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Student Response Tool: 👍 Umhlobo2Study

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Overview

- Brief Introduction: Contextualisation

- Background of Student Response Tool (SRT)

- SRT Platform - Pedagogical Value and Features

- Discussions

- Future Development & Research

- Q&A

Brief Introduction: Centre for Innovative Education and Communication Technologies (CIECT)

- Drive the effective use of educational and communication technologies : **HEI Setting**

  - Teaching-and-learning; support;

  - LMS & Personal Learning Environments (PLEs)

  - Projects (internal & external partnerships)

- Ongoing training and support to academics, non-academics and **students** with the aim of e-skilling and enhancing teaching-and-learning practices.

Background of Student Response Tool (SRT)

- Societal Impact (UWC)

- Mobile Data Costs
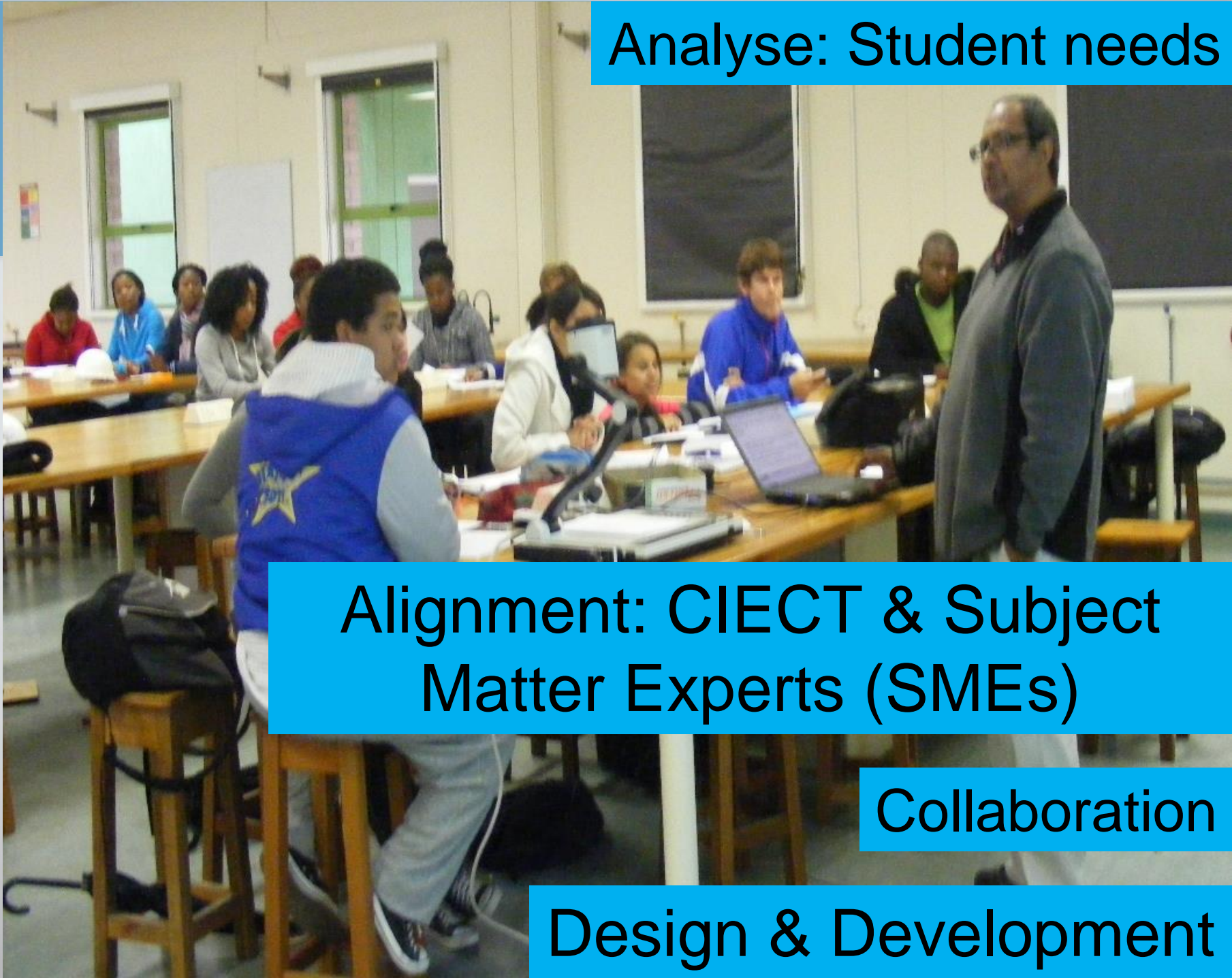
- Devices

Student Needs and SMEs

Analyse: Student needs

Alignment: CIECT & Subject Matter Experts (SMEs)

