Widening Access to Virtual Educational Scenarios

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Deliverable 3.5
Implementation of Forum and "how to" MOOC

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1. INTRODUCTION

The intention of this deliverable was to create a MOOC[1] (Massive Open Online Course) to run alongside the toolkit, and also create a forum on the website. Both would work together to engage the growing community which has been built throughout the project around SBL. The MOOC would bring together the tool-kit and provide another route to disseminate the project outputs and the forum would allow a space for the community to engage with one another on specific themes.

2. THE FORUM

2.1. Aims of the Forum

As part of the tool-kit an online forum was to be developed to engage with the community. It was intended that the forum would help to maintain the community around SBL and in turn this community would contribute to the sustainability of the WAVES outputs from this project.

The forum would be a route to disseminate and distribute the tool-kit and provide a space to discuss on common themes such as, technology to author and deliver SBL, and pedagogy of developing virtual scenarios (VS).

Forums are not typically well-used on project websites, their usefulness being heavily dependent upon attracting a critical mass of active participants. By contrast, the structured and guided approach of MOOCs can foster higher levels of user engagement, if done well.

2.2. Implementation of the Forum

At the time WAVES was submitted, FutureLearn had a global user base of more than 500,000. By 2018 this number had increased to more than 3 million, and FutureLearn had cemented its approach of 'learning through conversation', similar to the way that social media users collaboration to share new perspectives and share ideas. Moreover, SGUL has already experienced the significant impact of the social learners in its MOOC course over the last 3 years.

For this reason, the decision was taken to concentrate on the social learning in the MOOC as the most effective forum for WAVES, and results since have shown how successful that choice has been. Over 250 participants have contributed comments, information and questions in the WAVES MOOC so far.

As part of the tool-kit a number of platforms used such at the MOOC but also in addition GitHub, and YouTube allow space for conversations and comments to be made by the community. The WAVES partners are also able to contribute to these conversation. This allows the conversation to take place on specific resources developed through the project making them easy to identify and

address. For example comments and conversations can be made under specific steps within the MOOC or under specific YouTube videos.

As the different platforms can sometimes have similar questions and through different workshops and presentations the partnership are asked very common questions these have been put on the project website under the 'Frequently Asked Questions' page. This is an evolving page which is updated after each run of the MOOC and after large dissemination events like the 'We are our choices' event in 2018 where participant used a tool called 'Mentimeter' to submit questions to the community. Through the project website page, visitors have the ability to submit their own questions which are then emailed to the specific project partners to address and update the FAQ page accordingly.

3. SETTING UP MOOC

3.1. Aims of the MOOC

The MOOC was intended to provide a training course for Scenario Based Learning (SBL), accessible by the wider community. As free courses, MOOCs attract a very large number of participants and learners, who are prepared to tackle a course which last several weeks. If the course is prepared in an attractive and user-friendly learning environment, the course draws learners in, often to its completion, in a way that a series of knowledge and technical descriptions could not. When done well, as an implementation tool it is unequalled by more traditional methods, in terms of the number of users it may attract, globally.

A criticism of MOOCs is that, whilst they bring large scale to courses, and have gained renown for impressive enrolment figures, they have tended to be pedagogically weak, with unimpressive completion rates. Frequently they are little more than paste-ups of resource, with multiple choice questions for assessment, and unsuitable for learner engagement or competency, they lack a sense of community.[2]

The FutureLearn[3] platform offer much more. Its approach is based on a strong educational philosophy of storytelling, so, it is very well suited to a SBL course. The course combines most of the resources comprising the WAVES toolkit, and much more as well, to include for example the educational, emotional and psychological under-pinning of the SBL approach. FutureLearn maintains a pedagogic rigour in its courses, so that effectively it is training contributors to create better courses. It is a social platform; every element of the course is associated with a discussion forum.

3.2. Structure of the MOOC

Following a series of partner discussions, a format for the MOOC was agreed upon. This process took a number of discussion so format the MOOC structure and was evolving bringing in the experience of other partners and the point of views from our business partners. Figure one (below) shows images from the first planning meeting held at St George's University of London.
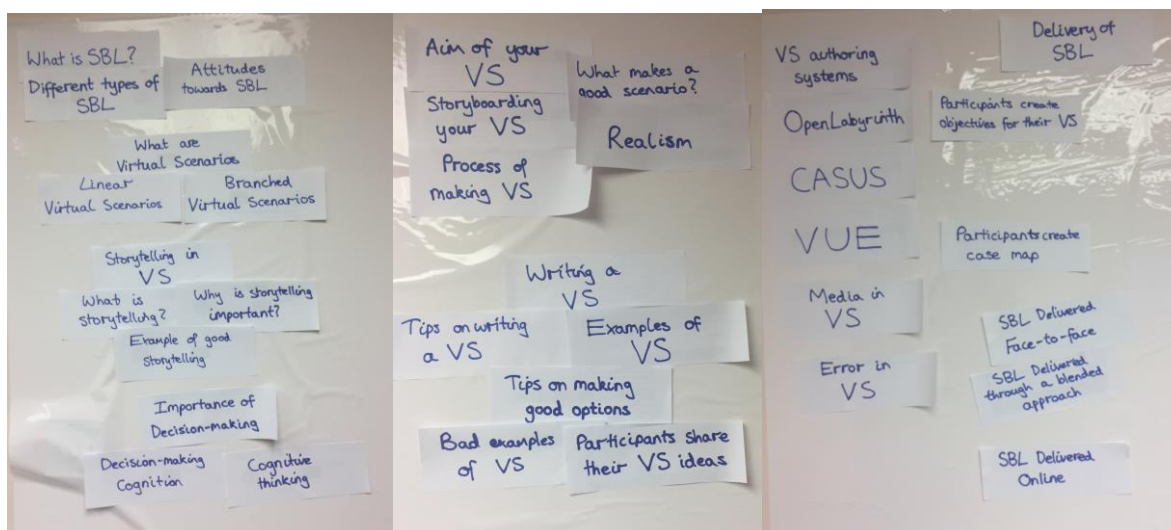
Figure 1: Image of the MOOC structure during the first group planning meeting

It would be a 3-week course, though learners would be free to use the material at their own pace within certain time-limits set by FutureLearn. Weeks were divided into broad activities, and each activity contained a number of 'steps', topics delivered by a single type of media whether text, video, quiz or a discussion, (all steps had the opportunity for discussion, but in addition there were specific discussion steps, with prompting questions). Each week ended with a Summary step.

Week 1 concentrated on Scenario-Based Learning, with an overview, a review of learning activities, the importance of story-telling and the role of cognition in decision-making.

Week 2 focussed on an introduction to Virtual Scenarios and Planning a Virtual Scenario and setting out learning objectives for them.

Week 3 began the process of developing a Virtual Scenario including an investigation of Virtual Scenario Technologies, tips on writing a Virtual Scenario, and creating your first Virtual Scenario.

3.3. MOOC Outline Content

Responsibility for step creation was distributed between the partners; steps in week 1 were created mainly by SGUL and Bayer, who had the most experience within the project in delivering workshops on scenario creation and usage, and thereafter all partner institutions took part in step creation. Each step was open for review by all partners to ensure the step was fit for purpose and applicable to different organisations and disciplines.

The steps were prepared in four formats. Text, usually with illustrative images, was used most commonly. Videos, including Voice-over-PowerPoint and person to camera videos. Throughout the 3 weeks, there were 5 steps which were discussion only. One unique step was the 'exercise step' which allowed the learners of the MOOC to author a VS using CASUS within the FutureLearn Platform.

The MOOC outline of content passed through several iterations before the final version appeared. It was also modified to some extent before the 2nd run, chiefly in week 3, and for illustrative

purpose the table below show the MOOC content delivered for the 2nd run, i.e. the current format of the MOOC which had a few crucial changes in Week 3.

4. THE FIRST MOOC RUN

4.1. The MOOC Content

The following table (Table 1.) shows the MOOC steps, the partners responsibilities for the content creation and the medium used for each step in this first run.

Week No	Week Title	Activity Title	Step number	Step title	Step Type	Original Step Responsibility
0		Course info page		Advertising the course (social, flyer, Newsletter, etc.)	Text	SGUL
				Course Description Page on FL	Video and Text	SGUL
1	Scenario-Based Learning	Introduction to the Course	1.1	Introduction to week 1	Video	SGUL
			1.2	Meet the course team	Article	SGUL
		Introduction to Scenario-Based Learning (SBL)	1.3	Why SBL?	Video	SGUL
			1.4	How can we use SBL in our teaching?	Article	SGUL
			1.5	Have you ever learned through scenarios?	Discussion	SGUL
		Importance of storytelling	1.6	Harnessing the power of storytelling	Article	Bayer
			1.7	The science of storytelling	Article	
			1.8	Freytag's pyramid and the key elements of a story	Video	
			1.9	Think of your favourite story...	Discussion	
		Cognition and Decision Making	1.10	What is cognitive thinking?	Article	SGUL
			1.11	Cognitive processes and decision-making	Article	
		Summary	1.12	What did we learn this week	Article	SGUL
2	Virtual Scenarios	The week ahead	2.1	Introduction to week 2	Article	SGUL
		Introduction to Virtual Scenarios (VS)	2.2	What are virtual scenarios?	Video	Instruct
			2.3	Play a virtual scenario	Exercise	SGUL
			2.4	What makes a good virtual scenario?	Discussion	SGUL
		Planning a Virtual Scenario	2.5	Creating aims and objections for your Virtual Scenario	Article	Bayer
			2.6	Structuring Virtual Scenarios for specific learning activities	Article	SGUL
			2.7	Using Media in Virtual Scenarios	Video	KI
		Summary	2.8	What did we learn this week?	Article	SGUL
3	Developing a Virtual Scenario	The week ahead	3.1	Welcome to week 3	Article	SGUL
		Virtual Scenario Technologies	3.2	Virtual Scenario authoring systems	Article	MU
			3.3	Virtual scenario technologies in the WAVES project	Article	instruct

		Tips on writing a Virtual Scenario	3.4	Share your ideas	Discussion	KI
			3.5	The 6-step creation model	Article	SGUL
			3.6	Tips for authoring a virtual scenario	Article	SGUL
		Create your first Virtual Scenario	3.7	Start creating	Article	Instruct
			3.8	Casus	Exercise	SGUL
			3.9	Creating your first scenario - how did it go?	Discussion	AUTH
		Summary	3.10	Reviewing your virtual scenario	Article	Bayer
			3.11	Closing remarks	Article	SGUL

Table 1. The structure of the first run of the 'Using Virtual Scenarios to Create Effective Learning' MOOC on FutureLearn platform.

