

Enhancing learning through a mobile game: Accounting Challenge (ACE) Mobile-Gaming App

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Overview of ACE

- Available in iPhone/iPad and Android version
 - Search for “SMU Accounting Challenge”
- Motivation
 - Provide a mobile learning platform, enhance learning of accounting outside the classroom
 - Engage students through mobile gaming, play and learn accounting on the go

Straits Times 15th April 2013



Dr Lee with her family (from left) husband Gary Tan, daughter Kaydon and sons Sheldon and Alldon. The head of the new Early Childhood Development Agency said she learnt of her children's interests through spending time with them, and encourages parent-child bonding. ST PHOTO: DESMOND FOO

‘Kids learn best when they are having fun’

Childhood development agency head believes learning can be child's play, with right tack

By PRISCILLA GOY

WHILE Dr Lee Tung Jean is not trained in early childhood education, the mother of three is no stranger to parents such as

who turns five this year. Her daughter goes to Marymount Kindergarten, which she and her sons also attended.

None of the children, including Sheldon who is at Raffles Institution, had tuition

ing time with them that you can understand what their interests and passions are."

Asked about his mother's parenting style, Sheldon said: "She's not that fierce. We play board games and computer games together."

Dr Lee has also worked with other children. While doing her master's in economics at Yale University, she volunteered to

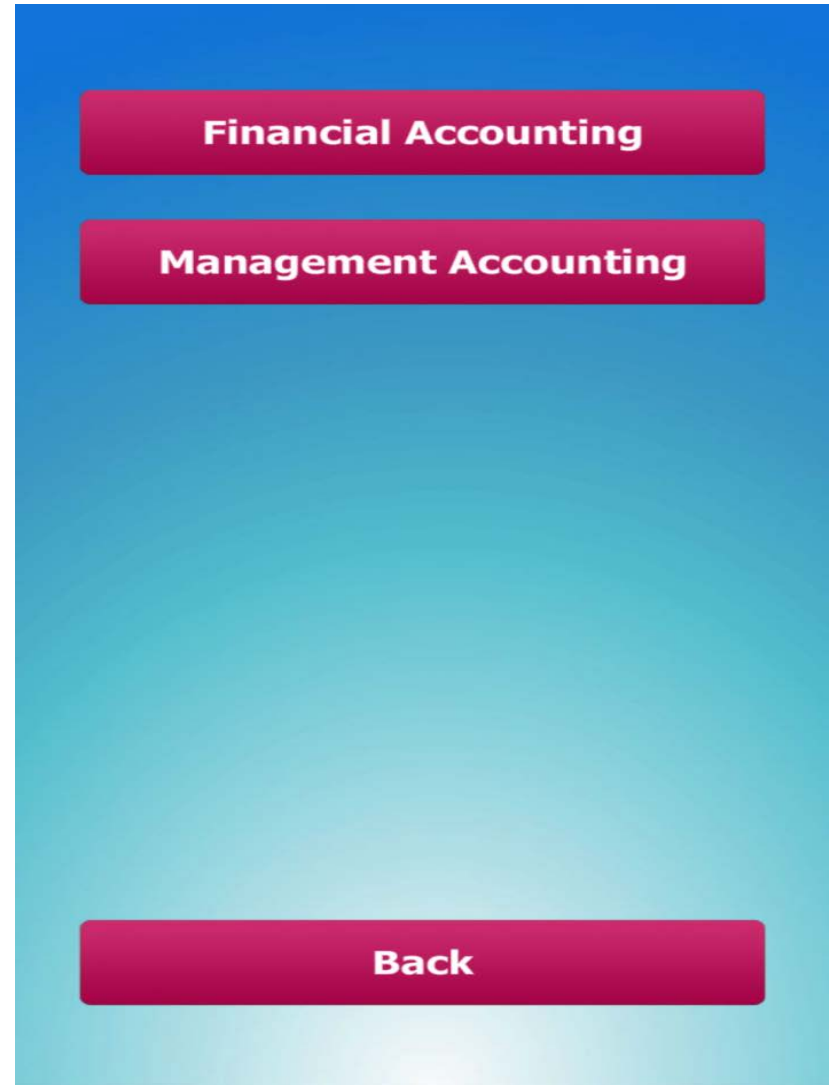
Overview of ACE

- Download statistics as at 31st Dec 2019
 - Total number of download: 37,210
 - Total number of countries of download: 90
 - Top 3 countries: USA, Singapore and Philippines

