Learning Design with Technology

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Saide
Enabling successful
open learning for all

THE
KRESGE
FOUNDATION

Is this an example of good learning design?

Conceptualising learning

Stories

Groups undertook projects

Collected useful data

Acted as peer tutor
during fieldwork

Dave

Taught teachers and peers
about science

Invitation to save a
mountain stream

At the presentation day he
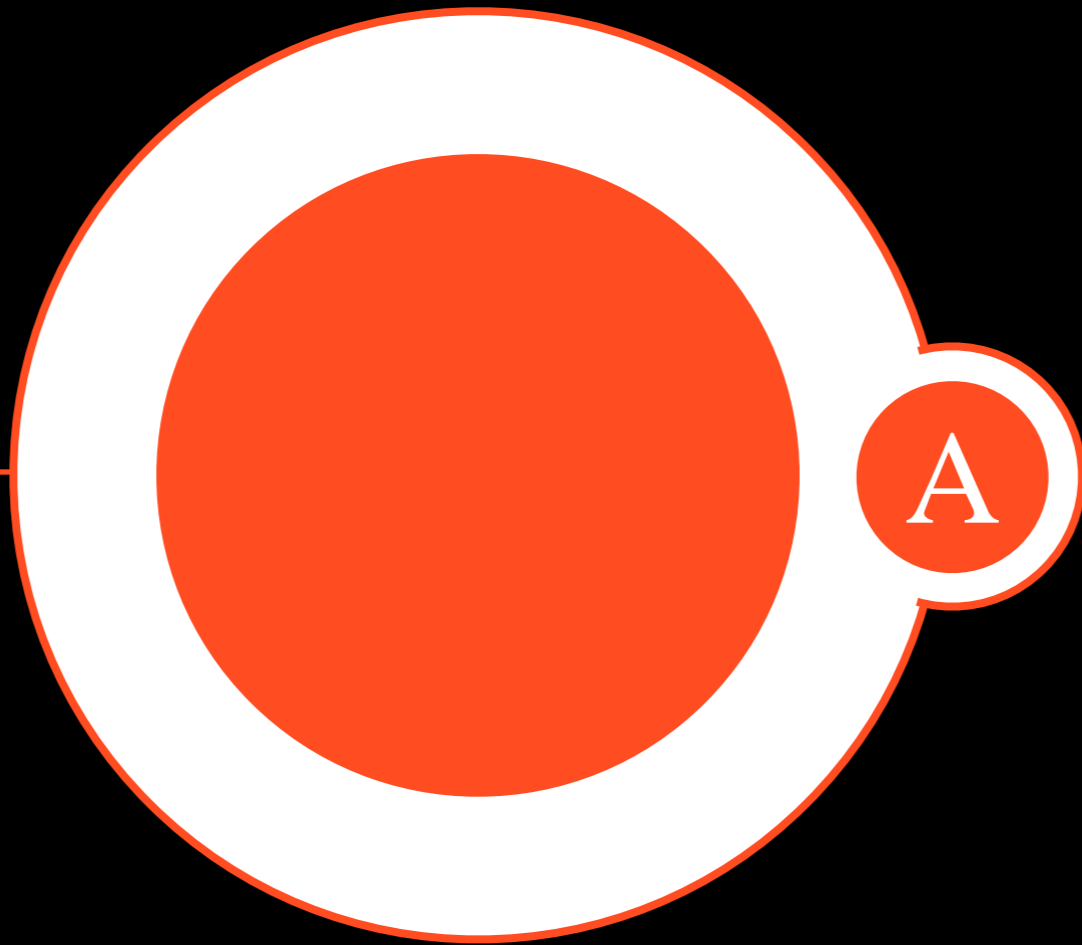discussed science

Story of Dave

In the mathematics class?

"On task" for only short
periods of time

Could not draw graphs

Diagnosed as suffering from attention deficit
hyperactive disorder (ADHD)

Explanation

Guru in artificial intelligence ●

● Investigation

Employed by Xerox ●

Story of John Seely Brown

When John Seely Brown arrived at Xerox he discovered Xerox was spending many millions of dollars a year training tech reps on how to repair their office equipment such as copiers and printers. Xerox wondered if he could use any of these sophisticated artificial intelligence tools to enhance the ability of their tech reps to learn similar troubleshooting skills more cost effectively. This could be a substantial opportunity for Xerox since it has 21,000 tech reps around the world. What he did was to first hire some anthropologists.

