

interacting with others during practical exercises on emergency operation procedures in Aviation, and these exercises will be close the reality but within a safe learning environment.

We believe that this innovative use of VR technology will not only improve students' "learning-by-doing" experience for all aviation related programmes, but also bring a great contribution to aviation industry. The **estimated beneficiaries** from the School, other institutions, secondary school and industrial companies would be around **3,880** annually.

About the Project

The establishment of the airport third runway will induce a lot of aviation job opportunities in the coming decades that diversified and well-trained workforce are required. The aviation industry is a highly regulated industry that many operations have to follow stringent procedures and regulations. Systematic and repeated practical training is required to enhance students to catch the standard of the industry. Both Higher Diploma aviation programmes aim not only to deliver theoretical knowledge but also provide many learning-by-practising opportunities to enable students to acquire the essential skills to join the industry. Practical training under an authentic environment will greatly enhance the learning effectiveness of the students.

In this project, we aim to set up a Virtual Reality Laboratory (VR Lab) equipped with four room-scale tracking VR equipment for multi-user interactions with the developed VR contents to facilitate student learning Aviation through role-plays. The design of the VR Lab and conceptual diagram of multiple users' content are shown in Appendix B & C. The objective of developing multi-user VR contents is to enable students to practise the emergency operation procedures and get familiar with the safety requirements of aircraft emergency cases basing on the industry standard. Within the computer-generated immersive environment, students work in groups (as the roles of cabin crew or flight crew) to tackle different abnormal and catastrophic situations. Three sets of multi-user VR contents would be :

- Set 1: Fire and dense smoke inside cabin
- Set 2: Severe aircraft structural damage and aircraft emergency landing
- Set 3: Communication failure between cabin crew and flight crew

Other students can, at the meantime, view the actions performed by the participating students on the monitors and evaluate the performance of the students.

The major advantage of this project is that **students' learning engagement** can be enhanced with experience in the aviation emergency procedures under intensely stressed situation inside a safe computer-based VR environment without potential physical risk. It is anticipated that the multi-user VR training can greatly enhance the team **communication effectiveness** and **work cooperation** among students. All of these are highly essential in aviation industry.

Furthermore, the other disciplines, including language, nursing and health science, architectural

studies and interior design, etc, have also indicated their interests in using the VR Lab. Besides, **with the support and advice from the Hong Kong International Aviation Academy of Hong Kong Airport Authority to this project**, we believe that this project will significantly contribute to the advancement of post-secondary teaching and learning as well as industrial training by serving as an exemplar of effective usage of the innovative VR technologies.

[1] Perote, Javier, Vicente-Lorente, José David, Zúñiga-Vicente, José Ángel, "Classroom Experiments: A Useful Tool for Learning about Economic and Entrepreneurial Decisions", Education Tools for Entrepreneurship: Creating an Action-Learning Environment through Educational Learning Tools, Springer International Publishing, 2016, PP 1-14

Part D Problems Identified

(Please provide your assessments to the problems / needs identified.)

The Hong Kong International Airport (HKIA) has been experiencing tremendous growth in passenger number and cargo throughput since its operation in 1998. The airport is almost reaching its maximum handling capacity of the existing two-runway system. As a leading international and the Asia regional aviation hub, the Airport Authority Hong Kong (AA) confirmed to kick off the construction of the three-runway system (3RS) in August 2016 in order to keep Hong Kong's competitiveness as well as to generate tremendous economic benefits [2]. According to the HKIA Master Plan 2030, after the completion of the 3RS, the direct employment will increase from 85,000 in 2012 to 119,000 in 2030. In the 2015 survey conducted by AA, among 73,000 staff members in more than 400 different companies operating in the airport, 73% is engaged in professional and skilled tasks [3].

We choose Aviation as the subject for this project because we aim at training more professional and skilled students to become aviation professionals and contribute to Hong Kong's future. These programmes cover a wide range of topics including aviation business, airline and airport operations, air transportation, aircraft weight balance and dispatch, airline ground service, catering and day-to-day aviation operations, and risk and safety management. The programmes not only equip students with knowledge and skills in aviation and its related business and broaden their capacity in aviation business and airport operations, but also enable students to develop their abilities in solving operational problems and devise appropriate solutions in aviation environments.

