

CPCECPR Conference 2022

Web-based eAssessment Tool for Effective Oral Presentation Assessment and Enhancing Students' Learning

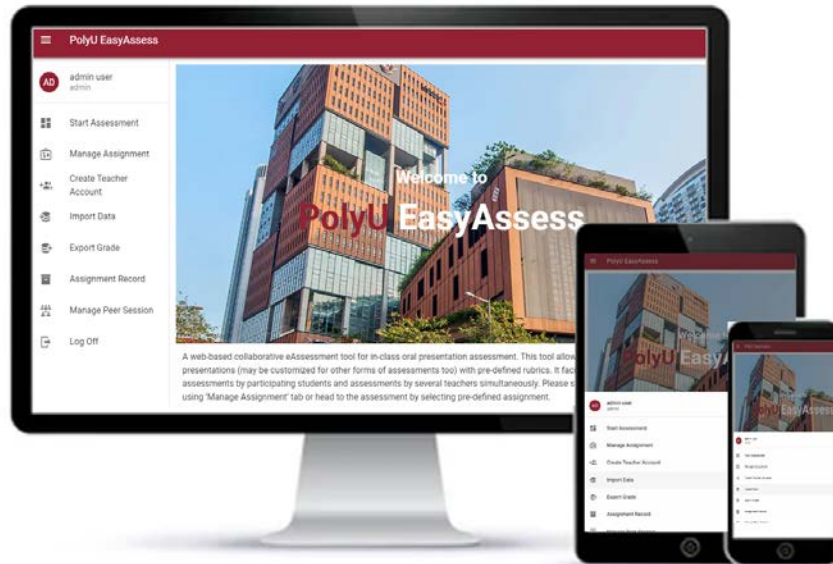


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The Hong Kong Polytechnic University

Outline

- Introduction
- Issues and Challenges of Oral Presentation Assessments
- Use of Technology for Assessment
 - Introduction to eAssessment Tool 'EasyAssess'
- Direction for research



Introduction



- Oral presentation is an essential assessment element for some subjects in degree/sub-degree programmes
 - Project-based learning
 - Case-based learning
- Individual or group presentations
- Assessed by the subject teacher or by a panel

Introduction

- Objectives of oral presentations in academic setting
 - To **judge knowledge, understanding, problem solving skills** and other abilities **through the oral medium**.
 - Assessing students' language or **communication skills**
- Many theories of learning emphasize the importance of students' **ability to articulate** their ideas, body of knowledge, research/project proposals, outcome of a group project, processes used for problem solving, etc. through speaking.
 - It develops their ability and confidence to communicate in **work-like environments**
 - Oral presentations is a **higher-order cognitive task** and therefore **of immense value as an assessment task**

Van Ginkel, S., Gulikers, J., Biemans, H., & Mulder, M. (2017). The impact of the feedback source on developing oral presentation competence. *Studies in Higher Education (Dorchester-on-Thames)*, 42(9), 1671-1685.

Oral assessment is **a direct means of assessing** students' learning outcomes
It presents minimal risk of academic misconduct.

Issues and Challenges

- Oral presentation assessment is **very time-consuming** - it is an expensive way of assessing
- Sometimes there is **no proper record of the process of assessment** to ensure its fairness.
- Issues with **providing feedback**
 - Difficult to provide detailed written feedback due to time constraints.
 - Students may not be in a proper frame of mind (may be nervous) to digest the oral feedback provided
- **Peer engagement** in assessment and feedback
 - Limited opportunities for interaction with peers
 - Getting and managing peer feedback is difficult

The research shows that **peer evaluation and feedback has a positive effect on oral presentation skills of students**, especially when they are provided with some support instruments such as rubrics.

Murillo-Zamorano, L. R., & Montanero, M. (2018) Assessment & Evaluation in Higher Education

Issues and Challenges

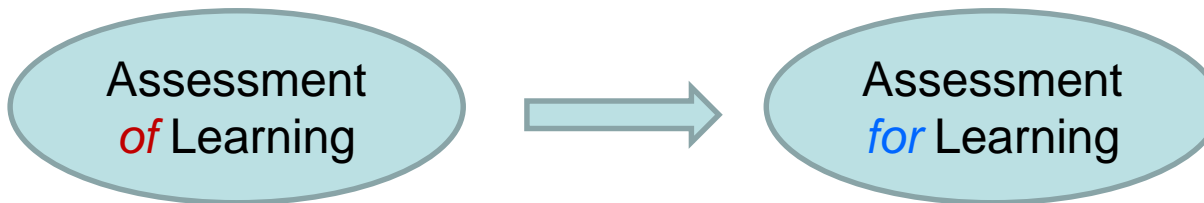
- **Timing of the oral presentation assessment**
 - Oral presentations are **normally arranged towards the end of the semester** after students complete a major project work or case study

Mainly conducted as a summative assessment

Assessment
of Learning

Impact of Oral Presentation Assessment on Learning??