Anthropologists report: First of all, what happens is whenever a tech rep gets stuck he calls in another tech rep and then, standing around the problematic machine, they start to weave a story, a story that starts to explain some of the particular symptoms of the machine. And then some fragment of the initial story reminds them of something else which suggests a few more measurements to make which in turn produces some more data that reminds them of another fragment of a story, and so on. Troubleshooting for these guys is really just weaving together a narrative, a narrative that eventually explains all the symptoms and test data of this machine. And when they have made sense of all the data, the narrative is finished and the machine is diagnosed.

Conclusion: Troubleshooting is really story construction, not abstract logical reasoning.

Guru in artificial intelligence ●

● Investigation

Employed by Xerox ●
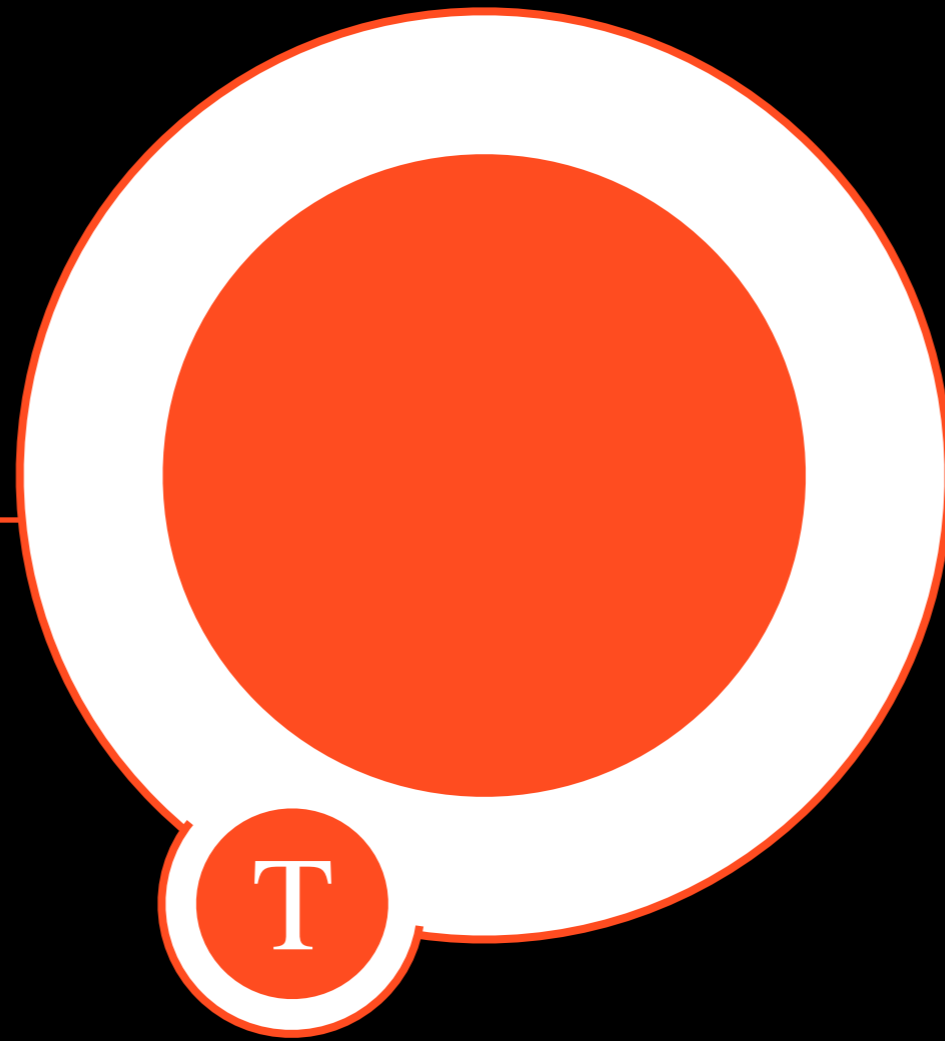
Story of John Seely Brown

The solution?

Build a LMS for technician training? ●

● Presented workshops to improve technicians' skills?

● Built a community of practice using always on 2-way radios and a social network web site?

Explanation

School children in northern KwaZulu-Natal

Solved all the puzzles

Game play - individual

Overcame misconceptions?

