

資訊科技教育教學法系列：
在中學有策略地運用**虛擬實境 (VR)** 設計教學活動提升**學與教效能**
EI0020190341 (R3AC)
第二節



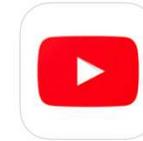
香港中文大學 學習科學與科技中心 (CLST)

資訊科技教育教學法系列：
在中學有策略地運用**虛擬實境 (VR)** 設計教學活動提升**學與教效能**
EI0020190116

SECTION 2

•步驟一：將你手機連接 WIFI NETWORK

•步驟二：下載 **YOUTUBE** APP



•步驟三：下載 QR CODE READER APP

例如：QR Code Reader from **Kaywa**



步驟四：下載以下 VR/ AR APPs

Google Streetview



Discovery VR



Within - VR (Virtual Reality)



Google Cardboard



Google Expeditions



HP Reveal



gies (CLST)
Hong Kong



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行政長官卓越教育獎秘書處

專研：網絡探究 WebQuest

資訊素養 Information Literacy

教育遊戲 Game-based Learning

網誌教學 Blog-based Learning

移動學習 Mobile Learning

翻轉教學 Flipped Learning

自主學習 Self-directed Learning

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課程目標：

本課程旨在介紹如何運用**虛擬實境技術 (VR)**，以提升在**課堂及戶外學習活動**的**學與教效能**。

活動詳情：

1. 虛擬實境技術在教育中的**理論、定義和最新趨勢**
2. 使用虛擬實境技術**設備**的技巧和基本技能
3. **設計和實施**虛擬實境於教學中
4. 虛擬實境的**課堂設計與推行**
5. 深入研究虛擬實境課堂的**案例**及了解虛擬實境如何提升學與教效能
6. **拍攝** 360 相片及影片
7. 在不同的虛擬實境平台**上傳輸、後期處理、編輯和發布**360影片
8. 設計虛擬實境學與教**材料**
9. 其他常用的虛擬實境**平台**

Objectives:

This course aims at :

to introduce how teachers may enhance learning and teaching effectiveness by adopting **virtual reality (VR) technology** and relevant strategies **in the classroom** as well as **outdoor learning** activities.



Session 1

1. **Theory, definition and global trend** of VR Technology in Education
2. **Techniques and Essential Skills** of Using VR Equipment
3. VR **Design and Implementation** for Learning and Teaching
4. VR **Lesson Design and Implementation**
5. In Depth VR **Lesson Case Studies** and How They Enhance L&T Effectiveness
6. Discussion of Assignment



Session 2

1. Discussion of Assignment
2. **360 Photo and Movie Capture** in the Chung Chi Campus
3. **360 Movie Clip Transfer, Post-processing, Editing and Publishing** on Different VR Platforms
4. **Composing** VR Learning and Teaching in **EduVenture-VR**
5. **School Management** in EduVenture-VR
6. Other Popular VR Platforms
7. VR Cross Platform **Scene Construction Techniques**
8. Conclusion and Discussion

1. Discussion of Assignment



Discussion of Assignment

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Course: 資訊科技教育教學法系列 :
在中學有策略地運用虛擬實境 (VR) 設計教學活動提升學與教效能 EI0020180445 第一節

班別 : _____
姓名 : _____
考察地點 : _____
教學年級 : _____
相關課題 : _____

進行實地考察可能出現的問題 :

- 1.
- 2.

進行虛擬考察可能出現的好處 :

- 1.
- 2.

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2. 360 Photo and Movie Capture in the YKH Campus

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香港中文大學戶外考察 (CUHK CLST Eduventure VR)

活動：體驗虛擬實境技術於學教應用 (EduVenture VR)

地點：樂善堂余近卿中學

目的：認識崇基書院虛擬實境考察

工具：Insta ONE X 360 CAM

- 景點一：地下珊瑚館
- 景點二：地下有蓋操場
- 景點三：門口大堂



3. 360 Movie Clip Transfer, Post-processing, Editing and Publishing on Different VR Platforms



Capture 拍攝

Cloud 儲存

View 觀看



Capture a video using VR360 cam and import it to the computer



The screenshot shows the YouTube upload interface in Chinese. At the top, there is a search bar with the text "搜尋" and the YouTube logo. The main area features a large grey arrow icon pointing upwards, with the text "選取要上傳的檔案" (Select files to upload) and "或將影片檔案拖曳到這裡" (or drag video files here). Below this is a "公開" (Public) dropdown menu. On the right side, there are three promotional panels: "匯入影片" (Import video) with a "從 Google 相簿匯入影片" (Import video from Google Photos) button; "直播" (Live) with a "開始直播" (Start live) button; and "首映功能全新登場!" (Premiere feature is here!) with a "瞭解詳情" (Learn more) button. At the bottom left, there is a "說明和建議" (Help and tips) section with links for "放寬限制" (Relax restrictions), "服務條款" (Terms of Service), "社群規範" (Community Guidelines), "瞭解詳情" (Learn more), "上傳相關指示" (Upload instructions), "疑難排解" (Troubleshooting), and "手機上傳" (Upload on mobile).