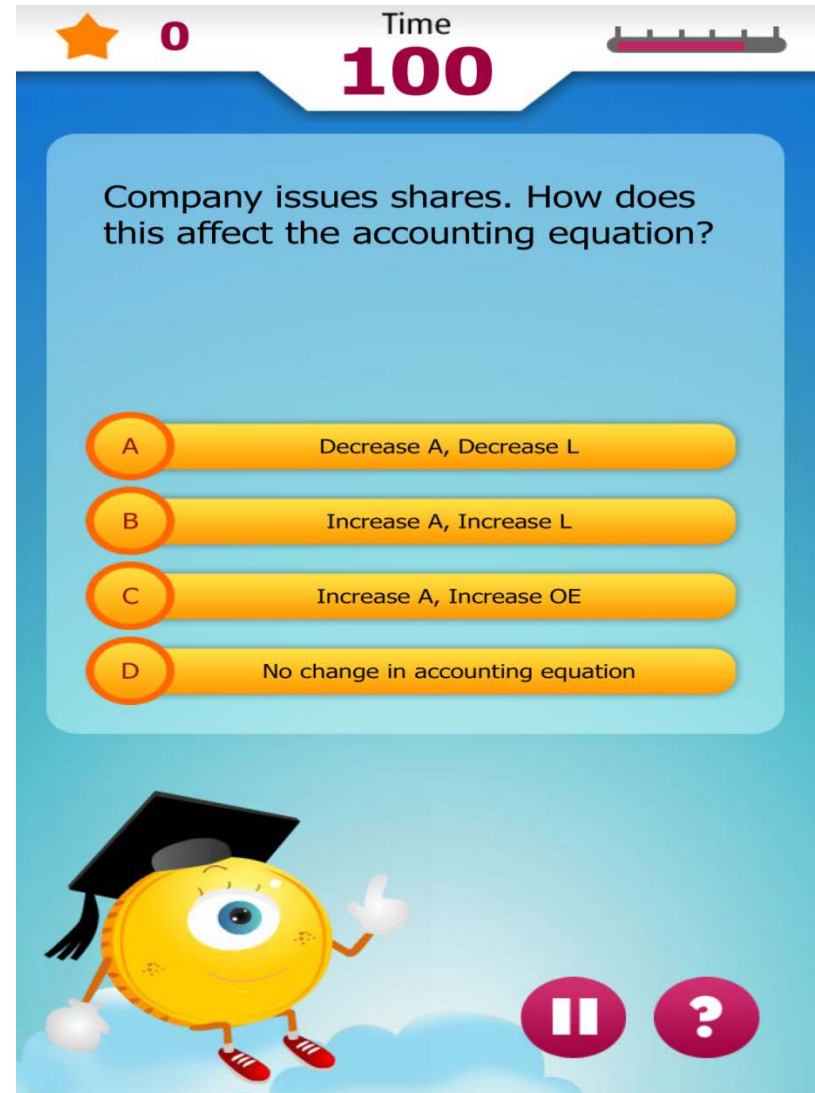