Play a video game to overcome misconceptions

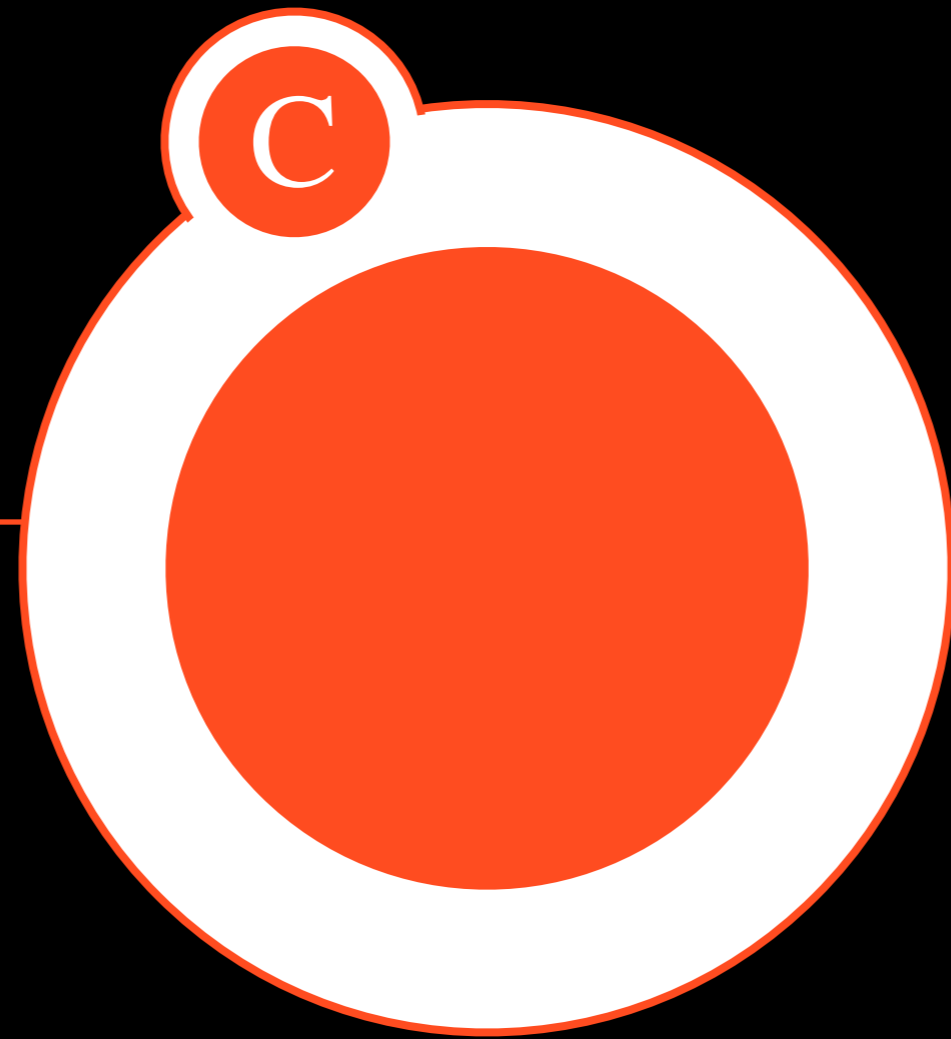**Story of play by Thato**

The solution?

Another group played in pairs

Discussed puzzles and measurement instrument

Overcame most misconceptions

Explanation

©

Social Collaboration

Tool (Technology) Mediation

C

T

Authentic tasks (2010)
- Authentic context
- Authentic task
- Expert performances
- Multiple roles and perspectives
- Collaboration
- Reflection
- Articulation
- Coaching and scaffolding
- Authentic assessment

Role of technology
- As information stream
- As enabler of communication
- As enabler of collaboration
- As an information transformation tool
- As a professional tool
- As extrinsic mediator