Set the Privacy Setting of 360 Video



VR Viewing



4. **Composing** VR Learning and Teaching in EduVentureVR
5. **School Management** in EduVentureVR



EduVenture VR

- EduVenture VR (EVVR) is an online platform to carry out Virtual Reality (VR) learning. Using the EVVR **composer**, teachers can **distribute VR content** and **construct a VR field trip** for students.
- They can also add interactive elements inside to enhance students' learning motivation. With mobile devices and tray glasses on hand, students can experience outdoor learning in VR style, which makes teaching and learning more interesting and flexible.

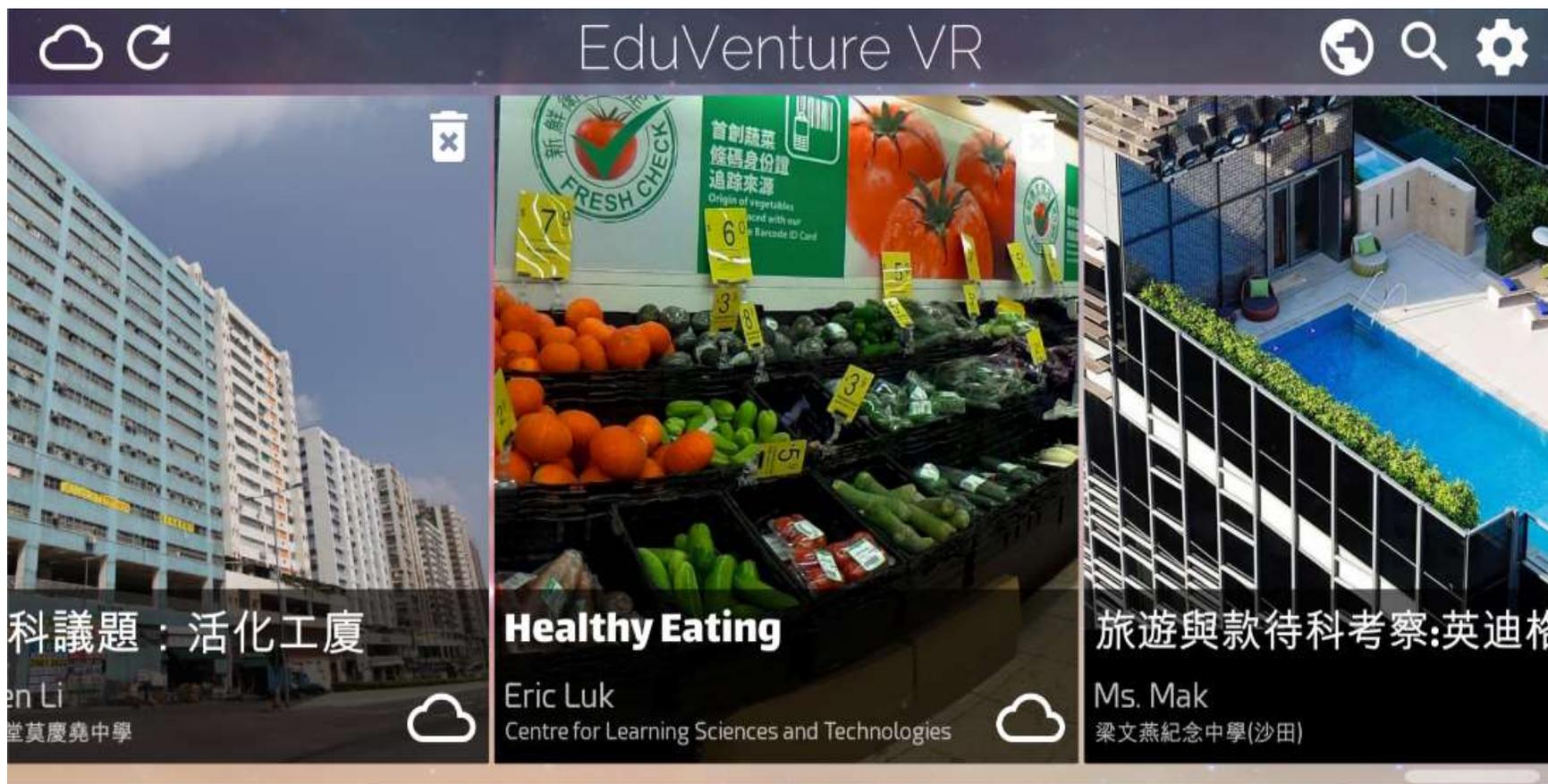


EduVenture VR

- EduVenture VR (EVVR), developed by CLST, CUHK, adopts Virtual Reality (VR) to carry out teaching and learning. VR technology generates a 3D virtual world and simulates student' s presence in the environment.
- Students can have better chances to explore the world using VR technology. <http://vr.ev-cuhk.net/>.



EduVenture VR



Entering EduVenture VR