4.2. MOOC Start-up

The first MOOC run started on 30th April 2018. The course team consisted of five lead educators and 10 additional contributors from the partnership. The layout of the FutureLearn is simple and clean. The MOOC is open for enrolment before the course goes live, during the enrolment phase the learners have access to the course landing page which provides them with details on the course objectives, who the course is intended for, what the learners will gain from completing the course and an introduction to the main educators.

There was considerable activity from the first day that the MOOC went live, and participants introduced themselves, and quickly made comments within the various steps. Progress was highly variable with some learners completing the course within as little as 3 days, and others still commenting 2 months later. Learners had contributed their expectations in the pre-course survey, which is covered in the MOOC report in Appendix1.

4.3. MOOC Course Appearance

The following image (Figure 2.) shows what the learner would see when entering the course for the first time. All the content was available form the first day of the course. The content for each week is split into separate pages and the steps within one week are group into activities. Each activity has a title and description. Following each step title within the activity the learners can see the type of step (video and duration, discussion, article, or exercise) it is.

WEEK 1	WEEK 2	WEEK 3

WEEK 1: SCENARIO-BASED LEARNING (SBL)

Introduction to the course

In this first activity you will be introduced to the course and meet the WAVES team. You will be given an overview of what you will cover in week 1.

1.1 INTRODUCTION TO WEEK 1 VIDEO (01:14)

1.2 MEET THE COURSE TEAM ARTICLE

Introduction to Scenario-Based Learning (SBL)

Explore what Scenario-Based Learning is and how we use it currently in different industries and learning styles.

1.3 WHY SBL? VIDEO (03:41)

1.4 HOW CAN WE USE SBL IN OUR TEACHING? ARTICLE

1.5 HAVE YOU EVER LEARNED THROUGH SCENARIOS? DISCUSSION

Importance of storytelling

We will look at why storytelling is so powerful and what chemical reactions it causes in our brains. We will also look into what makes a good story and you will then get a chance to share your own short stories.

1.6 HARNESSING THE POWER OF STORYTELLING ARTICLE

1.7 THE SCIENCE OF STORYTELLING ARTICLE

1.8 FREYTAG'S PYRAMID AND THE KEY ELEMENTS OF A STORY VIDEO (03:34)

1.9 THINK OF YOUR FAVOURITE STORY... DISCUSSION

Cognition and decision making

What is cognition and how does this play on our everyday decision making?

1.10 WHAT IS COGNITIVE THINKING? ARTICLE

1.11 COGNITIVE PROCESSES AND DECISION-MAKING ARTICLE

Summary
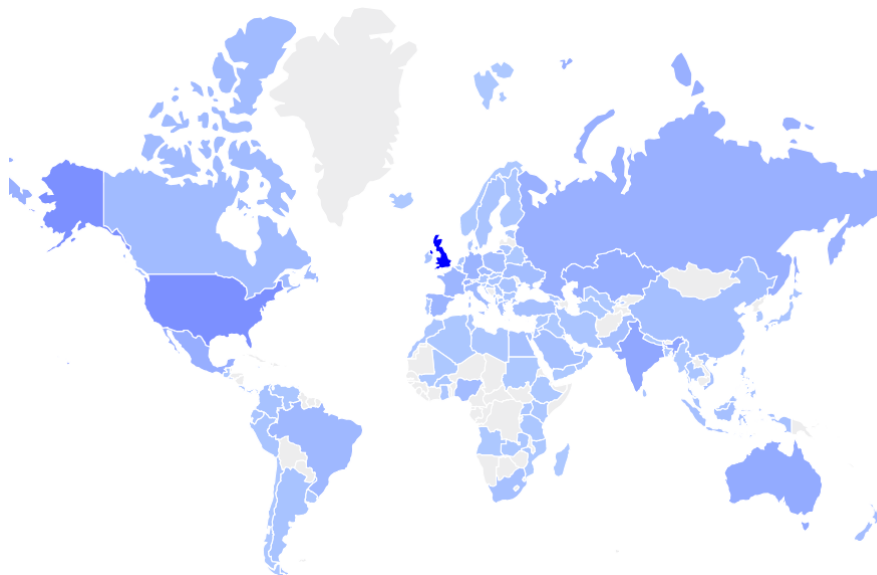
Summary

1.12 WHAT DID WE LEARN THIS WEEK ARTICLE

Figure 2. Week 1 of the MOOC in FutureLearn

4.4. MOOC Demographics

The number of Joiners on the first run of the MOOC were from 114 countries, with approximately a quarter from the UK, but the rest widely spread, and from all continents.

1548 joiners have signed up from 114 countries

Number of joiners
1 ▬▬▬▬▬ 374

The figures on the map indicate the number of joiners per location (not learners). If you're not sure what these terms mean please see the partners site for definitions.

Enrolments by country   ⓘ Average

Country	Percent	Average
United Kingdom	24%	29%
United States of America	7%	6%
India	4%	6%
Australia	4%	4%
Mexico	3%	2%
Kazakhstan	3%	0%
Russia	3%	1%
Switzerland	3%	0%
Germany	3%	1%
Spain	2%	2%

Figure 3. Demongraphics of the higher percentage of joiners on the firstrun of the MOOC.

4.5. MOOC Performance

The first run of the course was received very positively, with many learners appreciative of a well-planned, concise and challenging course. Favourite aspects of the course included the 6-step creation model, 7 tips for authoring, and playing a VS case; learners particularly liked the cognitive thinking step which opened up in depth discussion around decision-making, and the Freytag's pyramid step, a model that many learners had not seen before. 'How can we use SBL in our teaching?' generated the largest discussion out of all of the non-discussion steps. A full analysis of this first run is in Appendix 1.

Week 1 attracted more comments than week 2 and 3 added together. Week 2 continued the positive responses and comments albeit with approximately half the level of activity in Week 1. Week 3 saw the first appearance of more significant negative comments e.g. confusion, loss of confidence; these related to the difficulties of creating a scenario for some learners, and the complexities of using VS authoring systems. In that context, mentoring was also seen as sparse in week 3, perhaps because learners needed more help in this section. Whilst most comments remained supportive of the course, these were a few of the very instructive negative comments:

'I'm lost! I thought this course was designed to show us how to use the authoring tools as the main part';

'So many tools given and most subscription or required coding background';

'Couldn't register for decision sim';

'Only demo cases, not authoring on CAMPUS';

'VUE doesn't work anymore';

'The authoring systems are closed off';

'Learner could only demo cases on the authoring tools suggested'

In most cases mentor support and learner collaboration mollified concerns (and some comments were factually incorrect), but several learners' contributions also pointed the way to new solutions. It was in this week that the learner-learner cooperation and collaboration became more prominent and useful, as they shared knowledge and tools that were not part of the MOOC, and these enabled the MOOC course team to make important changes to improve the second run of the MOOC.

In general, the exit mood of participants was positive. The MOOC had raised awareness and appreciation of SBL in an audience which had not experienced SBL; it had encouraged deep discussion and promoted sharing of knowledge and resource between learners and educators. The course provided learners with clear and concise instructions and guides which aided them in achieving their goal of authoring a VS. In support of the principle of using the runs of the MOOC as a primary forum, learners also valued the support and advice they received from other learners, and in week 3 this turned out be very important.

4.6. MOOC Statistics

Of the 1,609 people that joined the course, nearly half of these were active learners, and 17% of the active learners posted comments, which is a high proportion for MOOCs in general. The 183 social learners contributed an average of 6 comments each. Both these figures are far higher than we could have hoped for, if users were accessing a project forum. Moreover, particularly in Week 3, these comments were immensely valuable, contributing new thoughts on learner needs in SBL and pointing the way to additional solutions.

The pre-and post-course survey, and a description of all definitions viz joiners, learners etc. are covered in detail in Appendix 1.

Joiners	1,609	
Leavers	94	
Learners	1,062	
Active Learners	721	67.9%
Social Learners	183	17.2%
Learners with ≥50% step completion	334	31.5%
Learners with ≥90% step completion	204	19.2%
Run Retention Index	0.452	45.2%
	Total	Average
Steps visited	13,863	13
Steps completed	11,276	15
Comments posted	1,273	6

Table 2. Statistics of the joiners from the first run of the MOOC and their activity

5. MOOC SECOND RUN

The second run of the MOOC went live on 29th October 2018. This run of the MOOC took into account the feedback we received from the first run and also included more links back to our project website for additional resources. A detailed report on the second run of the MOOC can be found in Appendix2.