Technology design
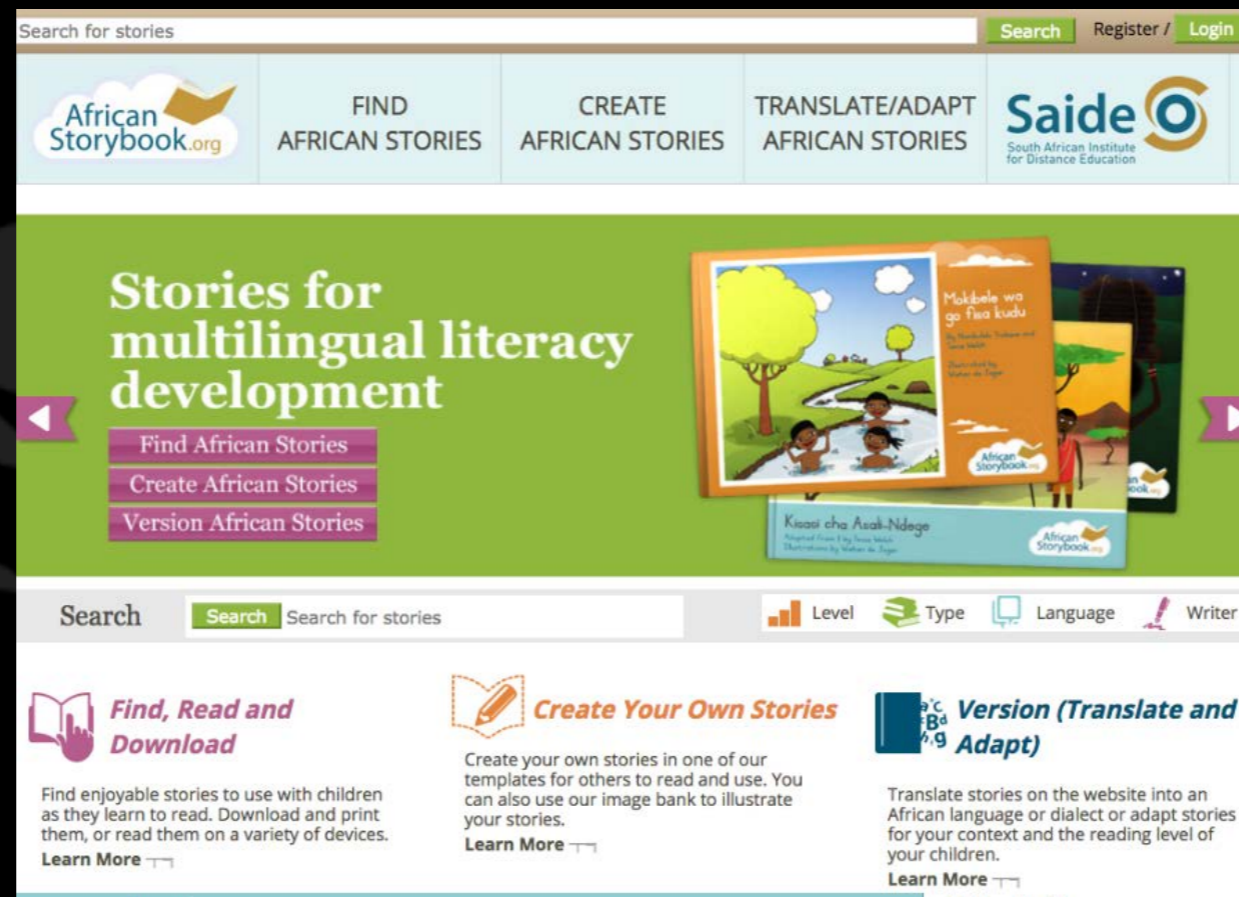
African Storybook review