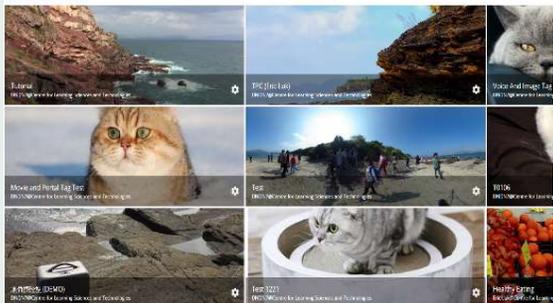
Open the browser and enter the URL: <http://vr.ev-cuhk.net>

Step	Procedures	User Interface
1	Press the button to enter the EVVR Composer	
2	Go to iTunes (iOS) / Play Store (Android) to download the EVVR App	

EduVenture VR Composer

Using the EVVR Composer, teachers can distribute VR content and create their own teaching materials.

In order to identify the owner of the VR content, teachers will be given a username and password to login.

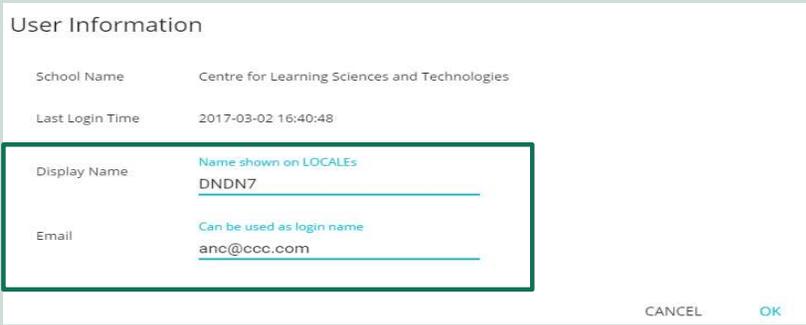
Step	Procedures	User Interface
1	Input username and password, then press "OK" .	
2	Upon successful login, teachers should be able to see a list of VR contents in the main menu.	

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Control Panel

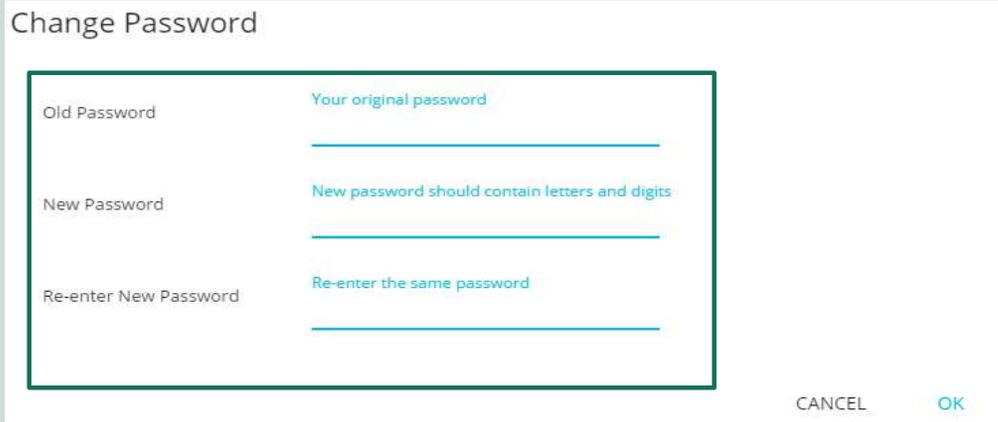
How to Edit User Account Information

Step	Procedures
1	Press  at the top, then select "My Info" (name and email).
2	Input the new name, email or password, then press "OK" .
3	Press "Cancel" to discard everything and return to main menu.
UI	