- Need:



- Giving rich learning experience to students through **effective feedback**
- Enhance the engagement of peers
- Provide real value for the students' efforts
- Making the assessment fair and transparent

Issues and Challenges

Use of Paper-based Rubrics for Assessment

- Good way of providing feedback for students to study and reflect on ways for further improvement
- Difficult to write detailed comments due to time restrictions
- Peer assessment
 - Provide a good guide for students to make proper assessment and feedback
 - Getting students to use papers is bit challenging in modern smart phone era
- Managing assessment results and giving back written feedback to students
 - Generating consolidated grades is challenging
 - Collecting and sending back paper-based assessments to students is even more challenging
 - More clerical work ...



Use of Technology for Assessment

- Use of Learning Management Systems



Limitations:

- Difficult to integrate peer assessment
- Rubric function is difficult to deploy when more than 1 assessor is involved
- Involving assessors from the industry?

- Web-based eAssessment Tool

CPCE Pedagogical Innovation Fund (PIF) on e-learning

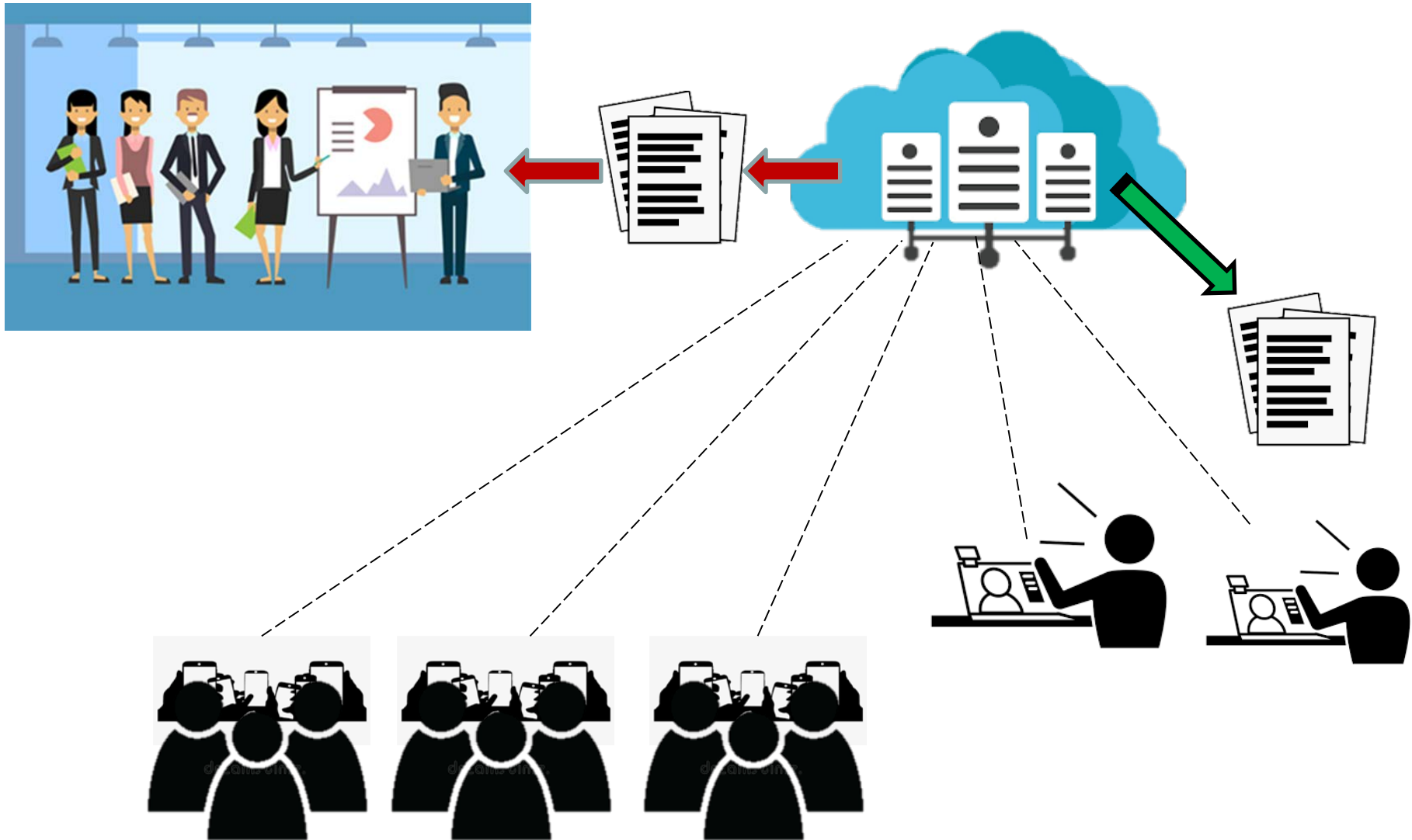
Project Coordinator: Udaya Kahangamage

Co-Project Coordinator: Ken Tsang

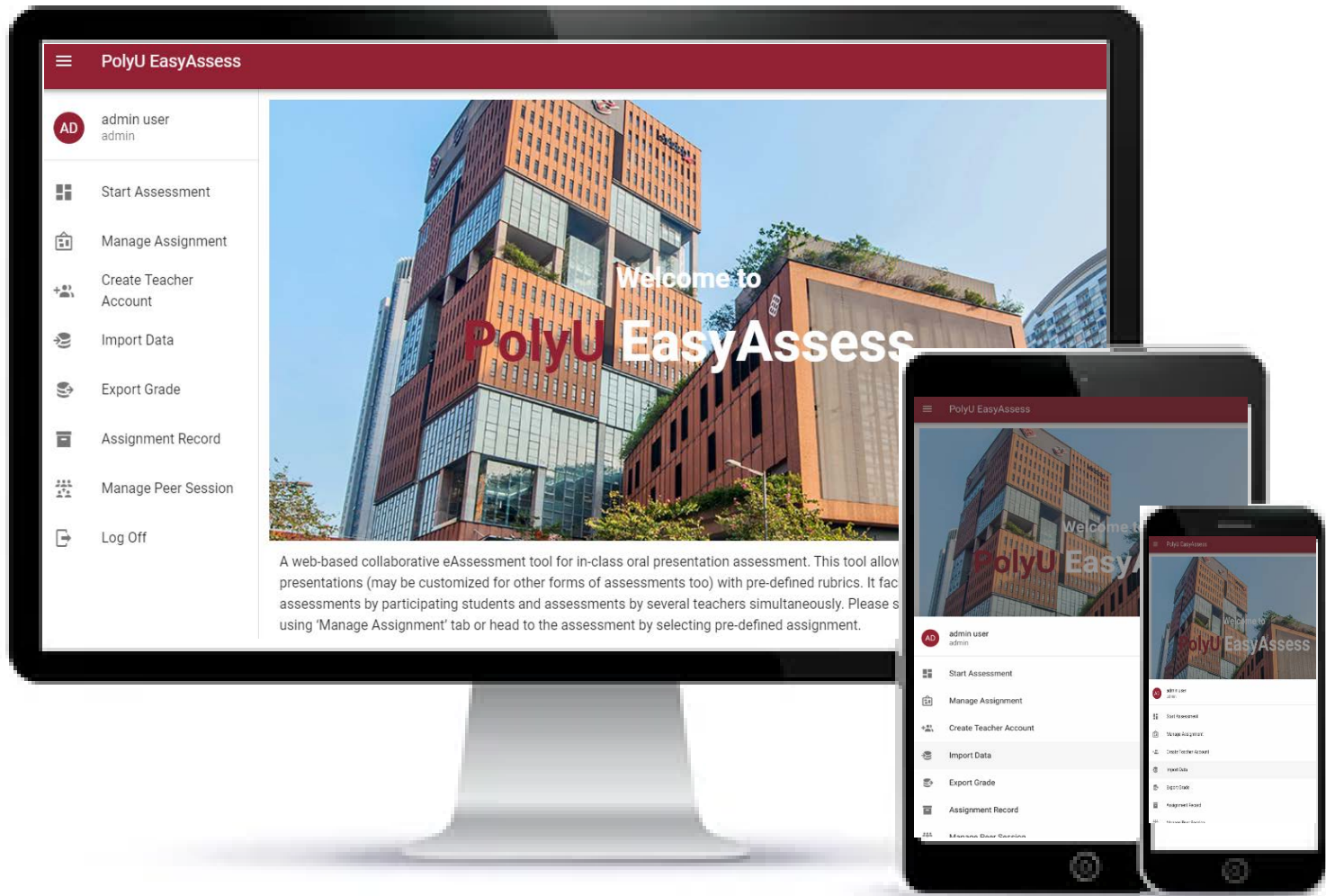
Software Developers:

