and later on discussed by phone.

Brief outline of skill set required

MEDICAL REPURPOSING:

- Knowledge of the medical curricula of the local university (in order to plan the modifications)
- Proficiency in basic medical knowledge (in order to enrich the case)

TECHNICAL REPURPOSING:

- Knowledge of copyright and patients' data confidentiality issues
- Basic skills in image processing
- Familiarity with VP authoring systems (CASUS)

Results

How the content was enriched

Based on the comparison between curricula the content was enriched with:

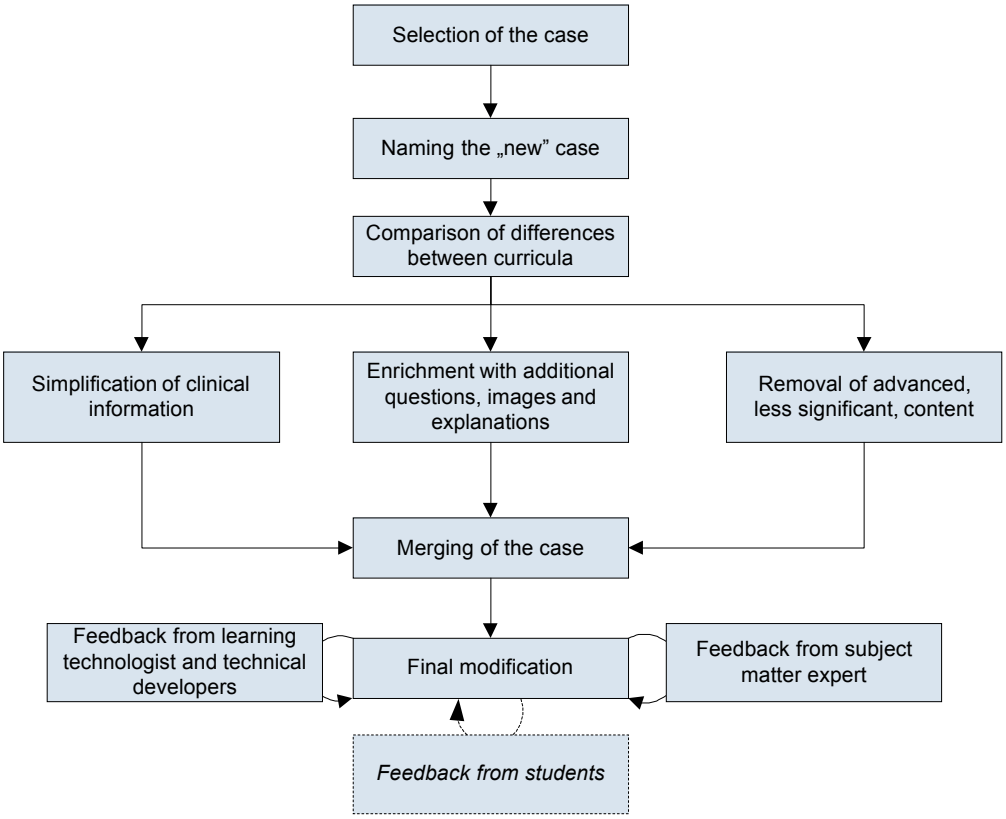
- Questions, information and additional explanations concerning physiology, genetics, microbiology
- Images illustrating medical procedures and equipment
- Hints regarding taking history and carrying out clinical examinations

How long it took per step and in total

The repurposing team consisted of 3 members. The table below presents the time spent on each respective role.

Role	Time
Analysis of the curriculum	2 hours
Enrichment	12 hours
VPs export to the CASUS-system	2 hours
Feedback from subject matter expert	3 hours
Final modifications	3 hour
Total	**22 hours**

The repurposing workflow



How the repurposed VPs were evaluated

The repurposed case was initially evaluated by local eViP team and will be evaluated by students. Results are pending.

Discussion and conclusions

Previous studies at the Jagiellonian University Medical College have proved that the correct placement of the case in the curriculum is very important. It seems relevant to select carefully the case for repurposing to assure a large variety of enrichment possibilities. Inappropriate are rare diseases with unknown or uncertain origin because for such cases the addition of question or references regarding basic sciences is not possible. Another example of unsuitable cases are VPs where highly specialised knowledge is required (e.g. the diagnosis is possible only after a very detailed analysis of radiological images). Based on our experience in repurposing the case we conclude that modification of individual VPs to reflect the differences in curricula is feasible even though not easy and relatively time consuming.

References

[1] Mazurek Z., Kononowicz AA., "The Impact of Repurposing to Different Educational Levels on the Attitudes of Medical Students towards Virtual Patients", International Conference on Virtual Patients, Kraków, 5-6.06.2009