Collaboration

Design & Development

Lecture Feedback

- *"…their type of [study] is not conducive to their university career"*

- *"Students are ill-prepared to make their university studies a success "*

- *"…they are not lecture ready.."*

- *..lecture readiness…achieved by quality engagement with the subject matter, involving regular study and energetic consultation and other resources ..."*

Focus: Practice and Reinforcement
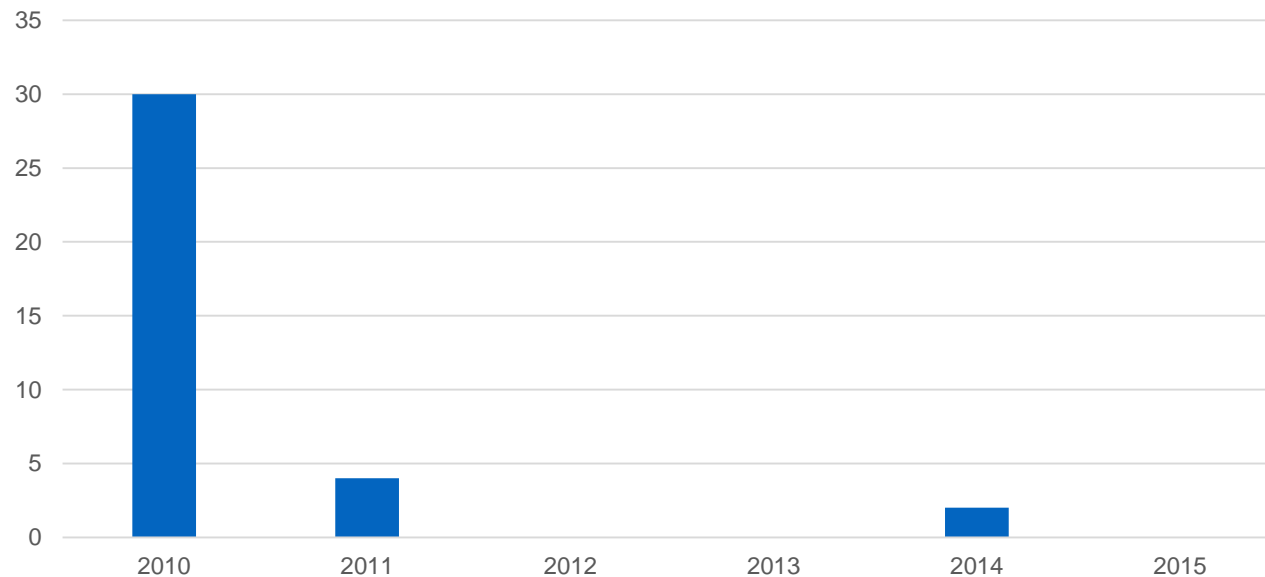
'Clicker' Usage at UWC

- Science
  - Mimio – Digital Clicker System (1st attempt)
  - Paper based (2nd attempt)
- Social Sciences, Arts, Health Sciences
  - Training

Mimio Digital Clicker Individual Training per Year

(Bar chart. Y-axis: 0 to 35. X-axis years: 2010, 2011, 2012, 2013, 2014, 2015)
- 2010: 30
- 2011: 4
- 2012: 0
- 2013: 0
- 2014: 2
- 2015: 0

Literature Review

- "…value to students is greatly determined not only by how, logistically, the technology is used, but more importantly, how and why, pedagogically, it is used by the Instructor." (Beatty, 2004; Brueckner & MacPherson, 2004)