Students from HKCC Associate in Information Technology Programme

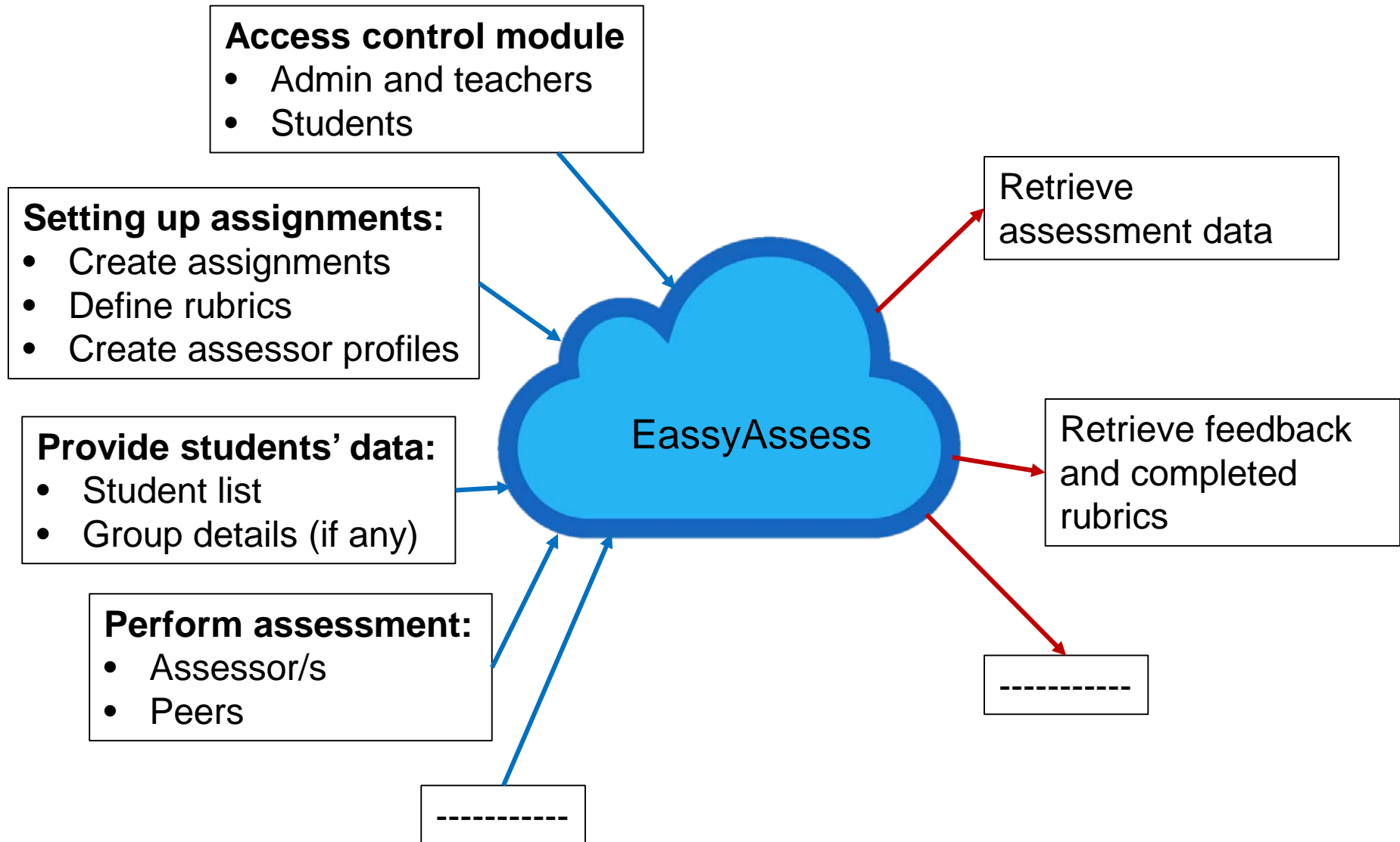
Web-based eAssessment Tool



Introduction to eAssessment Tool 'EasyAssess'