Control Panel

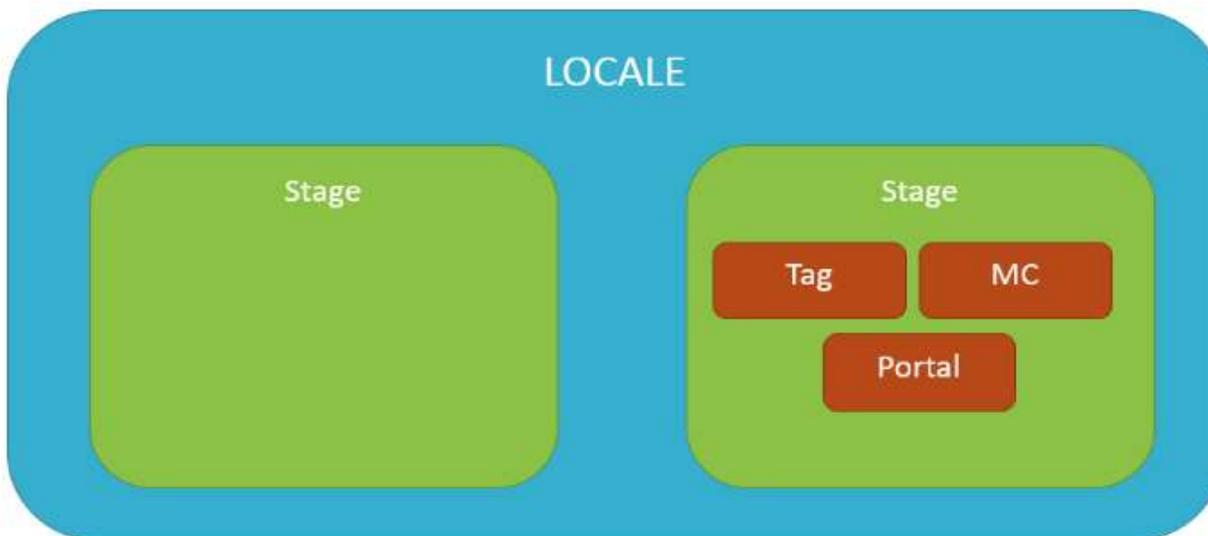
Similarly, teachers can also change their password.

Step	Procedures
1	Press  at the top, then select "Change Password" .
2	Input the old password and new password, then press "OK" .
3	Press "Cancel" to discard everything and return to main menu.
UI	

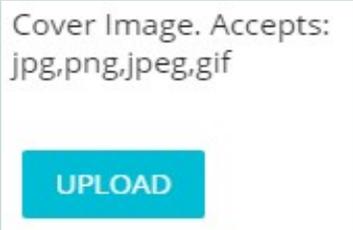


Locales

- “Locale”, place or locality, especially with reference to events or **circumstances** connected with it
- “Locale” is referring to the VR **learning materials**. Each locale is made up of a series of **stages**;
- Each stage can either be a **360 movie** or a **360 image**. These stages can combine together to produce a VR learning experience.



How to Create a Locale

Step	Procedures	User Interface
1	Press “Create New Locale” at the top.	
2	Enter the locale’s name and description. Be creative!	
3	Upload the locale’s cover image (jpg, jpeg, png, gif).	

T)
ng



How to Create a Locale

4 Indicate these 2 settings.

“Open to Public”:
Can all users view the locale?

“Ready to Publish”:
Is the locale ready to be used by public?

Open to Public
Ready to Publish



Upon successful creation of locale, a new locale (with the owner's name, the locale's name and the locale's cover image) should appear in the main menu.