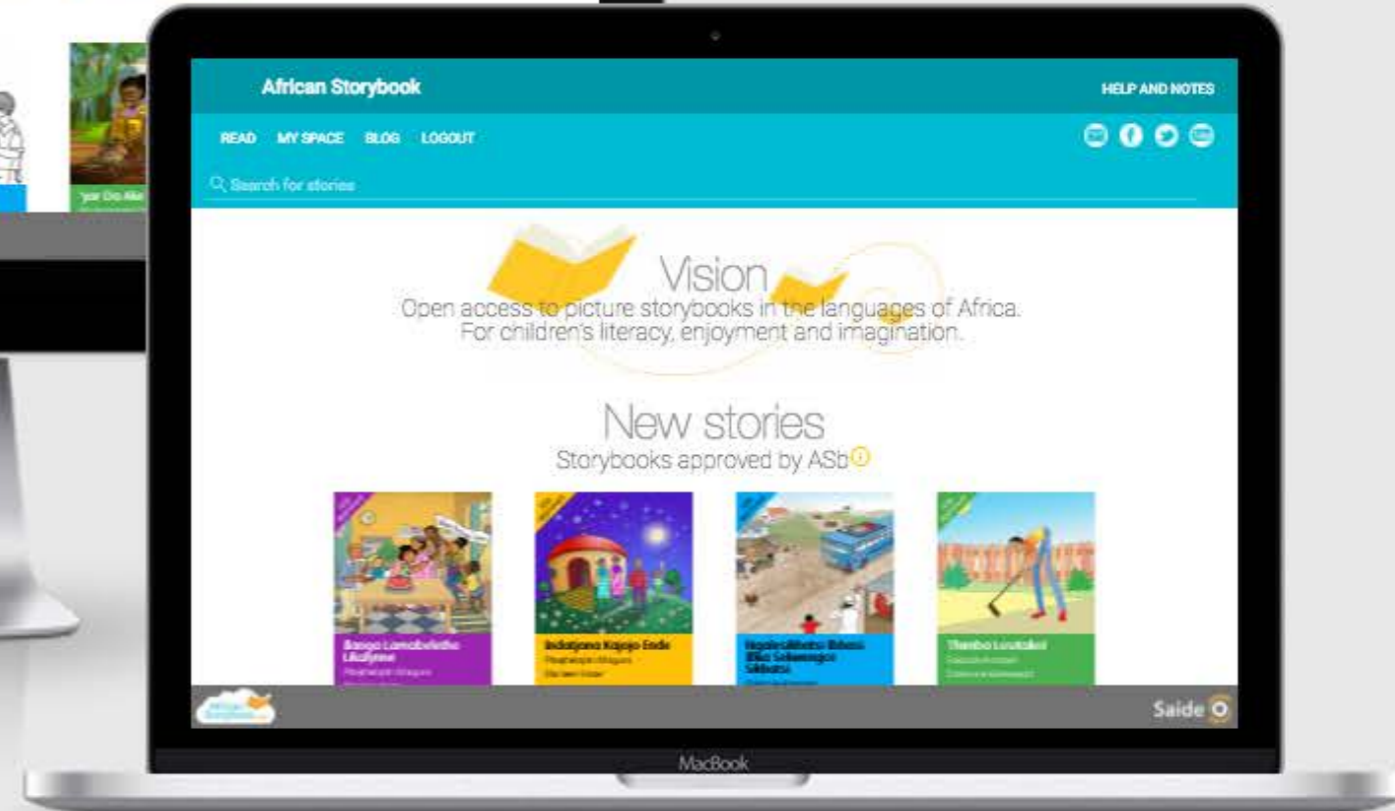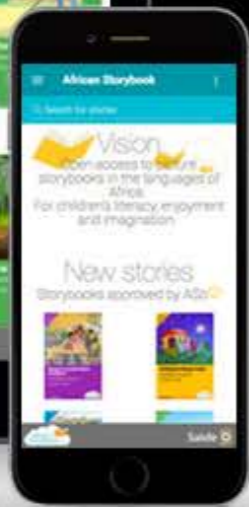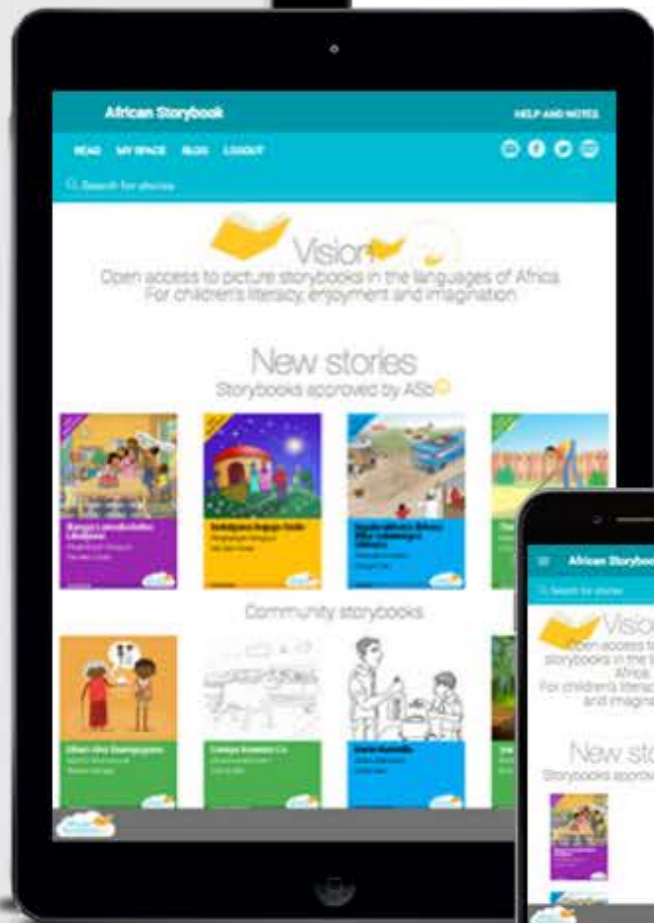Poor performance