5.1. Changes to the Second Run

Before the second run, a few minor changes were made to weeks 1 and 2. The biggest adjustment was in week 3, addressing the need of some learners for a simple solution for authoring, a half-way-house to the fully-functional but inevitably more complex authoring systems, CASUS and Open Labyrinth.

In response to this very useful 'needs analysis', a new section was added to the MOOC in step 3.7, Start Creating; a section termed 'Simple Solutions'. This contained five simple authoring methods, which were quick-to-learn, and easy to implement without technical knowledge. These authoring systems included paper, the commonly used presentation tool PowerPoint, as well as three simple-to-use, freely available, VS authoring systems.

The 'Simple Solutions' provide very satisfactory, pedagogically valuable tools which an educator can use with their learner group. These tools will not provide opportunities for assessment, for capturing data on individual and group performance, or for exploring learner progression. Their features will also be constrained in other ways- features that bigger fully-functional tools such as OpenLabyrinth, CASUS, and DecisionSim will possess.

What these simpler tools provide is a transitional tool for use in a simple 3-week course, enough to encourage teachers to create a resource to use with learners, and thereby encourage them to move to larger fully-functional systems if they wish to. The guidance in the step, in conjunction with the YouTube videos, were deemed to be sufficient instruction for new users to be able to complete their first playable interactive scenario.

Minor changes, usually to the text, were made in certain other steps, but the overall structure remained unchanged. Some of these minor changes included the addition of a video which explained Shakespeare's Midsummer Night's Dream story to that learners on the MOOC could understand the different elements of that story during week 1. Another addition during week 2 was the addition of videos to the tips on authoring VS as during the first run this was presented in a simple article step.

5.2. MOOC Demographics

During the first run, the second most popular country where our joiners came from was USA, however during this second run they were 6th highest. With much smaller numbers in the second run, the joiners were still spread very widely, with nearly a third from the UK.

WAVES
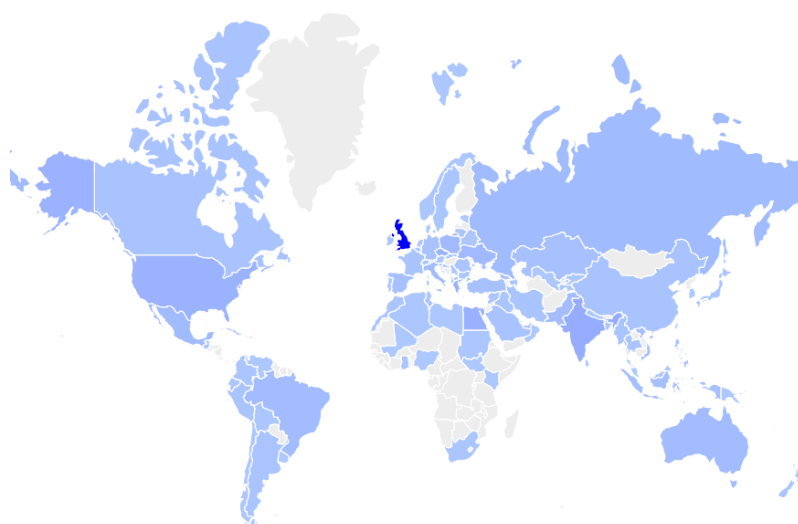
652 joiners have signed up from 97 countries

Number of joiners
1   195

The figures on the map indicate the number of joiners per location (not learners). If you're not sure what these terms mean please see the partners site for definitions.

Enrolments by country

		Average
United Kingdom	30%	29%
India	4%	6%
Greece	4%	1%
Egypt	4%	3%
Czech Republic	3%	0%
United States of America	3%	6%
Ukraine	2%	1%
Poland	2%	1%
Russia	2%	1%
Mexico	2%	2%

Figure 4. Demongraphics of the joiners from the second run of the MOOC

5.3. MOOC Performance

The second run was notable for the absence of negative comments; nobody appeared confused or disappointed at the point where they began to attempt authoring scenarios in week 3. Learner experiences were supportive and congratulatory to the team, and two very different comments stood out, the first on the closing remarks page, and the second in the post-course survey.

'"Great and very well structured" is not enough to describe the course. This is the first course ever that has made me so active as to work with the resources step by step (although my VS is not yet complete ;-)). What I liked most were the tutorials on the authoring tools and the chance to use one of them via a third-party website. These made the learning experience quite immersive. Big big thank you to the educators and all the team and institutions who provided this wonderful learning experience.'

'Brilliant course - best I've seen on FL. Thanks!'

5.4. MOOC Statistics

In table 3 (below) you will see that the number of joiners and their activity in the second run of the MOOC. The course had a smaller number of joiners, but an even better learner response in terms of satisfaction, than the first run. The simple but crucial changes made to the course, provided an opportunity for learners to create simple scenarios within the 3-week period, before moving on to the more complex but fully-functional authoring systems.

Joiners	654	
Leavers	38	
Learners	381	
Active Learners	255	66.9%
Social Learners	80	21.0%
Learners with ≥50% step completion	124	32.5%
Learners with ≥90% step completion	90	23.6%
Run Retention Index	0.484	48.4%

		Average
Steps visited	5,200	13
Steps completed	4,261	16
Comments posted	462	5

Table 3. The statistics of joiners and their activity during the second run of the MOOC accurate up to midnight on 11th December 2018 UTC.

6. MOOC OUTCOMES

The MOOC has performed better than we expected. Participants/learners clearly thought very highly of it. The WAVES team were a little disappointed that the number of participants in the second run being less than expected, but the reality was that pressure of work towards the end of the third year programme reduced the time available to promote the course. The release of the

second run was pushed back to 29th October so that the participants of the 'We Are Our Choices' WAVES dissemination event could join the MOOC and help to spread the word amongst their colleagues. Nevertheless, these second run learners have contributed directly to the successful growth of SBL, whilst also confirming that the changes made from the first run have 'fixed' certain issues.

So far, the course has attracted approximately 1,000 active learners, who have contributed more than 1,700 comments, which have not only informed the course, but pointed the way to new directions in making SBL more accessible.

The MOOC was a considerable amount of work to develop, and in common with most courses of this type, the second run always requires some level of modification to correct any issues which were exposed in the first run. But even the second run was a fraction of the work required to create the first run of the course, and from now onwards, relatively little effort will be required to re-run the course. The only query left to address, is to consider whether the learners need more self-assessment.

7. FUTURE OF THE MOOC

The MOOC will run at least twice a year. SGUL will take responsibility for continuation of the MOOC, in common with its other MOOCS, all of which continue from year to year. The WAVES project partners have agreed to continue their support to facilitate and update the MOOC when required. Learners can retain access to the materials, following the completion of the course, by the purchase of a relatively inexpensive upgrade option. The structure of the MOOC will be modified according to new developments, and like all courses with a high learner input, improvements and upgrades will be informed by learner and user experience.

In this way the MOOC can update current practice in SBL, emphasising competency and experience rather than knowledge, and the MOOC's continuance as a regular occurrence will ensure the project and legacy of course team continues. One long-term benefit for enterprises and universities will be progress towards jointly creating the next generations of SBL approaches. This in turn will feed back to inform the MOOC course of training needs. Already other projects have been feeding off the increased profile of SBL, and workshops aimed at teaching how to create VS, are once again running. The emphasis will be on reaching a large end-user audience, and this should create a critical mass of learning resource creators.

8. REFERENCES

1. https://en.wikipedia.org/wiki/Massive_open_online_course
2. https://edtechnology.co.uk/Article/the-traditional-moocs-model-has-failed-what-next
3. https://www.futurelearn.com/
4. https://www.futurelearn.com/courses/virtual-scenario

9. APPENDIX 1 – FIRST RUN MOOC REPORT

Introduction

The following report details the outcome of the initial launch of the WAVES Scenario-Based Learning (SBL) Massive Open Online Course (MOOC), which was developed as part of the knowledge Tool-kit (work package 3). Based on the findings in this report the MOOC will be modified in order to optimise the learning experience for participants who join for the main launch in winter 2018.

The 'Using Virtual Scenarios to Create Effective Learning' MOOC was developed by the project team as one of the project deliverables. It aims to support teachers, trainers and educators with designing, authoring and implementing their own Virtual Scenarios (VS) to deliver Scenario-Based Learning (SBL). The course, hosted on FutureLearn platform, consists of 3 short weeks; 2 theory weeks and one practical week. Week 1 introduces the topics of SBL, storytelling and cognitive thinking; Week 2 presents Virtual Scenarios, what makes a good VS and how to structure a VS; Week 3 introduces the learner to SBL authoring systems and allows them to create their first VS.

The course was launched on the 30th April 2018 and was open for a total of 9 weeks. Access to the course officially closed on the 2nd of July. Learners were given the opportunity to extend their access to the course through purchasing an upgrade which would give them unlimited access to the course and certification. The upgrade was priced at $74.

Statistics

Accurate up to midnight on 8 July 2018 UTC.

Joiners	1,609	
Leavers	89	5.5%
Learners	1,061	65.9%
Active Learners	721	68.0%
Social Learners	183	17.2%
Learners with ≥50% step completion	331	31.2%
Learners with ≥90% step completion	203	19.1%
Run Retention Index	0.452	45.2%
Upgrades Sold	26	2.5%

Joiners

For the first run of the MOOC 1,609 learners signed up and expressed their interest. Due to the specialised nature of the course and having only lightly promoted the MOOC for this soft launch, the number of learners that registered exceeded our expectations for the first run.