However, it is impossible to simulate different abnormal and catastrophic situations with traditional classroom teaching, therefore we identified at least the following needs from the community, and from the education sector as the demands for this Project:

1. The needs of skilled manpower in aviation industry

Hong Kong keeps facing the challenge of manpower supply to support the local aviation industry development. It is estimated that the demand for professional and skilled manpower in aviation industry will continuously increase in the coming years. It is eager to train more professional and skilled crews for the industry, especially the manpower with experience on tackling abnormal and catastrophic situations.

2. Lack of opportunities to practise the handling of abnormal and catastrophic situations

In traditional teaching, only theories of tackling different abnormal and catastrophic situations can be taught, and it was not easy to provide real-life experiences during classes. Therefore, graduates commonly lack experiences in handling the situation when incidents occur. To avoid accidents or reduce the casualty figures, experienced and well trained crews are very important. It is believed that a virtual environment platform with different well design scenarios can be a very important part in the training of crews on tackling the abnormal and catastrophic situations.

3. Lack of opportunities to experience the team work in airport operation

In normal classroom teaching, emergency procedures for different roles such as pilot, cabin crew, air control tower and ramp operation staff can be taught. However, the students cannot visualize the cooperation and communications among different roles. Many studies found that lots of air disasters were caused by human error [4]. The use of **scenario case approach** can allow students to act in different positions in the virtual environment to handle the emergency situations. The VR Lab not only allows an individual to interact in the immersive environment, but also provides a shared virtual environment with multiple user participations, which is crucial for **training co-operation and communication skills** [5].

4. The needs of expensive equipment and sites

An aircraft cabin with full-set of equipment including galley, entertainment TV, evacuation equipment, etc., is very expensive. It is impossible for the School to purchase an aircraft cabin for training purposes. With the VR technology, it is possible to create a virtual environment such as an aircraft cabin, an air control tower as well as ramp layout, and let the students interact with the contents. Students can experience an immersive environment of aircraft cabin with full-set of equipment by using the VR Lab and the developed VR contents. Other institutes have already embedded virtual field trips in core modules so as to provide rich and interactive virtual landscape with multi-user capability [6].

5. Skills enhancement through experiential learning

VR Lab provides intensive training for Aviation students on handling safety and emergency procedures in different emergency situations, especially the co-operation and communication skills. It also provides students that hands-on experiences in the safety and emergency procedures and such experiential learning that integrates knowledge with skills will greatly improve the performance of the learners [7] and enhance the student's learning experience.

[2] Enright, Scott & Associates Ltd. (2015). "An Update of Airport Master Plan 2030 Economic Impact Study for The Hong Kong International Airport." Retrieved from http://www.threerunwaysystem.com/media/1245/economic_impact_study_of_the_three_runway_system.pdf on 5 Feb

2017.

[3] Airport Authority Hong Kong (2017). "The Three-runway System of Hong Kong International Airport." Retrieved from http://www.threerunwaysystem.com/media/1722/02022017_en_3rs_infokit.pdf on 5 Feb 2017.

[4] David Learmount, The Telegraph (2014). "Too many pilots can't handle an emergency." Retrieved from <http://www.telegraph.co.uk/news/uknews/11318189/Too-many-pilots-cant-handle-an-emergency.html> on 6 Feb 2017.

[5] Tudevtagva, Uranchimeg, Yumchmaa Ayush, and Batshagai Baatar. "The Virtual Laboratories Case Study in Traditional Teaching and E-Learning for Engineering Sciences." Ubi-Media Computing and Workshops (UMEDIA), 2014 7th International Conference on. IEEE, 2014.

[6] Argles, Thomas, Shailey Minocha, and David Burden. "Exploring the affordances of virtual fieldwork in a multi-user, 3-D digital environment." (2015).

[7] Seymour, Neal E., et al. "Virtual reality training improves operating room performance: results of a randomized, double-blinded study." *Annals of surgery* 236.4 (2002): 458-464.

Part E Project Objectives and Deliverables	
Measurable Objectives	How it can be achieved
<p>1. To motivate and enhance students learning experience through "learning-by-doing" approach under the VR environment, and enhance the learning facility. The measurable are:</p> <p>a.) Establish of VR Lab</p> <p>b.) Number of interactive VR contents developed</p> <p>c.) Number of students visiting the VR Lab</p> <p>d.) Number of learning experience surveys collected after the students use the VR Lab</p>	<ul style="list-style-type: none"> • Assign a classroom for VR Lab and ensure that the classroom is renovated for fitting the VR Lab; • Purchase the required equipment for the VR Lab; • Outsource the interactive VR contents development task to professional VR content development company to minimize the development time; • Conduct activities in VR Lab for aviation students to practises the handling of emergency situations in aviation industry; • Conduct surveys to collect feedbacks from students after using the VR Lab.
<p>2 To enhance the teaching experience, improve the quality of teaching facility with using VR Lab. The measurable is</p> <p>a.) Use of VR Lab as a teaching tools and facility in the Aviation course</p> <p>b.) Number of responses to the teaching experience survey collected after the conducting training use the VR Lab</p>	<ul style="list-style-type: none"> • Modify the curriculum of the programmes to include the designed VR contents in teaching. • Provide trainings for teachers on the use of the developed multi-user VR contents in the VR Lab; • Provide support for teachers to conduct teaching with the developed multi-user VR contents in the VR Lab. • Conduct surveys to collect feedbacks from