Overloaded landing page

Poorly designed user experience including inconsistent use of terms

Excessive information

Use of Drupal inappropriate

Redesign

Solution: Repeatable patterns

Integrated help

Single item display

Searchable and sortable lists

← African Storybook Blog   NOTES

DATE   TITLE   BLOGGER   TOPICS

Q Search

ASb in 50 titles: Storybook collection 2014-2017
Lisa Treffry-Goatley
I recently had the enjoyable task of compiling a selection of fifty storybook titles published by African...

If stories have not been subjected to project quality assurance processes, will they hinder or enable the achievement of project objectives?
Dorcas Wepukhulu
Stories not subjected to project quality assurance processes enabling the achievement of project...

...lity Assurance Report: CAPOLSA Story
stories was established in the various indigenous...

Using ASP stories in the non-digital classroom - Part 3
ingrid
I'd like to update my description of our teacher-assistance project in Guguluthu, Cape Town, which has...

Reading Boxes

← African
DATE
Q Search
ASb in 50 titles
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I recently had t
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Using ASP stor
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Reading Boxes

NOTES

On our BLOG, share your ideas, experiences and research with others.

Log in   >

Contact us   >

Topics   >

Finding posts   >

Reading posts   >

← African Storybook Blog

‹ Previous

ASb in 50 titles: Storybook collection 2014-2017

Posted on 7 June, 2017 (GMT) by Lisa Treffry-Goatley

I recently had the enjoyable task of compiling a selection of fifty storybook titles published by African Storybook during the first three years of the ASb website. The purpose of this collection is to support ASb partners in translation work, and the aim was a representative selection of engaging storybooks from the website's first three years of existence (June 2014 to May 2017).

The fifty titles reflect some of the best of ASb publishing from original stories, written by contributors in Africa specifically

Integrated help

Single item display

Searchable and sortable lists
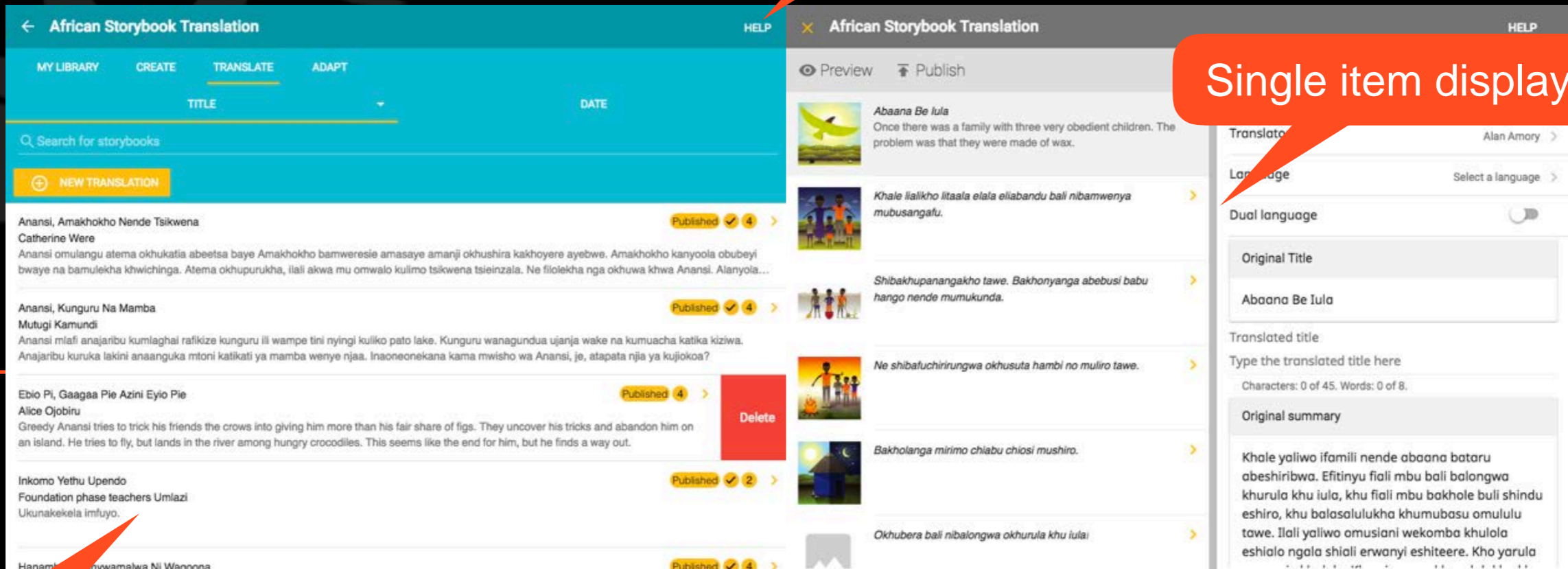
Solution: Extrinsic mediation