Learners

In total there were 1,061 learners on the course. Learners are defined as joiners who have viewed at least one step in the course. The average number of learners for a FutureLearn MOOC is 50% of the joiners. 65.9% of joiners became learners on our MOOC, exceeding the average.

Active learners

By the end of the course 721 of 1,061 learners (68%) became active learners. These are learners who have completed at least 1 step in the course. The number of active learners remained constant throughout the 9 weeks, measuring at a percentage between 62% and 68%. The average number of active learners on a course according to FutureLearn's guidelines from 2015 is 81% of learners. The number of active learners on our course was lower than the average. This is likely due to joiners browsing the steps of the course before deciding the course was not what they were looking for. Additionally, some learners do not click the completed button on the steps which would also prevent them from becoming an active learner.

Social learners

One of our main objectives for the course which is also reflected in the aims of project was to encourage discussion and sharing of good practice. With SBL becoming more widely used, especially in areas other than healthcare, we as educators believe that we can learn as much from the participants of this course as they can from us. To encourage discussion, the MOOC contained 5 discussion steps and 2 talking points. Despite only 7 of the 31 steps instigating discussion, all of the steps in the course received comments. This stands testament to the enthusiasm and passion of the learners for the SBL topic.

17.2% of learners on the course were social learners. Although this was lower than the average for a FutureLearn course which is 38%, the quality and depth of conversation from this smaller cohort on the course was fantastic to see. These learners formed a small community who supported and encouraged each other throughout the course. From the very beginning to the very end, they were seen collaborating both inside and outside the FL platform, sharing tips and links and even sharing finished scenarios that they had created which was not part of the course requirement.

Leavers

In total 89 participants left the course. Our percentage of leavers was very low at only 6%. However, there were also 459 joiners who registered to the course but did not view a single step.

Certificates

At the end of the 9 weeks 26 upgrades were purchased by the participants of the course. This is lower than some of the other courses previously run by St George's University of London on Future Learn but more than we anticipated. There may be potential to use these upgrades as one of our revenue streams for the project. Finding additional components we can add to the course may encourage future purchase of certification.

Pre- Course survey

Each learner who enrolled onto the course was invited to complete a pre-course survey. A total of 39 learners completed the survey. 74.4% of these learners said they wanted to take the course to "advance, develop or stay up to date in their profession or field". Others (10%) said it was to "prepare for or support a specific work or study gold", and (10%) "vitalise my mind, learn for pleasure or satisfy intellectual curiosity". Learners were also asked to identify their person goal for completing the course as this will motivate their participation and completion of the course. These person goals can be found in the appendix (1).

Learners reported a range of social activities they would like to carry out during and after the course which can be seen in table 1.

Social learning activities	Responses
Share my expertise with other learners	29%
Help other learners (e.g. by answering questions)	34%
Get feedback on my work or ideas	53%
Learn from the expertise of other learners	71%
Network with professionals and experts taking the course	58%
Learn from the personal experiences and perspectives of other learners	55%
Find learners who I'd like to follow on FutureLearn	13%
Share my personal experiences and perspective with other learners	37%
Share what I learn with my community, friends, family or colleagues	37%
Talk about the course generally with other learners	29%
Take part in a group activity or discussion	39%
None of these	5%

Table 1: Responses from the Pre-course survey on which social learning activities they would like to do during or after course.

Most learners (59%) reported to have worked in a related field as their prior experience to Scenario-Based Learning. However there was mixed responses on their current understanding of the course subject (Virtual Scenarios) show in table 2.

Answer choices	Responses
Not at all	17%
A little	31%
Fairly well	33%
Very well	19%
Not sure	0

Table 2: Responses from the pre-course survey on how the learners felt they currently understood the course subject area.

Only 20 learners reported their job role and also all indicate being a teacher or educator or some sort and a small number identified themselves at instructional / learning designers and heads of departments. Based on the information provided about the course before starting it the learners reported 5.5 out of 10 as likely to recommend the course to others.

Week evaluations

Week 1

The learners thoroughly enjoyed week 1 with many of the participants praising the educators on how well they managed to explain complex concepts. The learners particularly liked the cognitive thinking step which opened up in depth discussion around S1 and S2 thinking and the Freytag's pyramid step, a model that many learners had not seen before. These steps received the greatest number of positive comments out of

all of the steps in week 1. Learners also enjoyed the 'how can we use SBL in our teaching' step which generated the largest discussion out of all of the non-discussion steps in week 1 with a total 67 comments.

Overall, week 1 received the greatest number of comments (697), more than week 2 and week 3 combined (563). Week 2 and 3 received 241 and 322 comments respectively. The number of comments on week 1 likely reflects the excitement of the beginning of the course, the use of thought provoking topics such as storytelling and cognitive thinking and the number of discussion points which again was greater than week 2 and 3 combined (Week 1=4, Week 2=1, Week 3=2).

Week 1 did not receive any comments regarding the accuracy or relevance of the content and therefore the overarching content and structure of week 1 will not need altering. From the comments received two of the steps in week 1 will require some very minor changes which will be detailed in the feedback section of this document. Additionally some more mentoring will be required towards the middle of the week during the main launch to ensure that mentoring is consistent throughout week 1.

Week 2

Learners entered week 2 excited about how they could apply what they had learned in week 1. Some of the comments included: 'This sounds great about this week really looking forward to it'; 'I'm all in...I want to apply this to case studies'; and 'Looking forward to applying recently acquired knowledge in a related area'

At the end of the second week the students expressed that they enjoyed learning about 'helpful topics such as what are VS, creating LOs, the structure of VS and how to use media to enhance them'. The highlight of week 2 for the learners was having the opportunity to play some VS from different countries and in different languages which they felt gave them a feel for how VS are really designed. They also liked learning how to structure VS through the 'Structuring Virtual Scenarios for specific learning activities' step. These two steps received the greatest number of positive comments out of all of the steps in week 2.

Again, no comments were made regarding the accuracy or relevance of the content and therefore the overarching structure and content of week 2 does not need altering. From the comments received two of the steps in week 2 will need some very minor changes which will be detailed in the feedback section of this document.

Week 3

Similarly to week 2, learners were excited to embark on the third week of the course. Comments from the learners included:

- "Yes brilliant I am looking forward to week 3 this sounds great."
- "Yes, yes, yes ... I'm brimming with excitement!"
- "Really looking forward to it!"
- "Waiting to take a first look at a virtual scenario authoring system"

However, the excitement was soon lost as many learners stumbled at the first article of week 3. The learners found that, much to their disappointment, many of the authoring systems suggested were not very accessible. They required subscription or were difficult to download or required a coding background or didn't exist anymore (UChoose). In addition, some of the learners also wanted guides on how to use the exemplar authoring systems.

Mentoring on this step was sparse and exacerbated the situation, leaving learners feeling frustrated and lost. One learner commented "I'm lost! I thought this course was designed to show us how to use the authoring tools as the main part".

The step was salvaged by learners recommending alternative authoring systems, including: PowerPoint, 5HP, Twine, and captivate in addition to websites such as Tools for interactive fiction, evolveauthoring.com and textadventures.co.uk/quest.

Authoring systems used by course participants to create VS

Figure 1 - Pie chart displaying the distriution of authoring systems
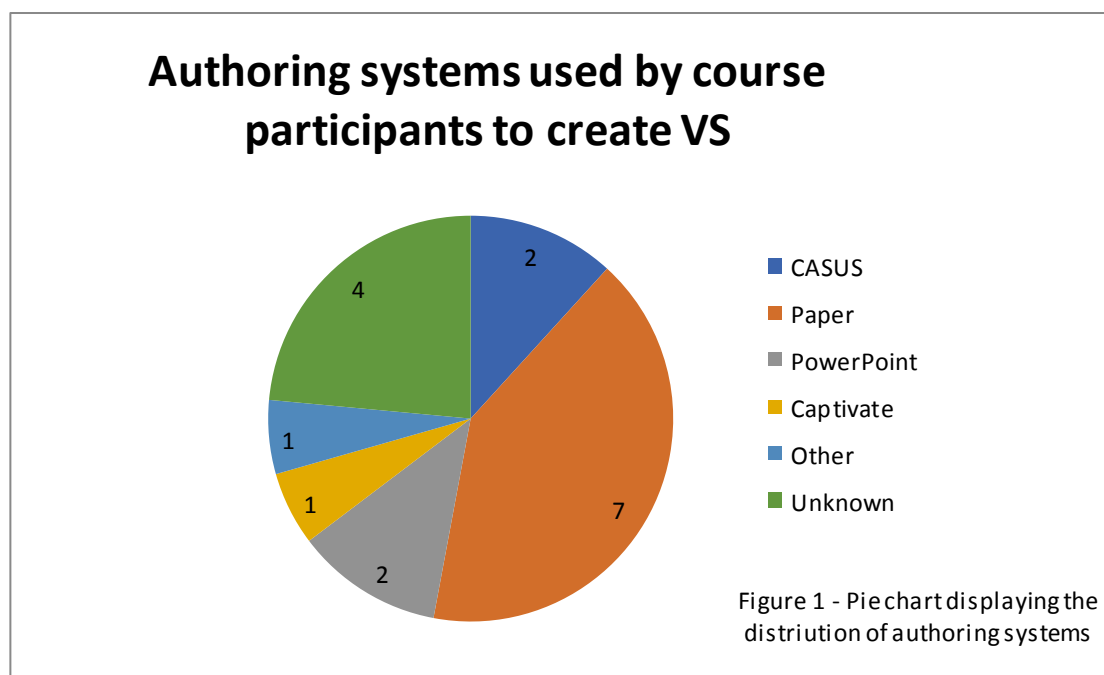
Another issue that learners faced was the usability of CASUS. Some learners shared that they found this authoring system challenging to use whilst others thought that it did not do what they wanted. There was also added confusion around being able to access the player mode on CASUS which the participants of the course were not given access to. In the end only two learners commented that used CASUS to create their scenarios.