- During the past decade, the use of electronic response systems or class room performance systems (clickers) became widespread in under graduate programs, both science and nonscience alike. (Duncan 2005; Lasry 2008; Milner-Bolotin 2004; Mayer et al. 2009)

- "…creating effective clicker questions is challenging and time consuming. (Beatty et al. 2006)

- "Research tells us that engaged students are successful students and that an SRS can increase engagement by encouraging students to take a more active role in their learning. SRS technology provides immediate feedback to questions asked in class and can influence class participation, stimulate class discussion, and encourage higher rates of student participation and attendance." (Crews et al., 2011)
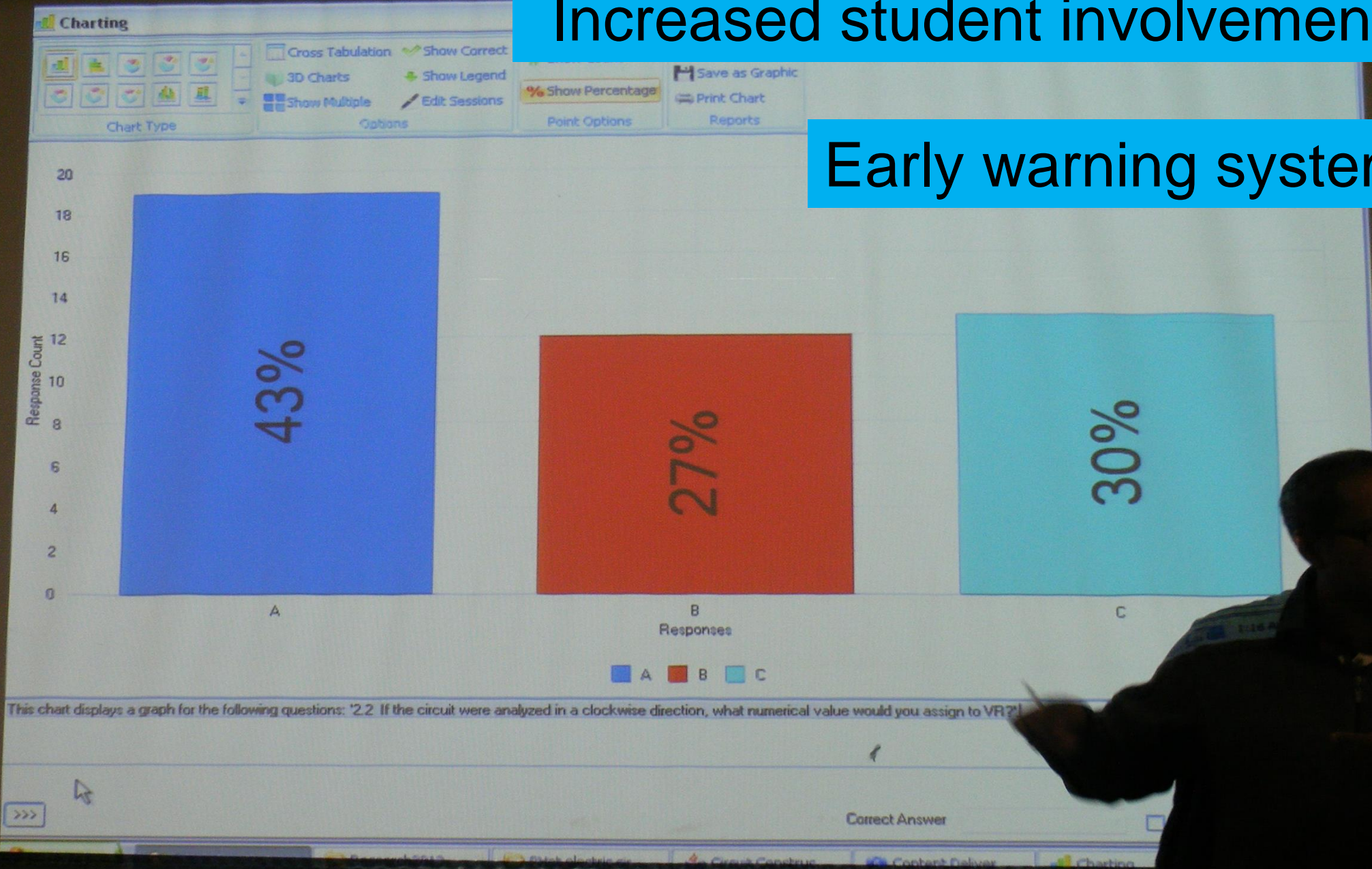
SRT Platform:
Pedagogical value and features