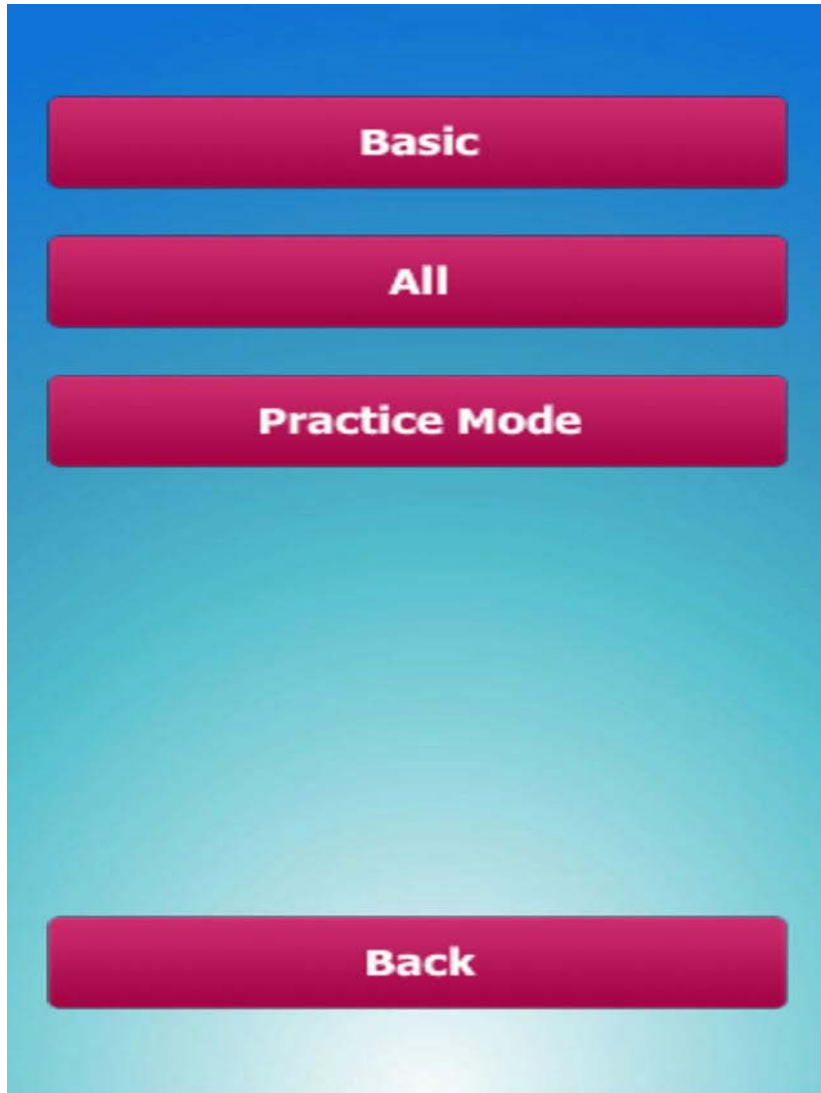
Awards