Despite the setbacks of week 3 the majority of learners who commented managed to get stuck in to creating their VS and enjoyed the authoring process. They used a variety of different media: paper, PowerPoint, padlet, twine, articulate 360, Moodle cloud, 5HP and rise (Figure 1). The learners were more than happy to help each other with their scenarios, suggesting authoring systems, providing one on one help, sharing links and sharing their final scenarios.

'The 6 step creation model' and the 'tips for authoring a virtual scenario' articles proved to be the most popular steps of week 3. The learners found the 6 step summary really useful and the tips an interesting way to increase the learner's engagement with the scenario.

Two of the steps in week 3 will require some changes which will be detailed in the Feedback section of this document. Week 3 will also require more mentoring in the next run.

Feedback and potential changes

Week 1

Feedback regarding week 1 was very positive and a wealth of discussion was generated throughout. Out of 694 comments made, week 1 only received 6 negative comments. These comments were regarding the 'how we use SBL in our teaching' and 'cognitive thinking' steps. The comments made and recommended changes are shown below:

A.) 'how we use SBL in our teaching'

Confusion around the definition of group vs team.
Some learners did not understand the difference between a group and a team.

- '"Still trying to understand the difference. Could need some help with examples" '

Confusion around independent learning concept
One learner did not understand how SBL is used in independent learning.

- 'On the other hand, I didn't quite understand the independent learning, which hopefully will be explained further in the next lessons.'

Opening paragraph
A couple of learners did not agree with the wording of the opening paragraph.

- 'I would challenge the statement of the beginning of this unit: rather than promoting competency, intellectual and practical individual efficiency is the crucial factor here in order to work latter and better with a team... and it creates a DEFINED PERSONALITY as well. Creating critical minds is the first step... the second is about the skills and how they can be effective in the job market'.
- 'I had a similar reaction when first reading that statement, but I think it's easily possible to build more general and basic learner outcomes into competency-based scenarios. SBL doesn't have to be pigeon-holed into only this-based learning or that-based learning. Mix and match. When group/team work is part of the scenario, the ability to work well with others is a particular competency that can be included in the scenario, or at least support can be provided as needed. Same for general problem-solving skills, etc. I think there is great potential for technological solutions providing individualized support in specific general competencies in any scenario.'

Flipped classroom video
One learner did not find the video helpful.

- 'Did not find the short video particularly helpful. Do not believe it is anything new but revisited from the 80s'

More examples of how you can deliver SBL
One learner wanted to learn some new ways to deliver SBL.

- 'Flipped class. Role playing and TBL are known methods. Wish to find new ideas about SBL'

<u>Essential changes</u>

The step will need some additional information on independent learning and a clearer explanation of a team vs group in TBL/PBL. We will also revisit the first couple of sentences of the article to ensure that they

are accurate. In addition, we will look into the video provided in the step to see if it provides added value. We may include an alternative video in the extra reading part of this step to provide some additional information on the flipped classroom topic.

<u>Optional changes</u>

As an extra we could include in the article some other ways that SBL can be integrated into teaching other than the examples we have given to provide something 'new' for the learners.

B.) **Cognitive thinking step**
Confusion regarding the champagne example
A couple of learners were confused about the blind folding part of the experiment.

- 'Actually, I didn`t really understand the example with the people and bottles of champagne. How could they predict the price of champagne, based on numbers on the bottles, if they had closed eyes? Or they had their eyes closed only when they were pulling out the ball? "...they first must take a ball, eyes closed, from a bag of table tennis balls..."'
- 'I wanted to say that I had trouble understanding the example with the champagne and numbered balls. If the experiment subjects were blindfolded, how would they know what the number on the ball was? How could the number affect their pricing of champagne if they couldn't see what it was? And why would it matter whether or not the numbers on all the balls were the same?'

<u>Essential changes</u>

As a couple of the learners were confused by part of the experiment we will look in to the wording of the story and rephrase it if necessary.

Week 2
Feedback from week 2 was very positive and the learners really enjoyed playing some virtual scenario cases. Out of 240 comments made, week 2 only received 13 negative comments. These comments were regarding the Andy Dufrayne Virtual Scenario and the 'creating learning objectives step'. The comments are shown below:

A.) **Andy Dufrayne case:**
Software
One learner did not like the OL software.
- 'I understand this is a free course, but I think the navigation system used to build this scenario would be unusable for common people. You could probably explain this for the less experienced among the FutureLearn learners'

Terminology
A couple of learners felt the medical terminology stopped them from connecting with the scenario.

- 'As usual, for a layperson, acronyms and abbreviations become a nightmare as well as jargon, since this is a field in which we are not familiar, let alone savvy with the terminology'.
- 'At the beginning it was really boring for me, bc as not English native was hard to focus with all this medical terms. And I had no clue what to do and what DNAR is'.

Subject of case
One learner did not appreciate that it was a medical scenario.

- 'Again, we can state that these models are basically based in the medical and clinical field. It would be interesting to try a different one, such a "theory of disaster" model, such as a nuclear accident in a plant, mechanical failure in a car or machine, or security issues with a visitor accessing a building, airport, or other kind of sensitive facility'.

Decision points
A couple of learners would've liked more decision points in the scenario.

- 'It was good but it only really allowed for limited options, not each video had a further option. As I was able to go back after one scenario I was able to use that knowledge when restarting but in reality it wouldn't have changed anything'.
- 'In my case, I did not find any of the mentioned given options to try my theories'
- 'Well done video, but I just missed the opportunity to deal with the team (colleagues from many disciplines not only GP, but intensive medicine, pulmonary ...), DNR decision is so serious that it should not be given by one doctor, but a medical team, in addition the family should be always consulted'.

Universality
One learner commented that the scenario was not universal.

- 'The scenario is clearly not universal in that the way it would actually play out in different regions & even in different families in the same region will vary'.

'Technical issue'
One learner thought they had a technical issue.

- 'Like a couple of others have noted, I think there was a slight technical error going on: I discussed with the patient's son, then elected to discuss with the patient. I didn't see this conversation, just jumped straight to a later catch-up between the two doctors'.

Feedback
One learner did not like that there was no feedback with the case.

- 'It is full of interesting to join in, making 2 different decisions, after finished the story, I didn't get any information about right or wrong of it'.

Essential changes

As some of the learners became stuck with the terminology, we will look into explaining the abbreviations. This may be either in the case itself or in the step in the form of a glossary.

Optional Changes

The Andy Dufrayne case was used in a lecture where feedback was given verbally as opposed to in the VS. For the next run of the course we could attach a PDF feedback sheet for the learners who would appreciate some feedback.

Not subject to change

The 'technical' issue that one learner experienced was not a technical issue but simply the structure of the case. This is intentional and therefore does not need addressing.

As 74% of learners who commented on the step enjoyed the Virtual Scenario, we do not plan on changing the case for the next run. Comments made about the software, the subject of the case and the universality of the case therefore will not be addressed. Similarly, as we are unable to alter the case itself, comments made about the decision points in the Virtual Scenario will not be addressed.

B.) **Learning Objectives**

- 'Would you have to go through all of the different pathways to reach the LOs?'
- 'Determine is not a blooms word?'
- 'The only LO that is met is number 3'
- 'I didn't achieve any of the LOs'

Essential Changes

Upon reflection, not all of the learning objectives stated in the article were achieved in the scenario but instead in the teaching activity as a whole. Therefore the wording in the article will be changed to reflect this observation.

C.) **Using media in Virtual Scenarios**

Optional Changes

Lots of links were shared giving tips on creating videos and media resources that avoid cognitive overload. We could include some links ourselves at the bottom of the video step for extra reading.

One learner was confused about what was meant by 'deep learning' in the video. This was answered well by Andrzej. The learner wanted the definition to be included somewhere and we will evaluate whether this is needed.

Week 3

Feedback from week 3 was a mixture of positive and negative. The negative comments described the learner's frustrations with the suggested authoring systems, CASUS and PowerPoint. Two of the steps: 'Virtual scenario authoring systems' and 'CASUS' will need changes.

A.) **Virtual scenario authoring systems**
Learners struggled with the recommended authoring systems for a variety of reasons.

- 'I'm lost! I thought this course was designed to show us how to use the authoring tools as the main part'
- 'So many tools given and most subscription or required coding background'

- 'Couldn't register for decision sim'
- 'Only demo cases, not authoring on CAMPUS'
- 'VUE doesn't work anymore'
- 'The authoring systems are closed off'
- 'Learner could only demo cases on the authoring tools suggested'

Essential changes

The WAVES partners have decided to expand on this step by providing examples of authoring systems that we personally use and show the learners how to use them to create VS. Part of the frustration with this step was also the sparse mentoring and therefore we will ensure that we make this step a mentoring priority for the next run.

Optional changes

We could also create a grid that helps learners choose the authoring system that best suits their requirements. This would include factors such as open source vs subscription, usability (beginner vs intermediate) and features of the tool.

B.) CASUS
Learners struggled to use CASUS.