	teachers after using the VR Lab.
<p>3 To promote the application of multi-user VR contents in training to the aviation industry and other institutions. The measurable are:</p> <p>a.) Number of visitors visiting and experiencing the multi-user VR contents in the VR Lab.</p> <p>b.) Number of survey responses collected from the visitors after using the VR Lab</p> <p>c.) Number of collaboration with the industry / other institutions.</p>	<ul style="list-style-type: none"> • Invite industrial companies, other institutions and secondary schools to visit and experience the multi-user VR contents in the VR Lab; • Demonstrate the developed interactive VR contents with other courses in HKU SPACE, HKU SPACE Po Leung Kuk Stanley Ho Community College (HPSHCC) and Centennial College; • Conduct surveys to collect feedback from the visitors after using the VR Lab; • Invite industrial companies / other institutions to collaborate in further developing of VR contents with using the VR Lab.
<p>4 To promote the use VR Lab and the interactive VR contents for teaching and learning. The measurable is:</p> <p>a.) Number of sharing session being conducted</p>	<ul style="list-style-type: none"> • Conduct a half day seminar for sharing our development and study outcome to public; • Conduct a learning pedagogical sharing session for HKU SPACE, HPSHCC and Centennial College.
<p>Project Deliverables <i>(Please list out all the deliverables to be achieved and how they can be shared with, if possible, other institutions.)</i></p>	
Deliverables	Sharing mechanism
<p>1. A VR Lab will be setup.*</p>	<ul style="list-style-type: none"> • Other sub-degree programmes of HKU SPACE can develop VR contents and run in the VR Lab; • The design and set up of the VR Lab will be uploaded to HKU SPACE website; • Industrial companies, other academic institutions and secondary schools are welcomed to use the VR Lab.
<p>2. Interactive VR contents will be designed and developed.**</p>	<ul style="list-style-type: none"> • Industrial companies and other institutions are welcomed to use the developed interactive VR contents for teaching.
<p>3. Evaluation reports will be prepared.</p>	<ul style="list-style-type: none"> • Evaluation reports on the learning experience of students studying in the experiential-learning model versus traditional

	<p>classroom teaching will be analysed;</p> <ul style="list-style-type: none"> • Evaluation reports on the feedback from the guests and external parties will be analysed.
<p>4. Seminar and sharing sessions will be arranged.</p>	<ul style="list-style-type: none"> • A half day seminar for public to share our development and study outcome will be arranged; • A learning pedagogical sharing session for all teachers and staff members from HKU SPACE, HPSHCC and Centennial College will be arranged.

Remarks:

* A VR Lab will be setup, which consists of action and observer areas. The action area consists of four “Action station” for four students to interact with the VR contents simultaneously. The 4 student stations are interconnected and controlled by a teacher station. Appendix C illustrates a sample multi-user VR content for fire inside cabin scenario. Each “Action station” will be equipped with a computer and VR device. The observer area allows up to 16 students to observe the group training process of the 4 students in the action area.

** Three sets of interactive VR contents will be designed and developed for the following scenarios:

- Set 1: Fire and dense smoke inside cabin
- Set 2: Severe aircraft structural damage and aircraft emergency landing
- Set 3: Communication failure between cabin crew and flight crew

For each of the VR scenario, it aims to let students experience and practise the cooperation among the crews under different situations. Thus, the following core environment and features will be included:

- Animated aircraft cabin with full-set of equipment including galley, entertainment TV, and evacuation equipment (such as slide raft, first kits and survival kits etc.)
- Animated passengers, animated normal and abnormal environmental sounds in cabin environment, and animated sliding window inside cockpit, etc.
- Animated scenario of emergency, including fire, smoke, scraping metal, unusual noises, hard landing, and sudden change of aircraft attitude

In addition, the following procedural training components under emergency situation will be designed and developed:

- Brace position, emergency commands, initiation of evacuation, and evacuation exits
- Assessing outside conditions, self-protection, locating the manual slide inflation device, locating Able-Bodied Passengers (ABPs), and headcount checking after evacuation

To achieve group training, the following interactive components will be designed and developed:

- Cabin checking as per industry safety standard and requirement
- Identification of circumstance to initiate evacuation (i.e. fire, smoke, life-threatening situations, ditching etc.)