- 2019 Canadian Academic Accounting Association Howard Teall Award for Innovation in Accounting Education (Runner Up)
- 2017 American Accounting Association Jim Bulloch Award for Innovations in Management Accounting Education
- 2015 American Accounting Association Innovation in Accounting Education Award
- 2014 Wharton-QS Stars Reimagine Education Award (Shortlisted finalist)
- 2014 Bea Sanders/American Institute of CPAs Teaching Innovation Award (Honorable Mention)
- 2013 CEEMAN Champion Award for Innovative Pedagogy

Screenshots of ACE



Screenshots of ACE



Screenshots of ACE

★ 2 Time 51

Borrowed from the bank.

- A DR Bank Loan; CR Acc Payable
- B DR Acc Receivable; CR Bank Loan
- C DR Bank Loan; CR Cash
- D DR Cash; CR Bank Loan

Correct




⏸ ?

★ 3 Time 56

An increase in the amount owing to the supplier is recorded by

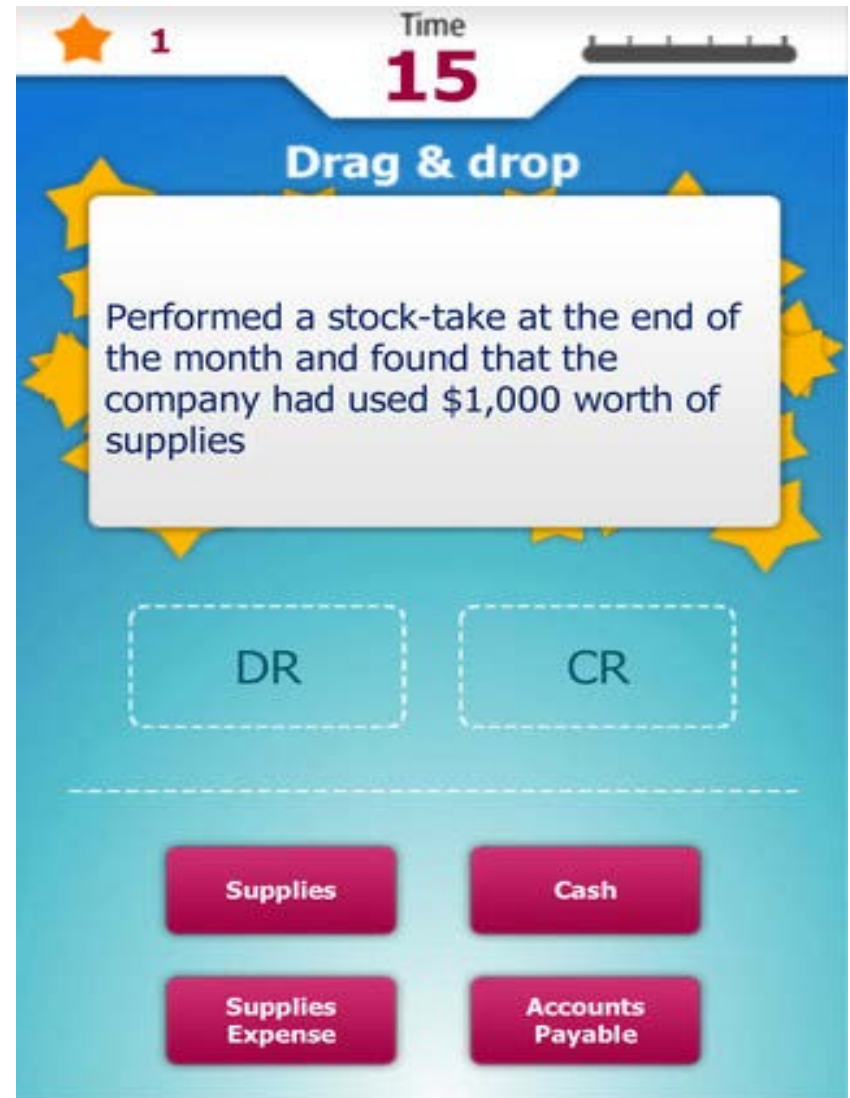
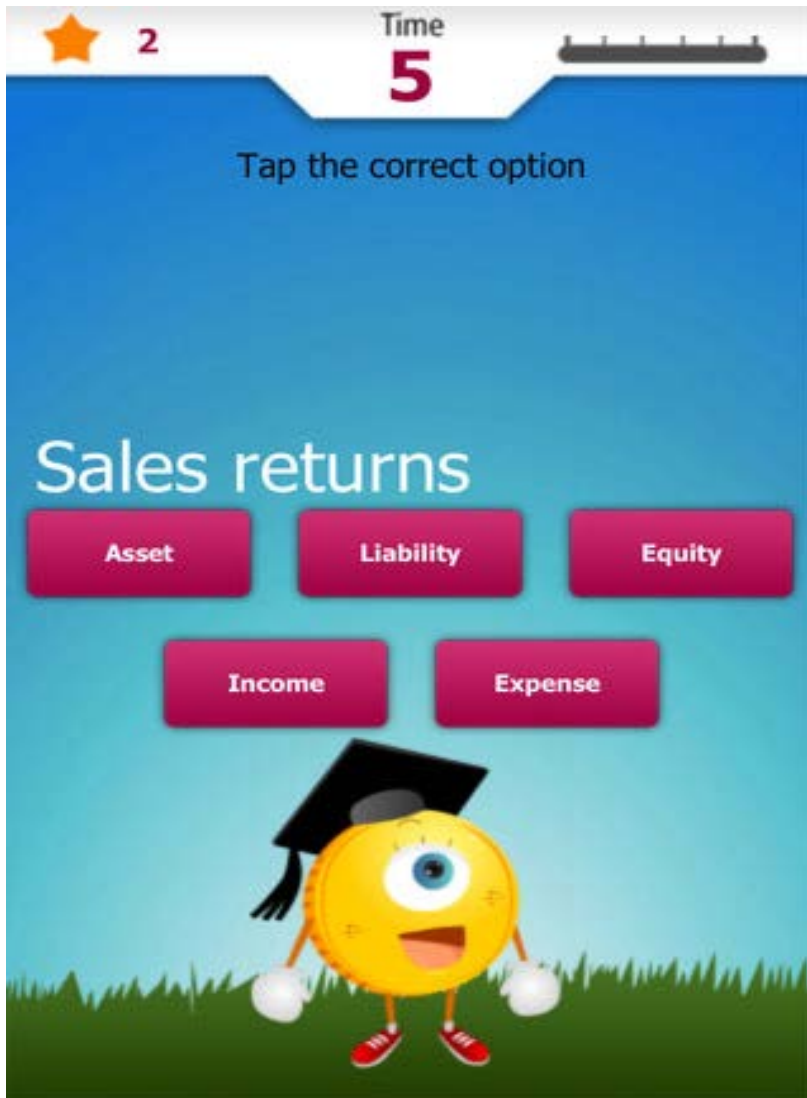
- A DR Accounts Receivable
- B CR Accounts Receivable
- C DR Accounts Payable
- D CR Accounts Payable