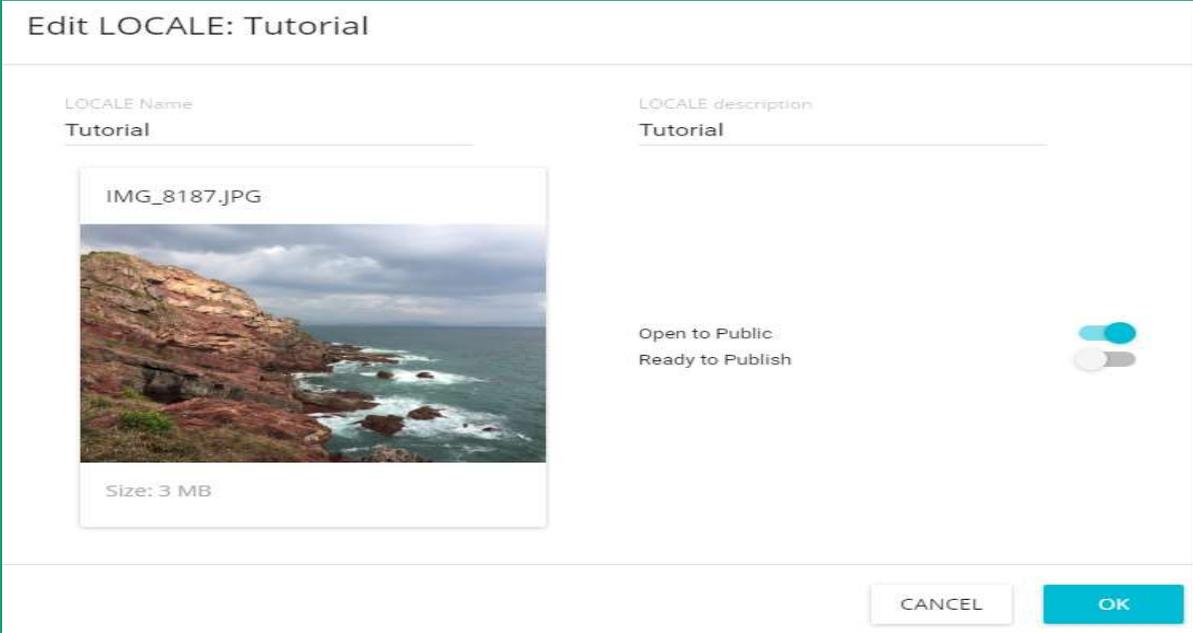


How to Edit a Locale

Step	Procedures	User Interface
1	Press the setting button  at the right bottom corner.	
2	Press "View/Edit Detail" .	
3	Edit the locale' s name, description, public and publish settings. Press "OK" to confirm and "Cancel" to return.	



How to Edit a Locale

Step	Procedures	User Interface
UI		



How to Delete a Locale

Step	Procedures	User Interface
1	Press the setting button  at the right bottom corner.	
2	Press "Delete".	
3	Press "Cancel" to return and "Confirm" to delete.	
UI	<div data-bbox="369 1149 1283 1268"> <p>Confirm delete LOCALE: 地質探險記 (DEMO)?</p> <p>CANCEL CONFIRM</p> </div>	

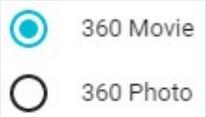


Stages

- Stages are the **building blocks** of a locale.
- A stage can be a **360 movie** or a **360 image**.
- Inside a stage, teachers can add interactive elements such as **tags**, **MCs** and **portals**.



How to Create a Stage

Step	Procedures	User Interface
1	Press "Create New Stage" .	
2	Enter the stage's name.	
3	Indicate 360 Movie / Photo (Default: 360 Movie).	

Upon successful creation, **the new stage** will appear on the left navigation bar.

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How to Create a Stage

- The left navigation bar shows all the stages in sequence
- The right hand side allows teachers to upload their 360 movie / image

Icon	Meaning
 Stage 1 ▾	360 Movie
 Stage 2 ▾	360 Image

Upload 360 Movie / Image for a Stage

Step	Procedures	User Interface
1	Press "Upload" . Movie: mov, mp4, m4v, avi Image: jpg, jpeg, png, gif	
2	Wait until 100% .	
3	Upon successful upload, teachers should be able to see the thumbnail and the timeline for the VR content.	
UI		

Edit a Stage

- Teachers can further edit the display sequence of stages using the left navigation bar.

Step	Procedures	User Interface
1	Press the  button.	
2	Press "Move Up" / "Down".	

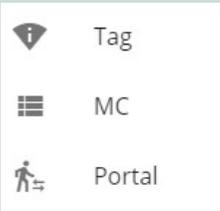
Delete a Stage

Step	Procedures	User Interface
1	Press the  button.	
2	Press "Delete" .	
3	Press "Cancel" to return and "Confirm" to delete.	
UI		



Playback Elements

- Teachers can add interactive elements in the VR world.
- They include tags, MCs and portals.

Step	Procedures	User Interface
1	Drag the timeline to indicate when the element should appear.	
2	Press "Element At This Moment"	
3	Choose the element: "Tag" , "MC" or "Portal"	

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How to Create a Tag

- Tag can display information such as text, voice or enlarged image.