- Clicker
- Tasks
- Capsules
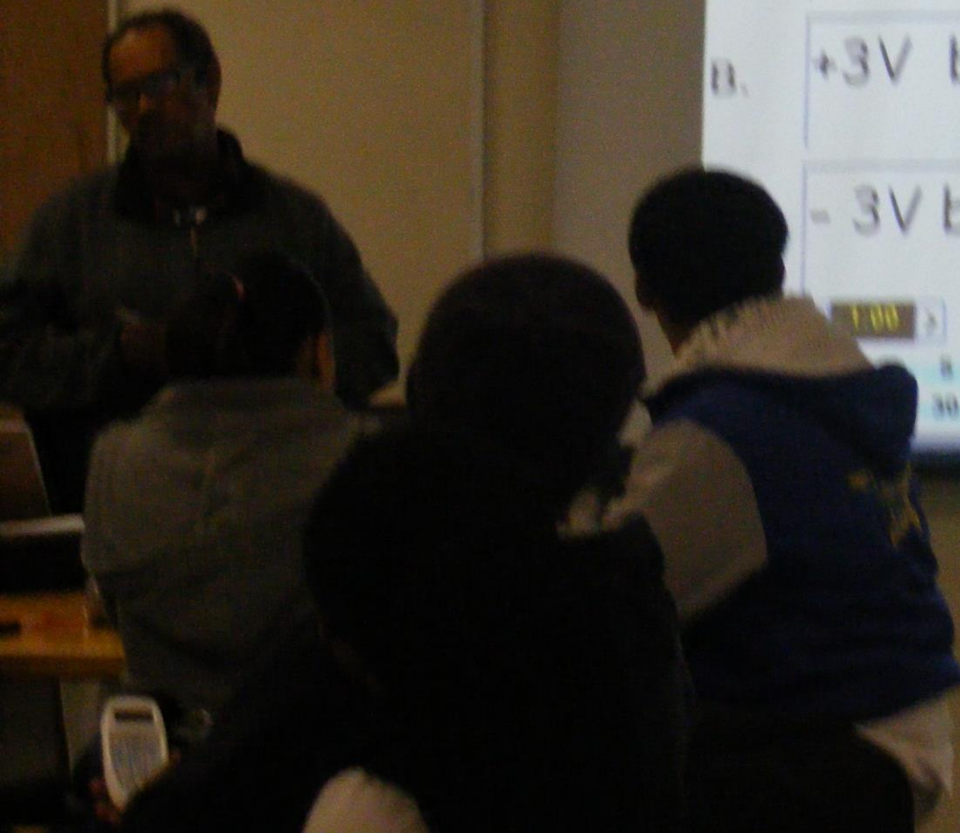- Monitoring & Tracking
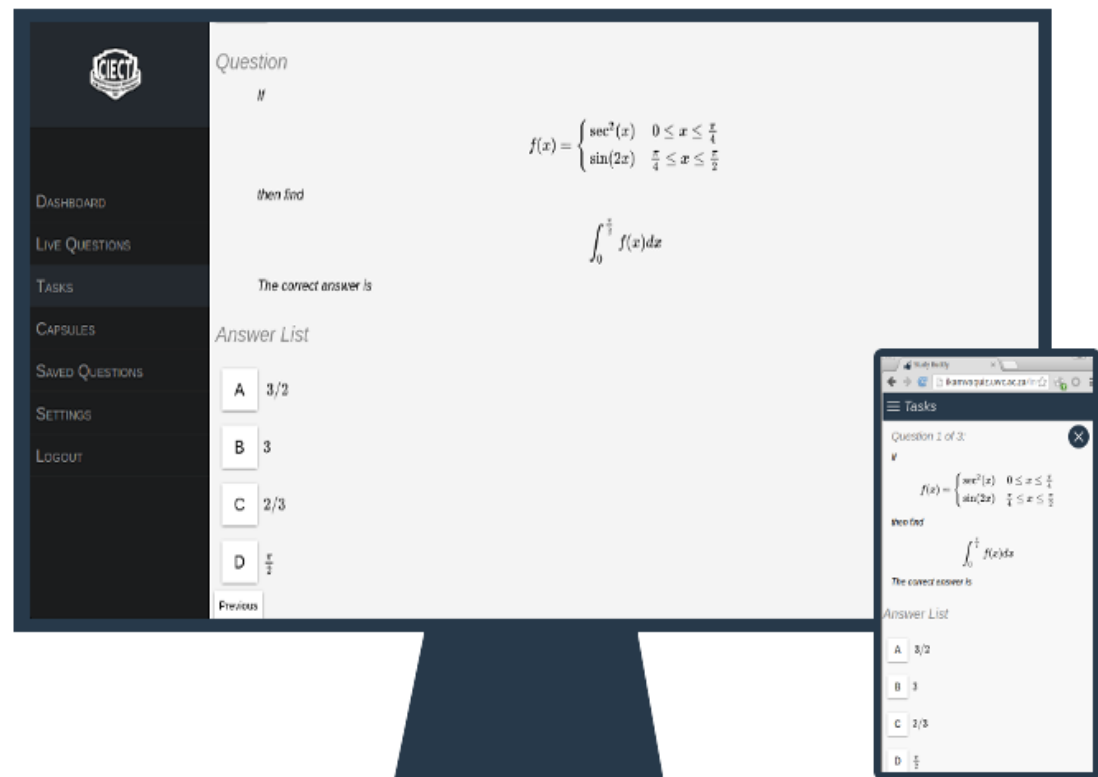
Clicker