Wrong



⏸ ?

Screenshots of ACE





Screenshots of ACE

★ 4 Time 0

Time's Up!
Your score is
4

Review **Retry**

Post scores here




★ 4 Time 0

Which of the following are not used to calculate ROA

- A Net Income
- B Interest Expense
- C Preferred Dividend
- D Total Assets

Exit ◀ ▶



Leaderboard



Accounting Challenge

SMU Accounting Challenge

Financial Accounting

Top 100 Players

1	Wee Zi Feng	77
2	Khaw Jing Huan	57
3	Lee Terence	50
4	Ronald Neo Jia Hao	43
5	Wong Hui Qin	40

More Question Types

True/False Question

★ 0 Time 4

Tap the correct option

Direct costs are always variable costs

True FALSE

A cartoon character wearing a graduation cap stands on a grassy field at the bottom of the screen.

This screenshot shows a mobile application interface for a True/False question. At the top, there is a progress indicator with a star and the number '0', and a timer showing 'Time 4' with a progress bar. The main question text is 'Direct costs are always variable costs'. Below the question are two buttons: 'True' and 'FALSE'. At the bottom, there is a cartoon character wearing a graduation cap.

2-option Question

★ 3 Time -

Tap the correct option

Rental of finished goods warehouse

Period cost Product cost

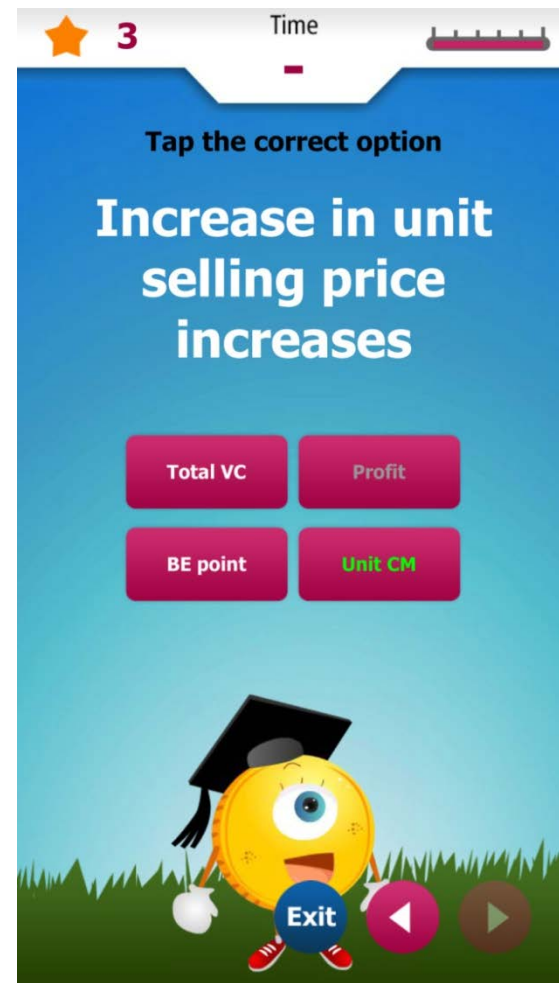
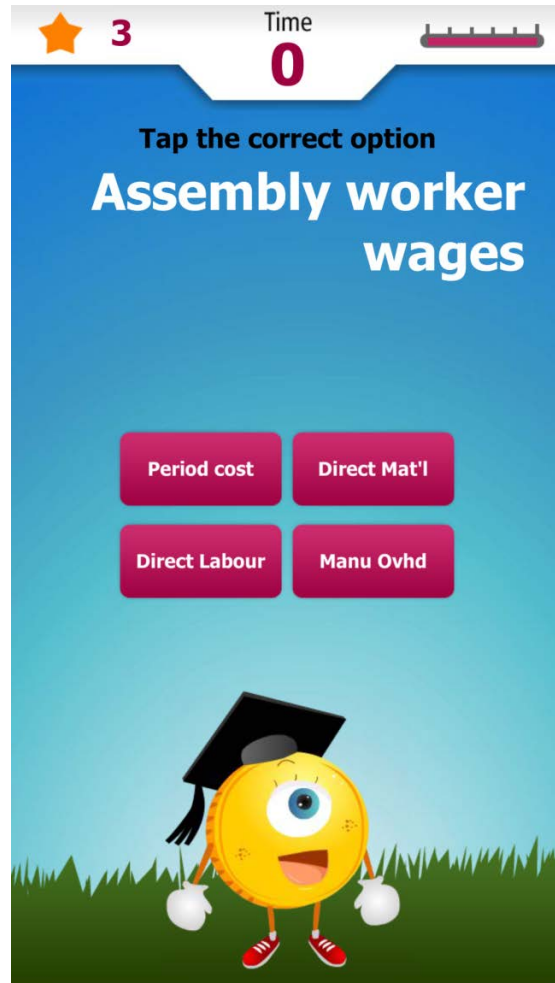
Exit

A cartoon character wearing a graduation cap stands on a grassy field at the bottom of the screen.

This screenshot shows a mobile application interface for a 2-option question. At the top, there is a progress indicator with a star and the number '3', and a timer showing 'Time -' with a progress bar. The main question text is 'Rental of finished goods warehouse'. Below the question are two buttons: 'Period cost' and 'Product cost'. At the bottom, there is a cartoon character wearing a graduation cap, and a navigation bar with an 'Exit' button and two arrow buttons.

More Question Types

4-option Questions



More Question Types

5-option Questions

★ 3 Time 0

Tap the correct option

Prime Cost = DM + ?

DM DL DM + Manu OH

DM + DL DL + Manu OH

★ 3 Time -

Tap the correct option

Profit = (___ x Sales Revenue) - FC

Sales quantity CM per unit CM Ratio

MOS DOL

Exit

Content Management System


[Financial Accounting Questions](#)
[Management Accounting Questions](#)
[Bonus Game 1](#)
[Bonus Game 2](#)
[Leaderboard](#)
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Live Status