Step	Procedures	User Interface
1	Enter the display text.	
2	Choose the tag type.	
2a	For voice, upload an mp3. Toggle autoplay or not (Default: Off).	
2b	For image, upload these formats: jpg, jpeg, png, gif.	



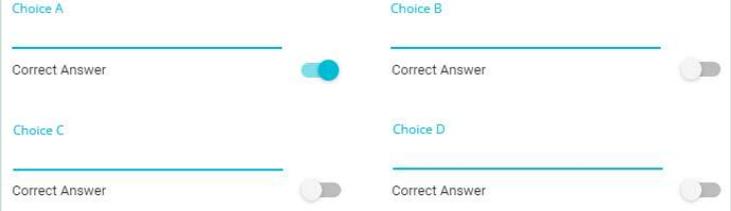
How to Create a Tag

- Tag can display information such as text, voice or enlarged image.

Step	Procedures	User Interface
3	Drag the pin to indicate where the tag should appear.	
4	Drag the timeline to indicate how long the tag should appear.	

Create a MC

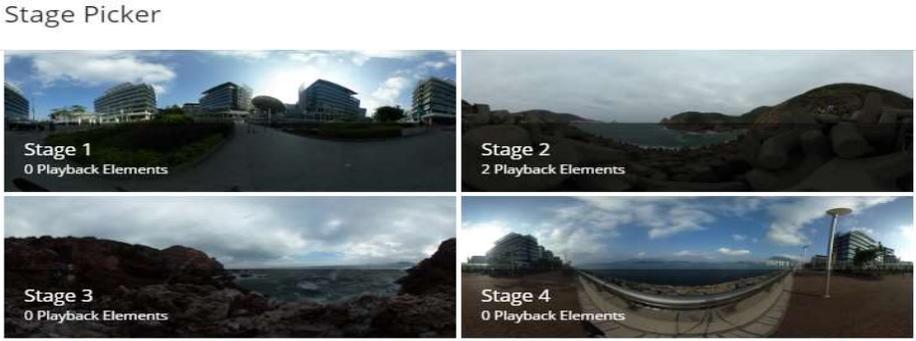
- Each MC has 4 choices and at least 1 correct answer.
- Teachers can limit how many times the students can attempt a MC.

Step	Procedures	User Interface
1	Enter the question.	
2	Enter the 4 choices and toggle at least 1 correct answer.	
UI		
3	Adjust how many times the students can answer this MC.	



Create a Portal

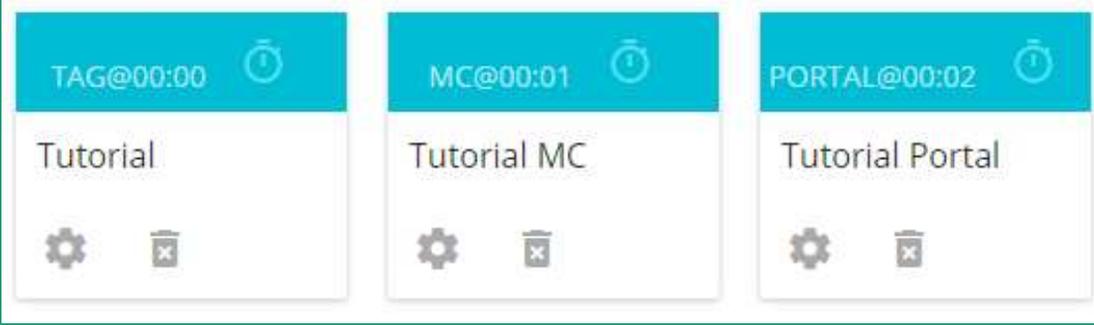
- Portal is the transfer gateway to other stages.
- Teachers can set at most select 4 destination stages for a portal.

Step	Procedures	User Interface
1	Enter the display text, e.g., "To Stage 2"	
2	Pick the destination stages.	
UI		