eAssessment Tool: Basic Architecture



EasyAssess: User Interface

≡ PolyU EasyAssess

AD admin user
admin

Start Assessment

Manage Assignment

Create Teacher Account

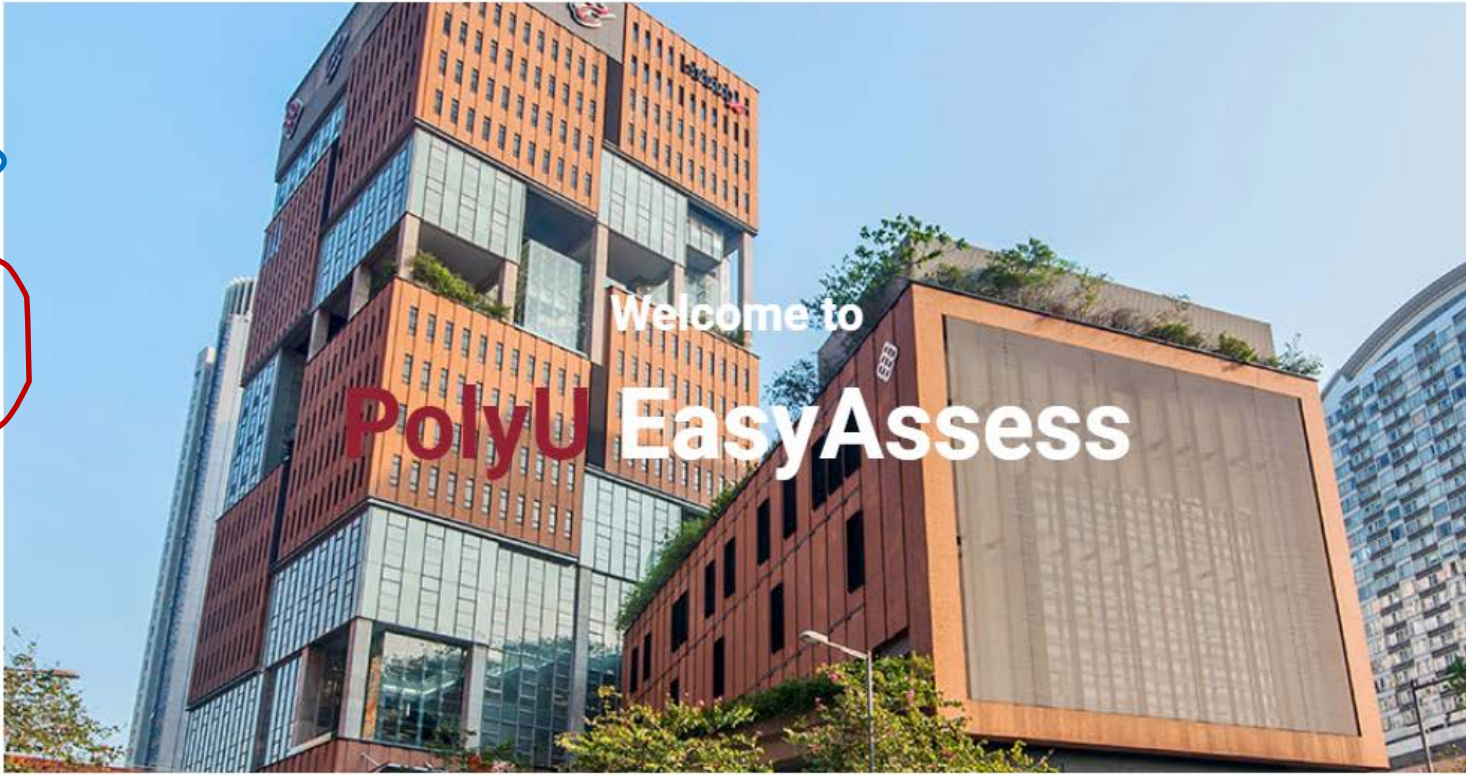
Import Data

Export Grade

Assignment Record

Manage Peer Session

Log Off



Welcome to
PolyU EasyAssess

A web-based collaborative eAssessment tool for in-class oral presentation assessment. This tool allows you to assess oral presentations (may be customized for other forms of assessments too) with pre-defined rubrics. It facilitates in-class peer assessments by participating students and assessments by several teachers simultaneously. Please start by creating new assignment using 'Manage Assignment' tab or head to the assessment by selecting pre-defined assignment.

EasyAssess: Setting up Assignment

☰

PolyU EasyAssess

UD

Udaya
udaya

☰

Start Assessment

📅

Manage Assignment

👤

Create Teacher Account

📄

Import Data

📊

Export Grade

📋

Assignment Record

👥

Manage Peer Session

🚪

Log Off

Create Assignment

1

Input assignment information

2

Import Group Assessment Criteria

3

Import Individual Assessment Criteria

4

Import Group List

Subject ID

0 / 10

Assignment ID

0 / 4

Assignment Name

0 / 100

Year

Semester

CREATE

Import Guideline

The following data will be needed for **each assignment**, where all data will be imported by CSV upload:

- Group assessment criteria ([sample CSV](#))
- Individual assessment criteria (Optional) ([sample CSV](#))
- Student group list ([sample CSV](#))

Please use the above CSV samples as a template for data import. The column order should be exactly the same as the samples, otherwise error will occur.

The first row in each CSV file is the column header. Please do not put any data in that row as it will not be imported.

The total weighting of individual performance and group performance must be equal to 100, otherwise error will occur in GPA conversion.

EasyAssess: Setting up Assignment

UD Udaya
udaya

- ☐ Start Assessment
- 📅 Manage Assignment
- + Create Teacher Account
- 🔄 Import Data
- 📤 Export Grade
- 📋 Assignment Record
- 👥 Manage Peer Session
- 🔒 Log Off

Modify Criteria for 2021_1_SEHS3301_A1_udaya

OPTION DELETE ASSIGNMENT

Select Criteria ☒ Group Assessment Criteria ☐ Individual Assessment Criteria

Assessment Criteria	Outstanding	Good	Satisfactory	Barely Satisfactory	Inadequate	Weight
Organization of the presentation	Highly disorganized and does not meet expectations at all	Barely satisfactory organization and presentation sequence mostly disorganized	Satisfactory organization and presentation sequence sometimes disorganized	Good organization and presented mostly in a logical sequence	Well organized and presented in a logical sequence, clearly exceeds expectation	20
Design of presentation materials	Inadequate use of visual aids, less informative, ineffective, and very distracting	Barely satisfactory use of visual aids, barely informative, barely effective, and sometimes distracting	Satisfactory use of visual aids, mostly informative, mostly effective, and sometimes distracting	Good use of visual aids, informative, effective, and not distracting	Excellent use of visual aids, very informative, very effective, and not distracting	20
Response to questions	Unprepared, Misunderstood questions and did not respond appropriately	Barely prepared , Sometimes misunderstood questions, Can only answer rudimentary questions	Adequately prepared, Understood questions but sometimes had difficulty in responding	Well prepared, Understood questions and responded satisfactorily	Fully prepared, Anticipated questions and responded with more information than required	30

Rows per page: 10 1-3 of 3 < >

EasyAssess: Performing an Assessment

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Start Assessment

Manage Assignment

Create Teacher Account

Import Data


Export Grade

Assignment Record


Manage Peer Session

Log Off

1 Select Assignment and Group - SEHS3306 A1 4



Upload Image

 G12.jpg

StudentID	Name
21068646S	CHAN <input type="text"/>
21010159S	KWOK <input type="text"/>
21069968S	LAW <input type="text"/>
21063313S	RAHEES <input type="text"/>
21005703S	WU <input type="text"/>