- 'I could not review cases –I got the message 'you are not assigned to an actual course. Please contact your tutor or send an email to support@casus.net' and 'your course/exam has not yet started, please logout and login again''
- 'Whilst I could run the scenario okay in preview mode, I couldn't work out how to use it properly in the player'
- 'Good system but a bit clunky'
- 'I couldn't work in casus'
- 'Casus did not work for my case or I am not able to use it correctly'
- 'Not able to do what I wanted with casus so I got frustrated very quickly. Also having difficulty switching slides in ppt so frustration all round'.

Essential changes

In the step there we will add a disclosure that the learner will only be able to access the authoring mode and not the review mode of CASUS. Additionally, by providing guidance around other authoring systems, hopefully the learners will be able to find a tool that they work well with, whether it is CASUS or another tool.

Types of conversations and comments

As described earlier the majority of conversation took place in the first week of the course, likely due to the large proportion of discussion points in week 1. A breakdown of the number of comments per step can be found in figure 2. in the appendix (2).

D3.5 Implementation of Forum and "how to" MOOC

Interestingly, the learners asked very few questions in the comments but instead gave their opinions or shared their personal experiences. Although there were some negative comments made about the MOOC which will help us to improve it, the majority of comments made were positive. Below are some examples of the positive comments.

What did the learners think of the course?

"To be honest, I was quite intimidated before I started the course by the thought of venturing into what I thought was a technical field which required an in-depth knowledge of computers. Today, I feel energized by the knowledge that learning to use virtual simulation as a tool is possible for any one from any field."

"For me, the highlight of this course was definitely the moment when I sat back to look at a scenario with branched pathways that I had managed to create, flawed probably, but my own creation:)!"

What did the learners think about SBL?

"I really agree that scenario based learning can help improve on decision making , especially when it comes to avoiding making snap decisions when there is time and resources available to make a more rational decision."

"SBL is a great way for groups of students to have discussions and solve

"SBL is a new concept. I like it because it can make learning fun and inclusive"

How did the learners get on with making their first scenario?

"I wrote a scenario about anaphylaxis and prehospital treatment for group. It was a little bit of a challenge creating tricky answers but I enjoyed it. I'm going to use it in a first aid lesson in the fall."

"So creating my first branched VS was as exciting as I hoped it would be. I am looking forward to transferring it into an authoring system when I have more time"

"It was an interesting process and the more choices I added made the path more interesting and challenging for me to think of options"

Play a Virtual Scenario – what did the learners think of the case?

"This is absolutely amazing. In a second one can get the real context, the severity of the case, probable consequences of each decision, and the impact it would have on the patient as well as on the clinic credibility. On the other hand there is a possibility to learn from your mistakes and try to fix it through a second try. It is safe, authentic, engaging and interactive."

"What I liked the most was that there were not only right or wrong directions to choose from, but also a completely useless step of calling legal team. :) Great example of branched scenario!"

"I killed him! Not intentional of course - just did not think the GP would offer anything useful but now I know!"

"In this case we learn that situations can change without warning, and what seemed a straight-forward decision can suddenly become complex and time critical. This is a take-away that even I could 'learn' from this scenario (as a librarian) when the scenario otherwise would appear to be designed for a completely different learner (a medical student or practitioner)."

"Absolutely loved the concept of learning through a virtual scenario! As a learner, I was instantly transported into the setting. It would have taken me longer to become this engaged if I had

Other

Cognitive thinking – "I hadn't thought before of deliberately influencing students to make errors in order to have memorable learning experiences, but it makes a lot of sense and I can see how effective it is. You'd much rather a student failed in a simulated situation so they can be aware of and avoid making the mistake in real life situations."

How to structure a VS - "I'm suddenly finding this course and its information very exciting. The visuals like this branching diagram are really helping me see how I

Decision making – "Funny: at first I got caught up in the same cognitive bias about 'rapid' treatment for anaphylaxis, but then reread the question, took a step back and changed my mind. :)"

Tips - The "points of interactivity" and using unexpected twists is quite interesting, and has great potential to increase the learner's engagement. And the most important part, I believe, is to keep balance: do not make the scenario too easy with hints, but also to avoid too many misleading steps."

Storytelling - "For me the highlight of the course was the Freytag's pyramid…understanding phases of a story and building my own grasping storyline using those elements"

Post-Course Survey

At the end of the course the learners within the course were invited to complete a post-course survey to which only 22 learners completed the survey. Table 3 shows how satisfied these learners were with different elements of the course. Those who were dissatisfied with the content were asked to explain why and the responses to these has been put into the table 3 alongside the dissatisfied element.

	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied	Not applicable	Reasons for being dissatisfied
The course content (e.g. video, text, resources)	0	5%	38%	57%	0	The brain piece didn't flow naturally into the course. The authoring tools was a side track that wasn't about actual scenario building
How much there was to do	0	0	30%	60%	10%	
Opportunities to test your knowledge (e.g. quizzes)	0	19%	38%	19%	24%	There were not many quizzes / more of them / Not as many as I've had on other FL courses / there were none
Course assessments (e.g. tests and peer reviewed assessments)	0	10%	25%	20%	45%	No feedback on assessments / very few people offered anything to look at. Perhaps if people were asked to produce something to share at mulitple steps they may have contributed more
The learning activities you were asked to do during the course	0	5%	33%	48%	14%	I shared my first draft but very few others did so something wasn't working in the course's motivation to contribute
Interactions with the course team	0	5%	48%	29%	19%	
Discussions with other learners	0	0	38%	48%	14%	
The teaching styles of the educators	0	0	38%	62%	0	
When the course was available	0	10%	24%	67%	0	more time to do course / It is expiring only a few weeks after it started - I enjoyed taking my time at the start of the course but have then been extremely busy with work and now having to rush through it all without getting

						to engage with other students
The level of complexity	0	5%	33%	62%	0	not enough info - the linked blogs were better
The topics covered during the course	0	5%	29%	67%	0	as above

Table 3: Responses to the post-course survey on how satisfied the learners were with different elements of the course.

In total 80% of the learners who completed the survey "enjoyed the course a lot" and 20% "enjoyed it a little". No learner reported that they did not enjoy the course much or at all. When asked what their favourite part of the course was and why there were varied responses with learners commenting on videos, the virtual scenario development opportunity, storytelling, and exemplar tools. The full responses for this question can be found in the appendix (3). Learners reported FutureLearn elements, such as payment for certificates and expiry time of course as the least favourite part of the course, and software mentioned in the course for Virtual Scenario creation was also mentions. The complete responses for this question can be found in the appendix (4).

Learners were asked again what the main reason was for them taking the course and most (50%) reported for "advance, develop or stay up to date in my profession or field" however an increased number (36%) reported for "prepare for or support a specific work or study goal.

Learners agreed with the following statements: "The course content was relevant to my profession or field (89%); "I gained knowledge or skills relevant to my profession or field by retaking the course" (89%); "Taking the course has had a positive impact on my work" (68%); "I shared what I learned with colleagues" (53%); "I've used what I learned during the course in my work" (47%); "taking the course has had a positive impact on me personally" (47%). A large number of learners (72%) reported the course helped them the "a lot" to meet their learning goals. Learners were also asked to report on what they were most proud of achieving or doing as a result of taking the course, the responses for this are in the appendix (5).

On average the learners scored 9.5 out of 10 to recommend the course to others. And 72% of the learners would like to "learn more about this subject" having completed the course.

Conclusion

Overall the course received a positive response, with many learners thanking the course creators for putting together a well-planned, concise and challenging course. Favourite aspects of the course included Freytag's pyramid, the 6 step creation model and playing a Virtual Scenario case. Learners also valued the support and advice they received from other learners. Dislikes of the course came from the authoring systems and sparse mentoring in week 3.

From evaluating the MOOC we can see that it was a success in multiple ways. Firstly, the MOOC raised awareness and appreciation of Scenario-based Learning in an audience who had not experienced SBL before. Secondly, the course provided learners with clear and concise instructions/guides which aided them

in achieving their goal of authoring a Virtual Scenario. Thirdly, the MOOC encouraged deep discussion and promoted sharing of knowledge and resource between learners and educators.

Due to the success of the MOOC, only minor alterations are needed before the next run. Small wording alterations will be made to week 1 and 2 and Week 3 will undergo some changes to support learners when using different authoring systems. These changes will be made before the main launch in October.

Appendix One

Pre-Course Survey - Responses to setting personal goals in hope to achieve by the end of the completion of the course.

expand my professional knoweldge base

Create effective learning material

To improve work delivery in my profession.

I'm really interested in digital technology for teaching

Learning more about how to learn effectively will help me doing my job better, support others better and learn more effectively myself.

I would like to lead simulation lessons in surgery and improve if possible, adopt a new effective methodology of teaching

I am a primary school teacher from Serbia. I am working on my professional development, so learning as well as teaching are my areas of interest. Also I want to improve my language competence since I am not an English teacher.

be able to evaluate and if applicable implement scenarios in learning programs.

I want to learn about scenario-based learning as a method to use in developing online learning materials.

As an ESL teacher, I hope to add an extra dimension to story telling techniques using virtual scenarios.

To further improve my instructional design skills

A more theoretical approach to creating scenario learning - currently done from creative guessing

I would like to refresh and update the training programmes I run.

Learn more about SBL and maybe using them in my job.

I just want to learn more about the different ways to create effective learning

I am a training consultant and a course designer, so I'm always trying to find better ways to learn and teach.