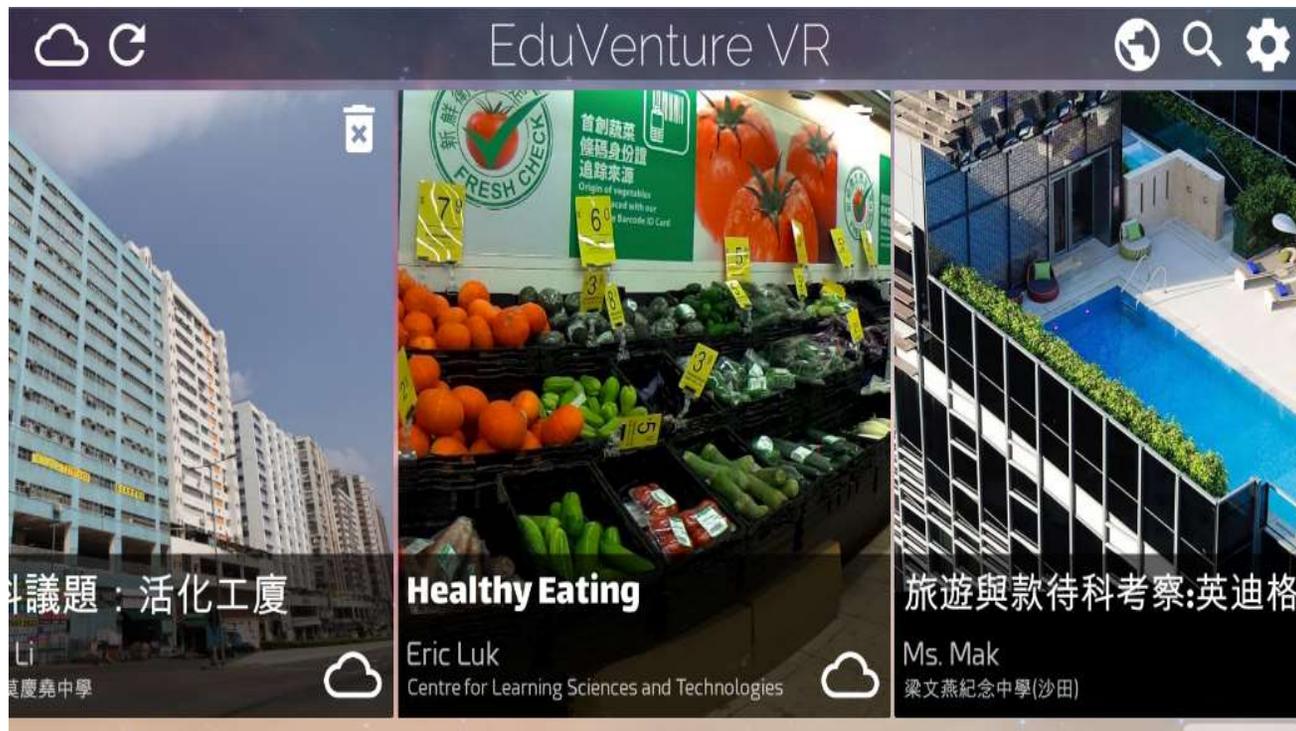
Review the Playback Elements

- Teachers can review the playback elements they added in the bottom panel.

UI		
Step	Procedures	
1	Press  to edit the element.	Press  to delete the element.

EduVenture VR App

After installing the EVVR App, students should be able to see the locales that are set public and ready to publish in the composer.



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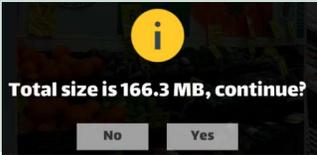
Control Panel



No.	Icons	Functions
1a		Display the online locales (Can switch to 1b)
1b		Display the downloaded locales (Can switch to 1a)
2		Refresh the locale menu
3a		Display all public locales (Can switch to 3b)
3b		Display private locales only (Can switch to 3a)
4		Search a particular locale
5		Configure game settings



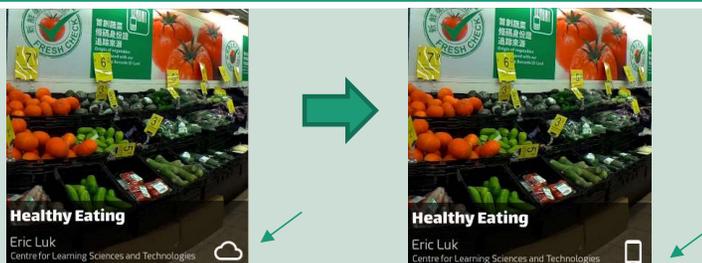
Download a Locale

Step	Procedures	User Interface
1	Press the locale to download	
UI		
2	Press "Yes" to download and press "No" to return.	
3	Press X to stop downloading if necessary. Otherwise, wait until 100% downloaded.	