☐ Peer Assess

EasyAssess: Performing an Assessment



1 Group Performance

2 Individual Performance

SEHS3306 Group: 4 Group Performance

Complete: 1 / 3

Organization of the presentation



Design of presentation materials - 8



Outstanding

Good

Satisfactory

Barely Satisfactory

Inadequate

Excellent use of visual aids, very informative, very effective, and not distracting

Good use of visual aids, informative, effective, and not distracting

Satisfactory use of visual aids, mostly informative, mostly effective, and sometimes distracting

Barely satisfactory use of visual aids, barely informative, barely effective, and sometimes distracting

Inadequate use of visual aids, less informative, ineffective, and very distracting

☐ 11

☐ 10

☐ 9

☒ 8

☐ 7

☐ 6

☐ 5

☐ 4

☐ 3

☐ 2

☐ 1

☐ 0

Response to questions



Comment

Good use of visual aids. |

EasyAssess: Performing an Assessment



SEHS3306 Group: 4 Individual Performance

SUBMIT

CHAN KWOK LAW RAHEES WU

Relevance and quality of content delivered - 3

Outstanding

Good

Satisfactory

Barely Satisfactory

Inadequate

Rich and highly relevant content, showed excellent understanding of the content

Rich and relevant content, showed good understanding of the content

Mostly relevant content, showed satisfactory understanding of the content

Barely relevant content, showed limited understanding of the content

Most of the content is irrelevant, showed no or very limited understanding of the content

☐ 11 ☐ 10 ☐ 9 ☐ 8 ☐ 7 ☐ 6 ☐ 5 ☒ 3 ☐ 2 ☐ 1 ☐ 0

Presentation Skills -

Need to provide more detailed information to clarify the key concepts presented

EasyAssess: Performing an Assessment

☰ PolyU EasyAssess

ASSESS SELECTION

UD Udaya udaya

Start Assessment

Manage Assignment

Create Teacher Account


Import Data

Export Grade

Assignment Record

Manage Peer Session

Log Off



SEHS3306 A1 Group 4

Project Presentation

CHAN
21068646S

KWOK
21010159S

LAW
21069300S

RAHEES
21063313S

WU
21005700S

SUBMIT

This button is for submit change of comment.

Group Performance

Organization of the presentation - 7

Design of presentation materials - 8

Response to questions - 5

Comment

Good use of visual aids.

Individual Performance

CHAN

EasyAssess: Peer Assessment

☰

PolyU EasyAssess

ASSESS

ASSESS SELECTION

UD Udaya udaya

Start Assessment

Manage Assignment

Create Teacher Account

Import Data

Export Grade

Assignment Record

1

Manage Peer Session

Log Off


1 Peer Assessment

2 Group Performance

3 Individual Performance

Peer-to-Peer Assessment QRCode

Token: 0NWJX



EasyAssess: Retrieving Data

☰

PolyU EasyAssess

ASSESS

ASSESS SELECTION

UD

Udaya

udaya

Start Assessment

Manage Assignment

Create Teacher Account

Import Data

Export Grade

Assignment Record

1

Manage Peer Session

Log Off

✓

Select Year - 2021

✓

Select Semester - 1

✓

Select Course - SEHS3301

✓

Select Assignment - A1

✓

Select Creator - udaya

6

Select Assessor

Assessor

Export Mean Score Among All Assessors

Export All Assessors

udaya

udayak

EasyAssess: Retrieving Data

File Home Insert Page Layout Formulas Data Review View Autodesk Vault ACROBAT Tell me what you want to do...

Cut Copy Paste Format Painter

Calibri 11 A A B I U Font Merge & Center Alignment General Number Conditional Formatting Format as Table Check Cell Normal Bad

H4 X ✓ fx 8.3333

	A	B	D	E	G	H	J	K	L	M
	userID	name	group	groupGrade	groupComment	individualGrade	individualComment	peerGrade	GPA	grade
1	19039650S	CHANG	1	5.4286	Response to questions is not that satisfactory.	6.6667			2.52	B-
2	19014759S	CHEUK	1	5.4286	Response to questions is not that satisfactory.	6.3333	Poor presentation.		2.55	B-
3	19020810S	CHIU H	1	5.4286	Response to questions is not that satisfactory.	8.3333			2.75	B-
4	19017958S	YIM W	1	5.4286	Response to questions is not that satisfactory.	6.6667			2.58	B-
5	19033589S	YIN Ch	1	5.4286	Response to questions is not that satisfactory.	3.3333	Acceptable presentation		2.25	C+
6	19042040S	HO Ho	2	7.1429	Good group work.	8.3333			3.03	B
7	19042678S	LI Po S	2	7.1429	Good group work.	2.3333			2.43	C+
8	19019050S	NG Tsz	2	7.1429	Good group work.	8.6667			3.07	B
9	19019859S	TAM La	2	7.1429	Good group work.	7.6667			2.96	B
10	19023129S	YAU Ch	2	7.1429	Good group work.	7.6667			2.97	B
11	19022089S	LAW Ya	3	2.2857		8.6667			1.86	C
12	19016845S	LEE Ka	3	2.2857		10			2.00	C
13	19021345S	LI Ho L	3	2.2857		8.6667			1.86	C
14	19025473S	NG Yuk	3	2.2857		5.3333			1.53	C-
15	19033725S	WU Ka	3	2.2857		9			1.90	C
16	19015326S	KONG	4	7.8571		7.3333			3.24	B+
17	19043061S	KWAN	4	7.8571		5.3333			3.04	B
18	19015603S	KWOK	4	7.8571		6.3333			3.15	B+
19	19025172S	LAM Ch	4	7.8571		5			3.02	B
20	19040323S	LAM Ch	4	7.8571		6.3333			3.14	B