Tasks

Homework

Self study

Pop quizzes

2.2 If the circuit were analyzed in a clockwise direction, what numerical value would you assign to V_R?

A. $+3\ V$ because $2\ V + V_R - 9\ V + 4\ V = 0$

B. $+3V$ because $-2\ V + V_R - 4\ V + 9\ V = 0$

$-3V$ because $-2\ V + VR - 4\ V + 9\ V = 0$

Capsules

☰ *Capsules*   ▲

Fields

The following is a brief introduction to fields.

Suppose F is a set containing elements $\{s_1, s_2, \ldots, s_n\}$. Given two operations $+$ and $\times$, we say that F is a field if the following holds:

1. For $s_i, s_j \in F$, $s_i + s_j \in F$,
2. $0 \in F$ such that $s_i + 0 = 0 + s_i = s_i$ for any $s_i \in F$,
3. For $s_i, s_j \in F$, $s_i \times s_j \in F$.

[u]Examples:[u]

Suppose $F = \mathbb{R}$, and take $+$ and $\times$ for the normal addition and multiplication operations.

Similarly as in the theory of other algebraic structures, linear algebra studies mappings between vector spaces that preserve the vector-space structure. Given two vector spaces V and W over a field F, a linear transformation (also called linear map, linear mapping or linear operator) is a map

$$T : V \rightarrow W$$

that is compatible with addition and scalar multiplication:

$$T(u + v) = T(u) + T(v), \quad T(av) = aT(v)$$

Self-contained manageable lessons

Learning styles

Monitoring & Tracking

Capsules

MAT105 | --Section-- | Knowledge Gaps

Linear Algebra I ← Targeted capsules & Qs

1. Fields

Description
1. Fields
2. Vector Spaces

Profiling

3. For $s_i, s_j \in F, s_i \times s_j \in F$.

[u]Examples:[u]