Download a Locale

4 Upon successful downloading, the students can start the locale!
Note that the icon at the right bottom corner changes.

UI



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Inside the VR World

How to Reverse/Play/Stop the VR content

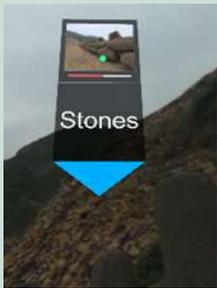
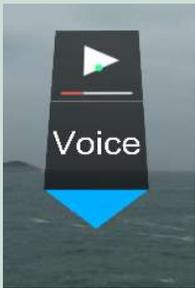
When the students look **downwards**, a control panel will pop up.



- There are 3 actions: **reverse, pause/resume and stop the 360 movie / image.**
- To perform these in the VR world, simply move the pointer to the button for 2 seconds.

How to Respond to a Tag

Either text, image or voice tag will be displayed (according to the composer's database).

Type	None	Image	Voice
UI			
Step	Procedures		
1	N/A	Point to the thumbnail image for 2 seconds.	Point to the play button for 2 seconds.
2	N/A	An enlarged image will come out eventually.	The sound will be played eventually.



How to Respond to a MC

The number of chances, the MC question and the 4 choices will now be displayed (according to the composer's database).

Step	Procedures	
1	Move the pointer to the answer.	
2	Correct	Wrong
UI		

How to Respond to a Portal

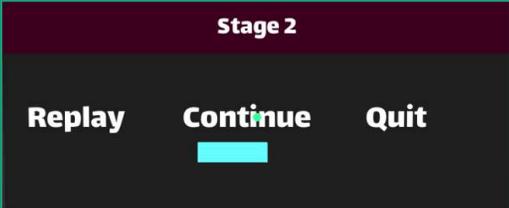
Students can teleport to other stages through portal. The portal title and destination stages will now be displayed (according to the composer's database).

Step	Procedures
1	Move the pointer to the destination stage and wait for 2 seconds. The portal will then teleport to the destination stage.
UI	



How to Continue to Next Stage

- After finishing a stage, a “Continue Panel” will pop up.
- The student can either replay, continue or quit, by moving the pointer to the option.

UI	
Actions	Meaning
Replay	Replay the current stage.
Continue	Go on to next stage.
Quit	Return to the main menu.

Quit Panel

- After finishing all stages, a “Quit Panel” will pop up.
- The student can either replay, restart or quit, by moving the pointer to the option

UI	
Actions	Meaning
Replay	Replay the current stage.
Restart	Restart from the first stage.
Quit	Return to the main menu.

6. Other Popular VR Platforms



網龍：<http://www.101creativepack.com/>



101 主頁 101VR 101AR VR/AR 教材 教育方案 下載及安裝 常見問題 網誌 聯絡我們 ENGLISH

創想包

101 VR

全港首個 DIY 教育 VR 創客軟件

無須專業編程知識或美工繪圖技巧，
應用 101VR 內的場景及 3D 模型，
擺放指令按鈕，立即化身創客！

了解更多

The screenshot shows a website interface for '101 Creative Pack'. At the top, there is a navigation menu with links for '主頁' (Home), '101VR', '101AR', 'VR/AR 教材' (VR/AR Materials), '教育方案' (Education Solutions), '下載及安裝' (Download & Install), '常見問題' (FAQ), '網誌' (Blog), '聯絡我們' (Contact Us), and 'ENGLISH'. Below the menu is a large banner image of a classroom where students are using computers. Overlaid on the left side of the banner is a white box containing the text '101 VR 全港首個 DIY 教育 VR 創客軟件'. Below this text is a paragraph describing the software as a no-code, no-art tool for creating VR content. At the bottom of the white box is a red button that says '了解更多' (Learn More).



HKT : <https://www.hkteducation.com/chi/stem/vr.php>

STEM 教學課程

虛擬實境 (VR)

編程與機械表

科技農業

創客學習空間

海外STEM
+ 遊學體驗

STEM 教學方案

虛擬實境 (VR)

教學範例

推薦教學 App

健康使用指南

HKT Education 率先引入 VR 科技 帶領 21 世紀學與教新趨勢

透過 VR 服務方案，HKT Education 能讓學生與遠方及難以到達的環境中的事物進行互動，從而使學習充滿樂趣。

學生在課堂上透過 VR 旅程，隨時可前往世界各地，尤如身歷其境，例如透過豐富資源及方便搜索的互聯網，參觀博物館、歷史遺跡、畫廊及展覽館。他們也可透過虛擬探險前往北極，認識那裡的野生動物及瞭解當地物種。學生亦可虛擬探索人體的不同部位，增進人類生物學知識。



CoSpaces EDU : <https://cospaces.io/edu/>

CO SPACES EDU

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Get started for FREE