EasyAssess: Retrieving Data

☰

PolyU EasyAssess

UD

Udaya

udaya

Start Assessment

Manage Assignment

Create Teacher Account

Import Data

Export Grade

Assignment Record

Manage Peer Session

Log Off

✓

Select Year - 2021

✓

Select Semester - 1

✓

Select Course - SEHS3301

✓

Select Assignment - A1

✓

Select Creator - udaya

6

Select Assessor

Assessor

udaya

EXPORT GRADE

EXPORT MARKSHEET

CANCEL

EasyAssess: Retrieving Data

SEHS3301 Case Study Presentation mark sheet

Group: 1

Group Performance

Criteria	Outstanding			Good			Satisfactory			Barely Satisfactory		Inadequate
Organization of the presentation	Highly disorganized and does not meet expectations at all			Barely satisfactory organization and presentation sequence mostly disorganized			Satisfactory organization and presentation sequence sometimes disorganized			Good organization and presented mostly in a logical sequence		Well organized and presented in a logical sequence, clearly exceeds expectation
	11	10	9	8	7	6	5	4	3	2	1	0
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design of presentation materials	Inadequate use of visual aids, less informative, ineffective, and very distracting			Barely satisfactory use of visual aids, barely informative, barely effective, and sometimes distracting			Satisfactory use of visual aids, mostly informative, mostly effective, and sometimes distracting			Good use of visual aids, informative, effective, and not distracting		Excellent use of visual aids, very informative, very effective, and not distracting
	11	10	9	8	7	6	5	4	3	2	1	0
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Response to questions	Unprepared, Misunderstood questions and did not respond appropriately			Barely prepared, Sometimes misunderstood questions, Can only answer rudimentary questions			Adequately prepared, Understood questions but sometimes had difficulty in responding			Well prepared, Understood questions and responded satisfactorily		Fully prepared, Anticipated questions and responded with more information than required
	11	10	9	8	7	6	5	4	3	2	1	0
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Group comment: Response to questions is not that satisfactory.

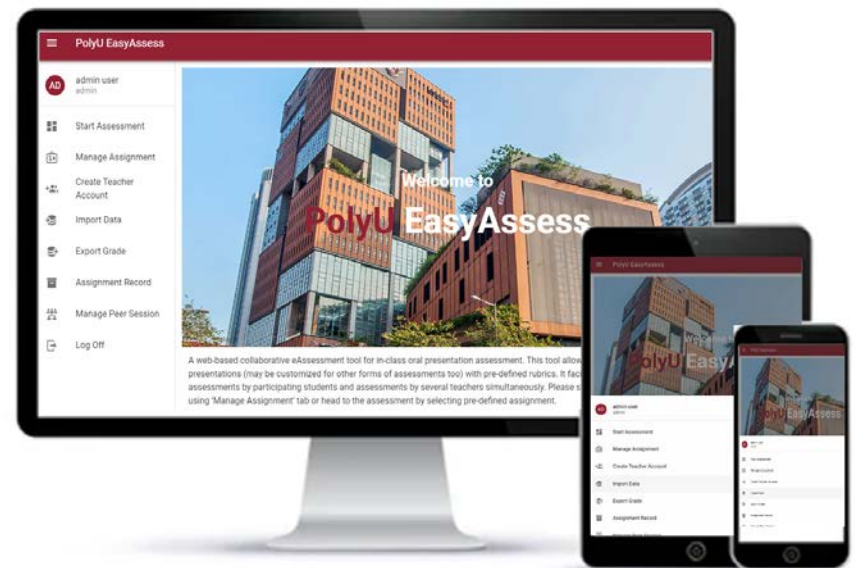
Individual Performance - YIN

Criteria	Outstanding			Good			Satisfactory			Barely Satisfactory		Inadequate
Relevance and quality of content delivered	Most of the content is irrelevant, showed no or very limited understanding of the content			Barely relevant content, showed limited understanding of the content			Mostly relevant content, showed satisfactory understanding of the content			Rich and relevant content, showed good understanding of the content		Rich and highly relevant content, showed excellent understanding of the content
	11	10	9	8	7	6	5	4	3	2	1	0
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Presentation Skills	Very limited eye contact, poor language skills, delivery is poor and not confident at all			Barely maintains eye contact, barely adequate language skills, delivery is poor and not confident			Maintains eye contact sufficiently, satisfactory language skills, delivery is somewhat poised, controlled, and smooth			Maintains good eye contact, good language skills, delivery is mostly poised, controlled, and smooth		Maintains good eye contact, excellent language skills, delivery is poised, controlled, and smooth
	11	10	9	8	7	6	5	4	3	2	1	0
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