- Fire and smoke fighting procedures inside cabin
- Performing both planned and unplanned emergency evacuation procedures under team cooperation

(Please indicate the information that can be uploaded onto relevant EDB websites during and after the project period.)

Information to be uploaded to EDB website during and after the project period:

This project aims to set up a **Virtual Reality Laboratory (VR Lab)** equipped with four room-scale tracking VR equipment for multi-user interactions with the developed VR content, which enable aviation students to learn through role-playing of different roles. The objective of developing **innovative multi-user VR contents** is to enable students to practise the emergency operation procedures and get familiarized with the safety requirements of aircraft emergency cases based on the industry standard in an immersive environment. Within the computer-generated immersive environment, students work in groups (as the roles of cabin crew or flight crew) to tackle different abnormal and catastrophic situations. The major advantage of this project is that students' learning engagement can be enhanced with experience in the aviation emergency procedures under intensely stressed situation, inside a safe computer-based VR environment and without potential physical risk. It is anticipated that the multi-user VR training can greatly **enhance the team communication effectiveness and work cooperation** among students. All of these are highly essential in aviation industry.

Beneficiaries

Expected type and number of beneficiaries of the project

- Full-time Aviation studies students
- Participants of the seminar
- Other HKU SPACE students
- Visitors from Industrial companies
- Visitors from other institutions
- Teachers and students from secondary school

(Please provide justification to support the above estimation and explain how they can be benefited from the project.)

The setup of VR Lab with the development of interactive VR contents will benefit not only the full-time sub-degree Aviation programmes, but also other institutions and the industrial practitioners. **The project can benefit the post-secondary education widely as well as the aviation industrial sectors. The expected total annual beneficiaries on this project are around 3,880.** The details are as follows:

1. HKU SPACE offers two **full-time sub-degree Aviation programmes**, Higher Diploma in Aviation Studies and Higher Diploma in Airline and Airport Services, and the projected annual enrolment of the programmes are 320 and 70 respectively. The VR contents will be integrated in the curriculum of the above 2 programmes, students will make use of the VR Lab to practise the emergency operational procedures and experience the safety requirements of aircraft emergency

cases based on the industry standard.

2. After the completion of setting up the VR Lab, courses in (but not limited to) the following disciplines can also be benefited:
 - Students from Architectural Studies and Interior Design (around 390 projected annual enrolments) can import their artwork to VR Lab to experience their design in an immersive mode.
 - Students from Nursing and Health Science subject (around 360 projected annual enrolments), language such Korean subject (around 1700 projected annual enrolments) and Librarianship subject (around 180 projected annual enrolments) will develop VR contents and conduct classes in VR Lab.
 - More students can be benefited from the VR Lab by developing additional VR contents in other disciplines.
3. **Industrial companies, other institutes and secondary schools** (around 710 projected annual visitors) will be invited to visit the VR Lab and experience immersive teaching and learning.
4. Upon the completion of setting up the VR Lab and development of all VR contents, a **seminar and sharing sessions will be arranged** to share the **innovative contents with advanced technology**, the experiences gained, as well as the learning outcome from this project. The expected participants of the sharing seminar will be 150.

Please refer to Appendix D for the full-time programme information.

Implementation Schedule

(Please list out the implementation schedule and key milestones to be achieved on a half-yearly basis.)

Estimated start date of the project (month/year)	September 2017
Estimated end date of the project (month/year)	February 2020
Project duration (months)	30 months