Implement more attractive for the students ways in my teaching

Performance of Good Debriefing How to teach other teachers   How improve my teaching programme for students'

I found the subject not only interesting, but a new means by which I would be able to keep my students engaged in real life situation which would push them to use and develop their cognitive skills. Taking real life into the class I believe is the most effective way to draw learners' attention to some challenges that are created in the class. This is a real fun.

How the tools & experience from the course can improve my work with careers guidance clients & develop my teaching skills for my future career in academia.

To be able to create a training program or game that will complement the current trainings provided by the company

Learn about games for learning.

I recently started as a trainer for a new piece of software without a training background. I believe virtual scenarios can be of great benefit to trainees and would like to see how I can incorporate this in my training.

Knowledge to inspire people

I want to find a way I can use this in my own classes / teaching.

Learn more about scenario-based learning

Understand the opportunities for this type of learning within the environment that I work. Oncology day units in the regions are looking at developing a region wide training package - digital and virtual learning may offer a solution.

insight into pedagogy

Gain advice on how to implement elearning case based scenarios into the curriculum

Overall to improve my knowledge.

Learn an exciting new way to conduct research with adolescents

I hope to explore how virtual technologies can improve learning outcomes in students, especially non-traditional students

Learn new and different methods to online learning, which I hope to apply in my current job.

Design effective & impactfull learning paths

Virtual scenarios are one more tool to make learning active and meaningful. I hope to be able to integrate some scenarios, and develop those I already have, to improve my courses.

Appendix Two

Table showing the distribution of comments across the 3 weeks

Step	Step Type	Number of comments
WEEK 1		697 comments
Introduction to Week 1	Video	45
Meet the course team	Article	28
Why SBL?	Video	49
How can we use SBL in our teaching?	Article	67
Have you ever learned through scenarios?	Discussion	158
Harnessing the power of storytelling	Article	75
The science of storytelling	Article	33
Freytag's pyramid and the key elements of a story	Video	41
Think of your favourite story...	Discussion	73
What is cognitive thinking?	Article	75
Cognitive processes and decision-making	Article	24
What did we learn this week	Article	29
WEEK 2		241 comments
Introduction to Week 2	Article	10
What are Virtual Scenarios?	Video	30
Play a Virtual Scenario	Exercise	46
What makes a good Virtual Scenario?	Discussion	53
Creating aims and objectives for your Virtual Scenario	Article	21
Structuring Virtual Scenarios for specific learning activities	Article	21
Using media in Virtual Scenarios	Video	23
What did we learn this week?	Article	37
WEEK 3		322 comments
The week ahead	Article	12
Virtual Scenario authoring systems	Article	36
Virtual Scenario technologies in the WAVES project	Article	20
Share your ideas	Discussion	85
The 6-Step creation model	Article	9
Tips for authoring a Virtual Scenario	Article	12
Start creating	Article	46
CASUS	Exercise	30
Creating your first scenario - how did it go?	Discussion	40
Reviewing your Virtual Scenario	Article	10
Closing remarks	Article	22

Appendix Three

Post course survey results for the question on "what was your favourite part of the course and why?

Designing a scenario. This is something I want to be able to do well.
Accessing related reading contents and videos
The week 3 because was necessary to use all the knowledge previous to do a virtual scenario.
Video examples
Storytelling learning
Video (visualized material is always better remembered)
the practical exercises
The scope and breadth was good for an introductory course. I also felt the content was well paced. There were some interesting examples to explore, too.
Creating the scenario.
I learnt a lot about storytelling in the digital sense. My main objective was to learn about structuring a story in video and the course covered that perfectly.
Excellent videos
The Dramatic Arc. The links to blogs etc like Action mapping, persuasive scenarios
Designing my own virtual branched scenario!
The Freytag's Pyramid, the six steps model, tips for authoring SBL, the examples given of Softwares,
I enjoy all of the course and like how much knowledge is giving
I am not very keen about the new available technological tools for VS, so it was something agreeable and useful listening to people who was experienced in the field sharing knowledge and advice.
The introduction to WAVE - it is an incredible resource
Using different tools
creating the scenario, even though I am quite stuck but it's good to practice what we've learned
The Idea and the way it was presented was my favorite part of the course because it involves knowledge, tough challenges, and creativity.

Appendix Four

Response within the post-course survey for the question on "what was your least favourite part of the course and why?

I felt more practice and some feedback about creating a scenario if included would be better
I was not fully satisfied with the preparation of a complete module because the software was not meant for general learners or social science learners.
All the course is interesting.
I had to pay for certificate
Didn't have time to practice using the CASUS programme unfortunately
Some long articles
having to rush through it because it was expiring so quickly
I was a wee bit distracted by the copyediting inconsistencies in the articles.
Not applicable as it was all enjoyable.
NA
The info on authoring tools - I wanted more on the scenario aspect and expected to be sharing with other more and refining each part.
Trying out different authoring systems which I'm not familiar with. I felt a bit lost there.
I liked the course a lot, I would suggest to the educators of 2nd and 3rd weeks to communicate with learners a bit more : give some practical suggestions for those who were struggling with softwares, otherwise the course was very engaging and useful
The fact u have to pay the large amount for a certificate though I have contacted you before regarding this and got a reply I am doing this course on my own and do not get funded but I do these course and get my statement of participation which is fine
Sometimes some participants wanted to impose their points of view, but fortunately this happened not so often.
Can't think of anything here...
don't know
I don't have one to nominate
Software availability was the part I couldn't get much of it.

Appendix Five

Responses to the post-course survey question on "What are you most proud of achieving or doing as a result of taking the course?

Gaining an idea about creating virtual scenarios

I am really happy that I could learn about importance and the ways of creating virtual scenario.

I finished the majority of the activities of the course.

I used e-learning for first time. it was good opportunity

Finishing the course despite time pressures, because I recognised its importance to my professional development

being more confident to tackle a big project coming up, being able to present research to others in my project team so they know what i'm talking about

I've been able to share this course with my colleagues so that they can learn how to use virtual scenarios in the content they create.

I am thinking of ways to incorporate SBL into a mobile learning app that I'm working on.

Creating a VS and trying / evaluating a new tool (CASUS)

It's improved my knowledge of digital storytelling!

I've been able to introduce some of the ideas to my work and my colleagues

I made a first branched learning scenario

To structure my knowledge and skill are SBL

Just adding to my knowledge which working in childcare is always a positive thing why I enjoy these online free courses

Creating my own virtual scenario on paper and hopefully to an authoring system in the near future. Regarding the previous pages: Why only one possible choice about why we took the course? The best of the course was providing me with new knowledge about a field that is often reviewed in my line of work but not developed in the best way because we ignore that there are useful tools available.

I am able to apply what I have learned here to a project I am currently working on. This is surprisingly extremely relevant and I very much appreciate how you have stepped out the process. The resources are invaluable. I need to spend more time with the materials in the upcoming weeks and months. Thank you for such a wonderful program!

don't know yet

Now have a nice framework around scenario based learning, so I can sound like I know what I am talking about. I think it'd still take lots of practice and doing to master these skills and apply the knowledge.

Having a new idea to work on and improve the education quality of my company and myself as well.

10. APPENDIX 2 – SECOND RUN MOOC REPORT

INTRODUCTION

The following report details the outcome of the 2nd run of the WAVES Scenario-Based Learning (SBL) Massive Open Online Course (MOOC), which was developed as part of the knowledge Tool-kit (work package 3).

The course still consists of 3 short weeks; 2 theory weeks and one practical week. Week1 concentrated on Scenario-Based Learning, with an overview, a review of learning activities, the importance of story-telling. Week 2 focussed on an introduction to Virtual Scenarios and Planning a Virtual Scenario Week 3 began the process of developing a Virtual Scenario including an investigation of Virtual Scenario Technologies, tips on writing a Virtual Scenario, and creating your first Virtual Scenario.

The course was launched on the 29th October 2018 and is open for a total of 9 weeks. Learners were once again given the opportunity to purchase an upgrade to give them unlimited access to the course and certification, for £52.

STATISTICS

Accurate up to midnight on 17 December 2018 UTC.

Joiners	670	
Leavers	40	6.0%
Learners	392	58.5%
Active Learners	266	67.9%
Social Learners	82	20.9%
Learners with ≥50% step completion	130	33.2%
Learners with ≥90% step completion	93	23.7%
Run Retention Index	0.484	48.4%
Upgrades Sold	13	3.3%
Gross revenue in GBP	£676	

Joiners

There was a considerable drop in joiners in the 2nd run of the course, down to only 41% of the first run, but from that point, the percentages of the different categories e.g. learners, social learners etc were similar to the first run of the course.

Social learners

20.9% of learners on the course were social learners, this was an increase in social learners from the first run of the MOOC, which saw 17.2% of social learners.

Certificates

At the end of 8 weeks 13 upgrades were purchased by the participants of the course. This was 50% lower than upgrades sold in the first run of the MOOC.

Pre – course survey

In the first run of the MOOC we gave participants a change to complete a pre-course survey, however in the second run of the MOOC, this was removed from FutureLearn.

EVALUATIONS

The learner's feedback in the first run of the MOOC was very positive, and although there were less comments than in the first run, we saw the same successful inclination in the 1st week of the second run. Participants commented on how well the materials were presented within the MOOC. Participants showed a keen interest to learn about Scenario – Based Learning (SBL) with a view to implementation. The main focus however was on the importance of storytelling to conveying SBL. The majority of the comments were on article 1.6 "Harnessing the power of storytelling." This differed from the first run where attention was mainly on the cognitive-thinking step. There was a great discussion in terms of learners wanting to share their examples and experiences of storytelling. Learners agreed story-telling is the fundamental basis for SBL and many expressed using storytelling in various disciplines to help students understand learning to a better degree.