Individual comment: Acceptable presentation

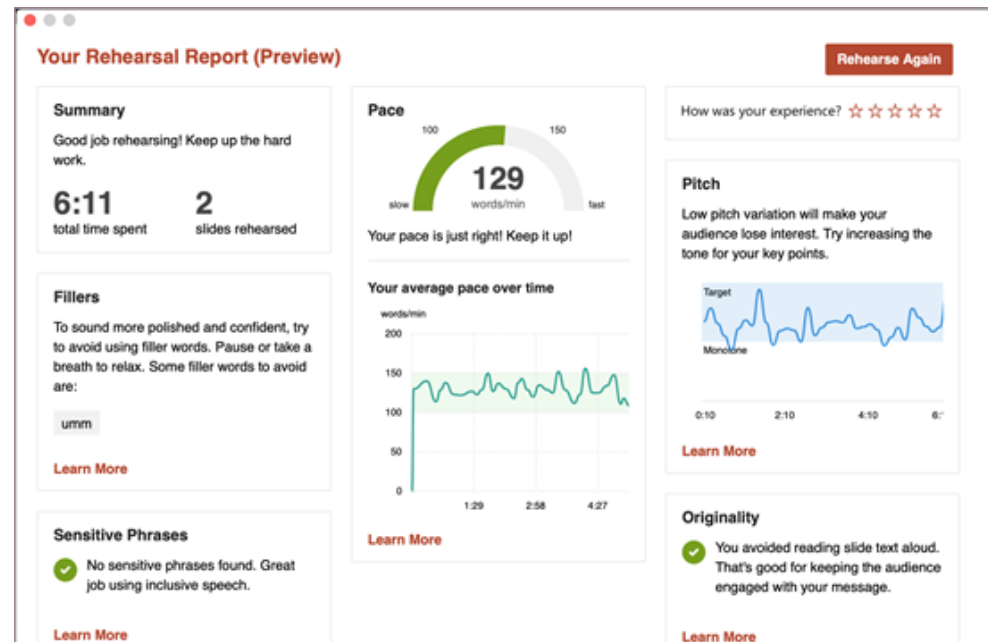
Pilot Testing

- Pilot testing was done with real-time assessment of Mechanical Engineering Final Year Capstone Project presentations
 - Face-to-face presentations
 - 5 assessors did the assessment simultaneously
 - System generated the consolidated final grade
 - Successfully generated the feedback files for individual students
 - Peer assessment module has not been tested yet
- Further improvements have been done based on the feedback received from the users
- A new version is ready for testing



Further Improvements

- **Integration of the eAssessment tool with Moodle LMS** 
 - Better access control
 - Improved facilities to email the feedback files to students
- Facility to calibrate assessment activity when more than 1 assessor involved in assessment
- **Enhancing data visualization**
- **Automated feedback** on presentation skills by integrating other tools available:
 - Eg.: Microsoft Presenter Coach
- Integrating **speech recognition** software for language skill assessment?



Further Improvements

- Explore the feasibility of using gesture recognition technology of **Microsoft Kinect** to assess non-verbal communication
 - E.g.: **AutoManner**- An Automated Interface for Making Public Speakers Aware of Their Mannerisms

The screenshot shows a web browser displaying the 'RocSpeak Body Language Interface Demo'. The interface is divided into several sections:

- Video Feed:** A central video window shows a woman standing in a room. Below the video is a 'realtime w/audio' label and a play button.
- Skeleton Model:** To the right of the video is a 3D skeleton model of a person, with a slider labeled 'Alpha' and a 'Show all' button.
- Pattern Timeline:** Below the video, a timeline labeled 'Pattern 1' shows five orange blocks representing movement patterns at 00:00:00, 00:00:05, 00:00:10, 00:00:15, and 00:00:20.
- Survey Questions:** A box contains three questions with a 7-point scale from '[Strongly Disagree]' to '[Strongly Agree]':
 - The body movement showed by the skeleton is something I actually did.
 - The video pattern matched with the skeleton pattern in most cases.
 - The body movement pattern is meaningful to me.
- Next Pattern:** A button labeled 'Next Pattern' is located at the bottom right of the survey box.
- Pie Chart:** On the right side, a pie chart shows the distribution of patterns:
 - Pattern 1: 37.50% (orange)
 - Pattern 2: 31.25% (blue)
 - Pattern 3: 31.25% (red)

Direction for Research

- eAssessment tool will **generate rich set of data** that may be used for pedagogical research



- **Study of impact of feedback** on enhancement of students' oral presentation skills and learning
 - Impact of peer and teacher feedback on students' presentation skill development
 - Longitudinal studies of students' skills development
- Exploring automated performance assessment by **integrating Machine Learning / Artificial Intelligence**
- Studying/assessing oral presentations in multimodal approach
- ...



Thank You!

Acknowledgement: This work is financially supported by the CPCE Pedagogical Innovation Fund (PIF) on e-learning.