Month	Key milestones	
	In terms of project activities and deliverables	In terms of monitoring and evaluation
1-6	<ol style="list-style-type: none"> 1. Recruit a project manager 2. Prepare for VR Lab setup <ul style="list-style-type: none"> • Renovation • Procurement of equipment 3. Design the multi-user VR contents 4. Prepare for outsourcing VR contents development 	<ul style="list-style-type: none"> • Ensure the necessity of fitting out works and the work being on track. • Ensure procurement and outsource processes are on track, HKU SPACE's purchasing guideline will be followed. • Ensure the design for the multi-user VR contents are on track. • Interim project review by the Project Evaluation Team.
7-12	<ol style="list-style-type: none"> 1. Set up a VR Lab <ul style="list-style-type: none"> • Renovation completion • Procurement of equipment 2. Finalize the design of multi-user VR contents 3. Outsource VR contents development 	<ul style="list-style-type: none"> • Ensure the completion of fitting out works. • Ensure the completion of design for the multi-user VR contents. • Ensure procurement and outsource processes are on track, HKU SPACE's purchasing guideline will be followed. • Setup the equipment in VR Lab, test and review the setting regularly. • Interim project review by the Project Evaluation Team.
13-18	<ol style="list-style-type: none"> 1. Develop and deliver the first set of multi-user VR content 	<ul style="list-style-type: none"> • Ensure the first set of VR content development is on track. • Deploy the first set of VR content to the VR Lab. • Evaluate the first set of VR contents to ensure that the requirements by programme team are met. • Students will be invited for trial run, feedbacks will be collected via survey after each use of the VR Lab. • Student's feedback will be given to developer for further enhancement. • Refine the multi-user VR content. • Interim project review by the Project Evaluation Team.

19-24	<ol style="list-style-type: none">1. Develop and deliver the second set of multi-user VR content2. Publish the design and set up of VR Lab in HKU SPACE website	<ul style="list-style-type: none">• Ensure the second set of VR content development is on track.• Deploy the second set of VR contents to the VR Lab.• Evaluate the second set of VR content to ensure that the requirements by programme team are met.• Students will be invited for trial run, feedbacks will be collected via survey after each use of the VR Lab.• Student's feedback will be given to developer for further enhancement.• Refine the multi-user VR content.• Prepare information about VR Lab and publish the information HKU SPACE website.• Interim project review by the Project Evaluation Team.
25-30	<ol style="list-style-type: none">1. Develop and deliver the third set of multi-user VR content2. Promote the VR Lab3. Arrange half-day seminar	<ul style="list-style-type: none">• Ensure the third set of VR content development is on track.• Deploy the third set of VR content to the VR Lab.• Evaluate the third set of VR content to ensure that the requirements by programme team are met.• Students will be invited for trial run, feedbacks will be collected via survey after each use of the VR Lab.• Student's feedback will be given to developer for further enhancement.• Refine the multi-user VR contents.• Conduct a learning pedagogical sharing session for all teachers and staff members from HKU SPACE, HPSHCC and Centennial College.• Invite visitors from industry / other institutes to visit the VR Lab.• Conduct surveys to collect feedback from visitors after each use of the VR Lab.

		<ul style="list-style-type: none">• A half-day seminar for public will be organized to share the project outcome.• Final review by the Project Evaluation Team.• Preparation of final report.
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Publicity Plan

(Please describe all the publicity activities to be organised and materials to be produced to acknowledge the support of Quality Enhancement Support Scheme. Please suitably reflect the publicity activities as key milestones in the implementation schedule above.)

To share this innovative pedagogical teaching and learning experience to Aviation industry and public, we have the following publicity plan:

1. HKU SPACE website

Introduction of the VR Lab will be given in HKU SPACE website, the support of Quality Enhancement Support Scheme (QESS) will be acknowledged in the webpage.

2. Seminar & sharing sessions

- A learning pedagogical sharing session will be conducted for all teachers and staff members from HKU SPACE, HPSHCC and Centennial College. Tentative arrangement of the sharing session is as follows:
 - Title: Pedagogical Use of Virtual Reality Environment for Aviation Studies
 - Date: August 2019
 - Duration: 90 minutes
 - Venue: HKU SPACE Admiralty Learning Centre
 - Speaker: Project Implementation Team
 - Target audience: Teachers and staff members from HKU SPACE, HPSHCC and Centennial College
- A half-day seminar for public will be organized to share the project outcome. Tentative arrangement of the seminar is as follows:
 - Title: Virtual Reality as a Learning Environment - Technological and Pedagogical Issues
 - Date: November 2019
 - Duration: 180 minutes
 - Venue: HKU SPACE Po Leung Kuk Stanley Ho Community College Campus
 - Speaker: Project Implementation Team
 - Target audience: Educators, teachers and staff members from HK tertiary institutes, secondary schools and industry.

3. Promotion brochure

Promotion brochure (around 5,000 leaflets) will be prepared and distributed to the participants to promote the adaptation of VR content in teaching and learning.

4. Disseminate the launch of VR Lab to industrial companies and associations

Announcement of the VR Lab will be disseminated to the industrial companies and associations.