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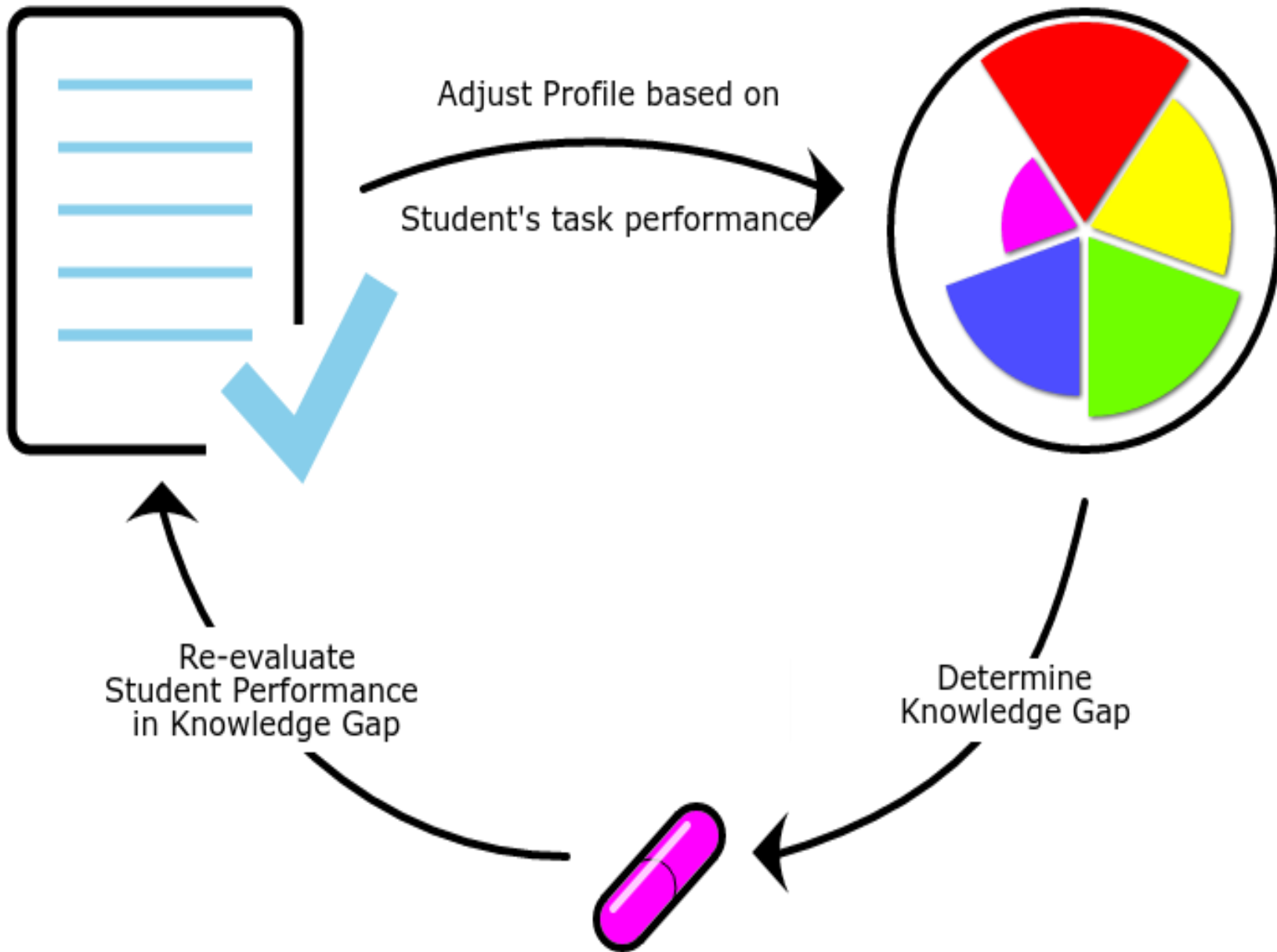
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Monitoring & Tracking (cont.)

Adjust Profile based on Student's task performance

Determine Knowledge Gap

Re-evaluate Student Performance in Knowledge Gap

Discussion: Pilot Groups

- Five 1st Year Science modules: **487** Students

- Clicker system, Tasks, Capsules and Monitoring

- Workshops for SME (lecturers, teaching assistants)

- Content Creators (lecturer, graduate students)

- Lecturers with specific expertise and skills

DEMO

- http://tinyurl.com/hcmmlod

Future Developments and Research

- Deploy across all Faculties

- Open Question Bank (**Internal & External**)

- Research informs improvements

- Integration with Samigo (**Sakai Test & Quizzes**)

- Possible collaboration with other Sakai partners

Thank You

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