01

Mediational means
Me versus the world
Tracker bracelets are designed to form a part, an *extension*, of the individual ("personal technologies"). TV sets are *external objects* "out there in the world", with which we interact.
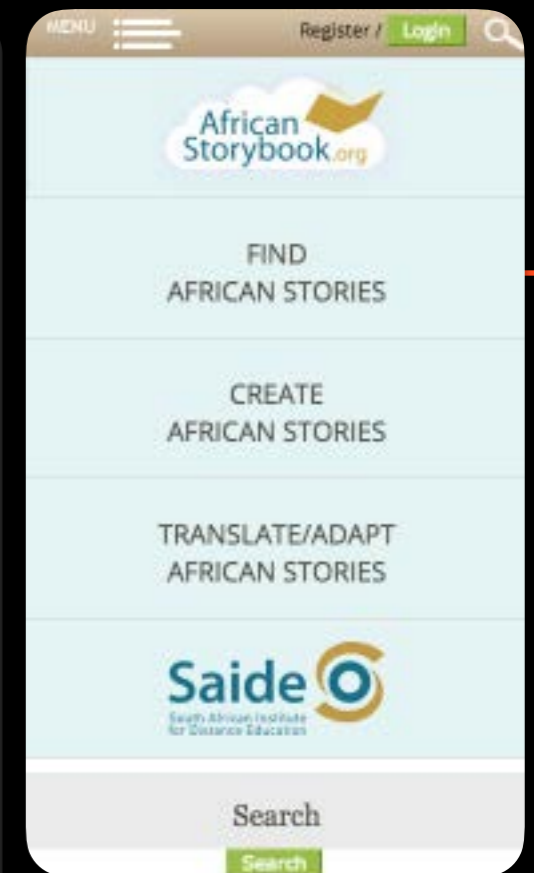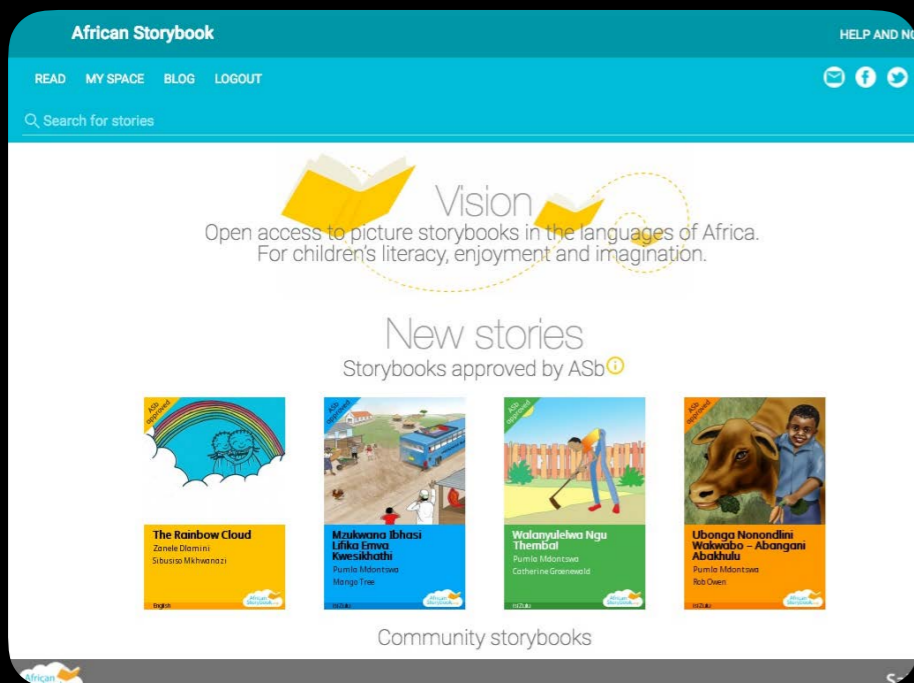
02