5. Demonstration for external parties

Invitation will be sent to external parties including industrial companies, associations, other institutes, secondary schools, etc. to invite them to visit the VR Lab and experience the developed multi-user VR contents. Each visit will be last 90 minutes, limited to a group of 20 visitors so that everyone can have chance to experience the VR contents. The design of the VR Lab and the evaluation results will be shared to the external parties.

In addition, acknowledgement will be given at the beginning of the VR contents to acknowledge the support of QESS. In the VR Lab, acknowledgement of QESS will be written on the equipment.

Part F Cash Flow and Budget

Project Expenditure

	Amount in HK\$			
Period	Year 1	Year 2	Year 3	Total
Manpower	284,115	378,820	94,705	757,640
Equipment / Facilities	324,000	0	0	324,000
Services	130,000	570,000	140,000	840,000
General Expenses	0	0	5,000	5,000
Others (e.g. auditor's fee)	0	0	58,895	58,895
Total	738,115	948,820	298,600	1,985,535

Project Income (if any, e.g. fees received)

	Amount in HK\$			
Period	Year 1	Year 2	Year 3	Total
Total				

(Please provide a detailed breakdown of the project budget by completing the following Excel file.)

Please also refer to Appendix E for the project budget with detailed usage and equipment price reference.

Grant Sought under the Quality Enhancement Support Scheme	1,985,535
Funding from the Applicant	-
Funding from Other Sources	-
Total Project Value	1,985,535

(Please specify the amount to be funded by each funding source (e.g. donations, contributions from applicant / its parent organisation) and whether the funding has been secured. If not, please provide the plan to obtain the funding.)

The fitting out of the classroom will incur renovation cost (HK\$200K) which will be funded by HKU SPACE.

(Please provide the duty lists of manpower to be funded by this project.)

Post	Duties
Project Manager	Responsible for project coordination and administrative support, including but not limited to: <ul style="list-style-type: none"> • Assist the Project Coordinator to manage and coordinate the project • Liaise with different units for the fitting out of venue for VR Lab setup • Coordinate and handle the procurement of equipment for the VR Lab • Liaise with outsource developer on the content development • Perform tendering process for the development of VR contents • Work closely with the programme staff to coordinate the survey and evaluation support • Design teaching and learning experience evaluation survey • Conduct survey and analyse the results • Align vendor to refine the multi-user VR contents • Update project website • Prepare promotion brochures • Coordinate and arrange seminar and sharing sessions • Coordinate and arrange demonstration for external parties • Provide user trainings and demonstrations on using the VR Lab and VR contents • Supervise the day-to-day operation of the VR Lab • Prepare regular report to the Project Evaluation Team • Prepare related document and required reports for submission to EDB

Project Sustainability

(Please estimate the amount of recurrent expenditure and describe how you will commit the resources to ensure sustainability of the project. Please put supplementary information (e.g. proof of financial support) at appendix.)

After the completion of this Project, the developed VR Lab as well as the multi-user VR contents for Aviation industry will **bring a significant impact to both educational and industrial sectors**. It can be **sustained for a longer term** by the following ways:

1. Continuous support and extension of the VR content

The management of HKU SPACE fully supports this project. The School will allocate manpower to the project apart from the human resources requested in the budget. After the completion of this project, the VR contents of this Project will set as an exemplar. In addition, the contents will be refined and new multi-user VR contents may be developed by in-house technical staff under the E-Learning Team. E-Learning Team of HKU SPACE will go on maintaining the VR Lab.

2. Increase in student enrolment

Applying advanced educational technology in teaching and learning to create an immersive environment for learning is a kind of experiential learning. Such application would probably enhance the learning experience and motivate students to learn. This shows the School's innovation in teaching and learning to enhance the quality and may indirectly increase student enrolment.

3. Further collaboration with industrial practitioners

By sharing this innovative experience of using VR Lab for training students on handling emergency procedures in aviation industry with other institutes and industrial practitioners, this may gain opportunities to have collaborations with other industrial practitioners. Supportive responses are received after sharing the ideas of this application with a few industrial practitioners, such as Hong Kong Airlines, Hong Kong Airport Authority, HeliServices Ltd., etc. Some of them eager to participate to our project while the implementation phases.

4. Sharing of the VR Lab to optimize the use of the teaching and learning facilities

Since the VR Lab has been set up in this project, it can be shared with other programmes, other programmes of the School may develop VR contents that fit their teaching needs by using the VR Lab facilities.