Overall, week 1 received the greatest number of comments (393). Week 2 and 3 received 182 and 147 comments respectively.

Week 2 learners were excited about how they could apply what they had learned in week 1. Some of the comments included: 'Looking forward to it - let's crack on...' and 'Really excited to create virtual scenarios in multimodal contexts.' With the main focus on Virtual Scenarios (VS) and the types of VS's, learners were able to discuss VS's in depth. "What makes a good Virtual Scenario" presented as the main focal point of discussion. At the end of the second week the students, having received the necessary grounding for VS and having given the opportunity to process their own personal aims and objectives for creating virtual scenarios, expressed now being confident enough in creating virtual scenarios for themselves.

Similarly to week 2, learners were excited to embark on the third week of the course. We had seen, in the first run of the MOOC, that week 3 had an increase in negative comments related to the difficulties of creating a scenarios for some learners, and the complexities of using VP authoring systems. These comments were taken on-board for the second run of the MOOC and a well thought out elucidation of using simple solution such as Squiffy, Twine and PowerPoint were added to the step 3.7 as examples. As a result, learners were able to successfully create their own VS using these tools provided. Comments such as "I used Twine to create a quick scenario (in about 30 minutes)" And "I used power point and made a repair scenario of switched sources in the electronic technical field" show the success of the added element which was missing from week 3 in the first run. The learners were more than happy to help each other with their

scenarios, by suggesting authoring systems, providing one-on-one help, sharing links and sharing their final scenarios.

Feedback and potential changes

Before the second run, small adjustments were made in week 1 and 2. These included merging some steps and cutting down texts, Youtube videos were added to provide an uncomplicated way for inexperienced learners to accomplish interactive content. Nevertheless, the main structure had remained the same. The predominant changes from the first run to the second run, were in week 3, in which participants experienced issues authoring their own VS with the systems provided.

The feedback received from the first run regarding this issue sparked an idea to add a pedagogically beneficial simple solution tools step to the MOOC. PowerPoint, Squiffy and Vue were amongst the options offered to learners as an easy cost-effective solution to author and a ramp to larger authoring systems

The second run of the MOOC received a very low number of negative comments, and as a result there may be very little that needs to be changed for the next run of the MOOC. Potential minor changes could include adding further quizzes to the MOOC, an element which a lot of learners can really benefit from and considering finding ways to increase the percentage of social learners.

Types of conversations and comments

As described earlier a large proportion of the conversations took place in the first week of the course, where the majority of comments were focussed. Similar to the first run, the learners asked very few questions in the comments, but instead gave their own expertise or shared their personal experiences.

What did the learners think of the course?

"Overall, it was a great course and I have learnt a lot. Thank you very much!"

"Great and very well structured is not enough to describe the course. This is the first course ever that has made me so active as to work with the resources step by step … What I liked most were the tutorials on the authoring tools and the chance to use one of them via a third-party website. These made the learning experience quite immersive. Big big thank you to the educators and all the team and institutions who provided this wonderful learning experience."

"I see the application of SBL as a method of entrenching substantive learning or putting into practice or applying prior learning, rather than a delivery tool for that substantive, core or foundation learning of knowledge

"Although I am far from ready, there are useful learnings for me and I see great value in using VS for learning or imparting knowledge of real life

How did the learners get on with making their first scenario?

I used post its to map out the storyline and identify decision points before creating in PowerPoint using a simple template. At intervals I have included a multi-choice question. ….. I think what i have is good enough as a prototype, but I would probably prefer to use another software package to develop a usable VS. It's been a good experience and gave me good prompts to think about.

I used Twine to create a quick scenario (in about 30 minutes) to help low-level FE learners imagine a common stressful situation and how they might respond to it.

"I feel as happy as a little kid doing something exciting for the first time :-D I've tried CASUS and created the first card in my planned VS. Not only is it interesting, it's really engaging for the scenario creator."

Play a Virtual Scenario – what did the learners think of the case?

"The scenario was thought provoking and more exciting than reading about the topic! I can see why students like it!"

"Really interesting and engaging!"

"Very interesting! I admit after going through it a few times (choosing different options to test out the pathways) I wondered if some of the scenario options were a bit misleading. But I assume it's designed to give you a worst possible outcome - a 'what if' rather than the same outcome - because the patient does not always arrest. It's a very useful tool for discussing ethics and outcomes."

Other

Storytelling - "More relevant for me is some form of interactive feature in storytelling and/or art. I've recently become interested in transmedia storytelling but find it difficult to 'let go' my own ideas for others to change, add to etc., something for me to think about though."

Decision making - "I personally still have a problem with unconscious problem solving especially in medicine and nursing. I still think we should have a basic level of knowledge for good decision making - will be happy if you change my way of thinking - I know we can solve a lot just intuitively BUT..."

Authoring tools– "I used power point and made a repair scenario of switched sources in the electronic technical field what I enjoyed the most was the interactive part and I would like to use the other sources later to give it a more creative touch."

Tips - One possible pointer to a new form of SBL might be the popularity of massive online games in which tens or even hundreds of thousands of players 'live' in a simulated online environment and can all interact with each other. This has similarities with role play, virtual worlds and high-fidelity simulations - the key difference is scale and the richness and emergent complexity that could offer.

POST-COURSE SURVEY

At the end of the course the learners were invited to complete a post-course survey which differed from the first run, 34 learners completed the survey. The table below shows how satisfied these learners with the course.

	Better	Met	Not Sure
Did this course meet your expectations?	38%	59%	3%
Did you gain new knowledge or skills by taking the course?	Yes	No	Not Sure
	94%	3%	3%
Since starting the course, have you applied what you learned?	Yes	No	Not Sure
	58%	36%	6%
Since starting the course, have you shared what you learned with other people?	Yes	No	Not Sure
	59%	41%	0%

59% of the learners who completed the survey expressed the view the course met their expectations and 38% confirmed the course was better than expected. Only 1 participant reported they were not sure if the

course met their expectation. We had no participants that voiced their expectations were not met in the course. When asked if knowledge or skills were learnt, 94% reported that they were taught new aptitudes on the course. Learners were asked since starting the course, have they applied what they learned? 19 out of 34 participants had directly applied what they had learnt from the course to teaching methods. 59% of participants shared the course with other people, which reinforced interest in SBL.

When asked what you would like to learn next?' There was a varied response with learners commenting on various practicality on authoring SBL scenarios, encouraging other trainers in SBL and developing what they have learnt and building on from this. The full comments can be found in Appendix 1. Additional comments in the post survey regarding the course were extremely positive. Comments such as "Brilliant course - best I've seen on FL. Thanks!" and "I found this course to be a helpful guide to creating scenarios", support the success of the second run of the MOOC. We received only one negative comment, regarding the price of the CERTIFICATE (APPENDIX 1).

CONCLUSION

Overall the course received a positive response, with many learners thanking the course creators for putting together a well-planned, concise and challenging course. Favourite aspects of the course included **the importance of storytelling,** the 6 step creation model and **the step added in the second run the' simple solutions' tools to create your own virtual scenario**. **Learners once again** valued the support and advice they received from other learners. **There was very little distain relating to the course through the comments produced by our learners.**

From the results of the second run of the MOOC, we can see that it was a success in a multitude of ways. With a reflection on the first run, the MOOC raised awareness and enthusiasm for Scenario-based Learning in trainers who may not have necessarily have used SBL previously. Secondly, the course provided learners with a wealth of learning tools, tips and hands on mentors for all thinks scenario based. Therefore they are mitigated at every stage of the course. Thirdly, the MOOC creates an online community network of SBL enthusiasts who are more than willing to share experiences and concerns. It was excellent to see many learners use SBL in many different discipline, promoting the fact SBL is universal and can be applied to any practice. Due to the success of the MOOC, it is hard to sum up what changes are to be made to the third run.

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1. Appendix One

Post course survey answers	
What would you like to learn next?	**Additional comments regarding the course**
"I would like to know how to encourage other teachers to be involved as I tried to motivate some of them but sometimes, they are maybe too busy to start as the preparation of good SV takes time:-) And of course, I want to keep updated about the new technologies and improvement in this area."	"I found this course to be a helpful guide to creating scenarios even without technology, which is often a luxury in my teaching environments, so I will be employing the creation techniques at my next opportunity. Thank you!"
"About how to be a good English teacher for kids."	"I'm a retired teacher and now a writer of fiction. I took the course out of interest with no intention of using it. However, my imagination was fired and I created the start of a complicated scenario for teachers who are mandatory reporters if they suspect child abuse. It would work so well for such a learning situation because so many signs can be quite innocent or can be indications of abuse. A teacher has to tread carefully so as not to react and cause offence or complications when the signs may be misconstrued or to put a child in danger when not acted upon. There is no point in me creating such a VS as I don't have an audience to use it but I hope someone has already or will do this."
"Use the software and gain more experience by creating and evaluating my scenarios."	"Thank you!"
"There is clearly a lot more to learn but I need to spend more time applying the basics before I know what's next!"	"Congratulations for your work!"
"more practical ways (tutorials) on authoring sbl scenarios"	"Brilliant course - best I've seen on FL. Thanks!"
	"thank you very much!"
	"I think that the certificate is very expensive."
	"It is a really interesting course. Among others, its greatest advantage, in my opinion, is that its structure (photos,videos,short texts with bullet points) keeps the learner's attention and enables them to complete the course even if they have a tight schedule. Thank you! Keep it up! "