Question

Question id	Topic id	Question	Answer 1	Answer 2	Answer 3	Answer 4	Correct Answer	Difficulty	Live Status	Edit link	Delete link
1	3	_____ are costs assigned to goods that were either purchased or manufactured for resale.	Product costs	Period costs	Manufacturing costs	Overhead costs	1	1	1	edit	delete
2	3	As long as the products are not sold yet, the product costs are recorded as _____.	Assets	Liabilities	Revenue	Expenses	1	1	1	edit	delete
3	3	Product costs are recorded as _____ in the period they are sold.	Assets	Liabilities	Revenue	Expenses	4	1	4	edit	delete

[CSV](#)


Students' Feedback

- 242 survey respondents

	Questions (1 = strongly disagree to 7 = strongly agree)	Mean	Std. Dev.
1	The design of ACE was appealing and highly motivating to use.	5.85	0.95
2	ACE was engaging.	6.05	0.86
3	ACE challenged me intellectually.	6.05	0.84
4	ACE helped me learn accounting.	5.76	1.02
5	I would recommend ACE to my peers.	6.01	0.84
6	Overall, I am satisfied with ACE.	6.00	0.84

“What do you like about ACE?”

- Fun and convenient way to revise accounting on the go
- Makes me feel like I’m making better use of my time on my way to school rather than staring out of the window
- Engaging game – it makes me keep retrying
- Interactive interface that keeps me engaged. Helps me retain the knowledge better as compared to textbook
- Leaderboard encourages people to do well
- Time limit challenges me to think quickly

“What have you learned most from playing ACE?”

- Revision of financial accounting topics I've overlooked over the years
- Tested my financial accounting foundation, identify key concepts that I was not sure about
- I have learnt from mistakes I have made during the game
- Topics that I am weak at. I was not very clear with certain concepts as I panicked under the time limit
- I learnt that learning accounting can be fun if we can constantly challenge ourselves and attain a sense of accomplishment.

Accounting Challenge Competition

IN TUNE

ISCA NEWS

ISCA Sponsors SMU Accounting Challenge 2013

In line with the Institute's efforts to be a dynamic Institute that develops a vibrant profession, ISCA was the official sponsor of the inaugural Singapore Management University (SMU) Accounting Challenge 2013. Organised by the School of Accountancy Volunteer Corps, the competition aims to sharpen the students' grasp of financial accounting knowledge in an engaging way, through a competition comprising a series of

multiple-choice questions.

The Challenge was based on a smartphone/tablet application developed by two SMU accountancy faculty staff. Launched on 15 March 2013, the app, called SMU Accounting Challenge (<http://accountancy.smu.edu.sg/accounting-challenge-ace>) was created by Associate Professor Seow Poh Sun and Senior Lecturer Wong Suay Peng. The app has since gone on to win the 2013 CEEMAN Champion Award in Teaching, and has been

downloaded 3,595 times. Of these, 67% of downloads originated from overseas, including countries such as Australia, the Philippines, UK and US.

ISCA congratulates Charles Chen, winner of the SMU Accounting Challenge 2013, who topped the over-300 student attempts in the preliminary rounds (each student could make multiple attempts), and five finalists in the Grand Finals held on 6 September 2013.



Charles Chen, who would emerge champion, expressing his delight with a correct answer.

Preliminary Round



Final Round



Challenges of App Development

- Management support and funding
- Developing the concept of the game
 - Target audience
 - Relevance to learning objectives of the course
 - Ease of maintenance
 - Scalability
 - Time and costs

Challenges of App Development

- Choice of mobile operating platform
 - Technical compatibility of upgrades
 - Adobe has removed support for Adobe Air from Google Play Store from 2019, to download from <http://smu.sg/ace>
 - Server security issues
- Content creation
- Attracting students to play

Future Development

- Received a new grant from SMU Technology Enhanced Learning Fund to upgrade the app
- New Auditing module
- New game play

New Game

- Accounting fraud red flags game
- Free download on iPad or Android tablets



Questions and Answers

Thank you!

Do check out ACE homepage

<http://smu.sg/ace>

or search for

“SMU Accounting Challenge”

in the App Store or Google Play.

Do also check out

“SMU Accounting Fraud Red Flags Game”