Mediational means

Coupling between different means

Some activity trackers are designed so that they can be *used independently* from other devices, while other models can only be *used in combination* with a smartphone

03
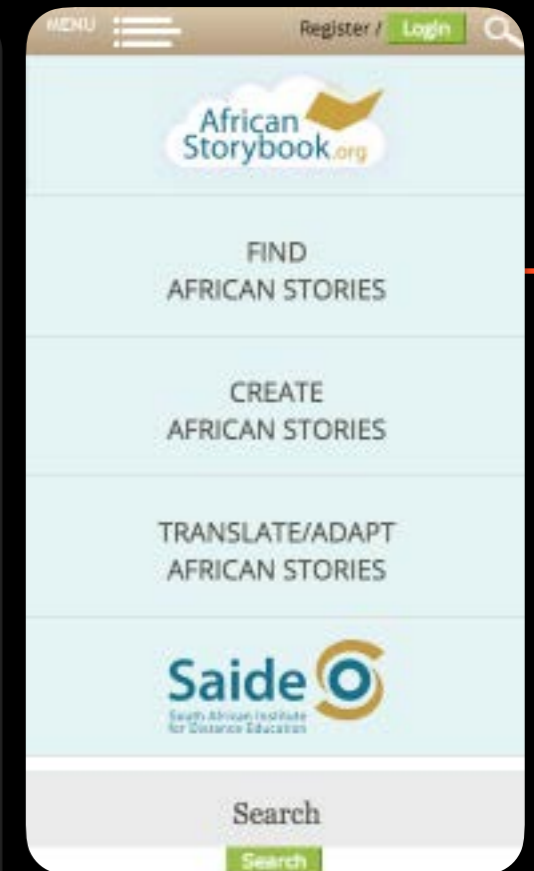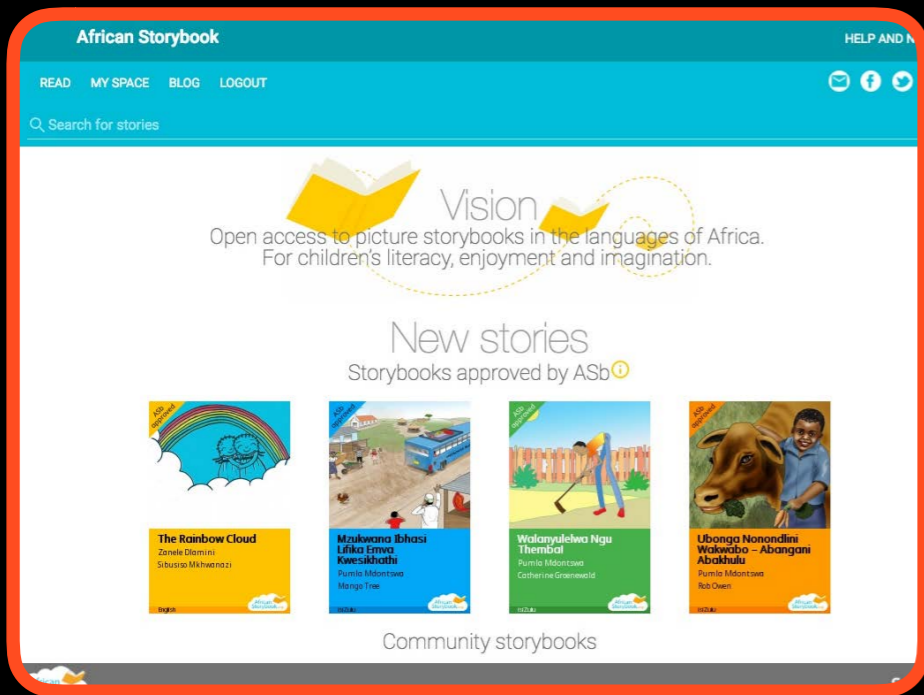
Mediational means
Versatility
A vending machine can be used for one *single purpose* while others, for example, word processors, can be used for a *variety of purposes*

Lazy Anansi
Ghanaian folktale
Wiehan de Jager

English

Stories for multilingual literacy development

FIND AFRICAN STORIES
CREATE AFRICAN STORIES
TRANSLATE/ADAPT AFRICAN STORIES
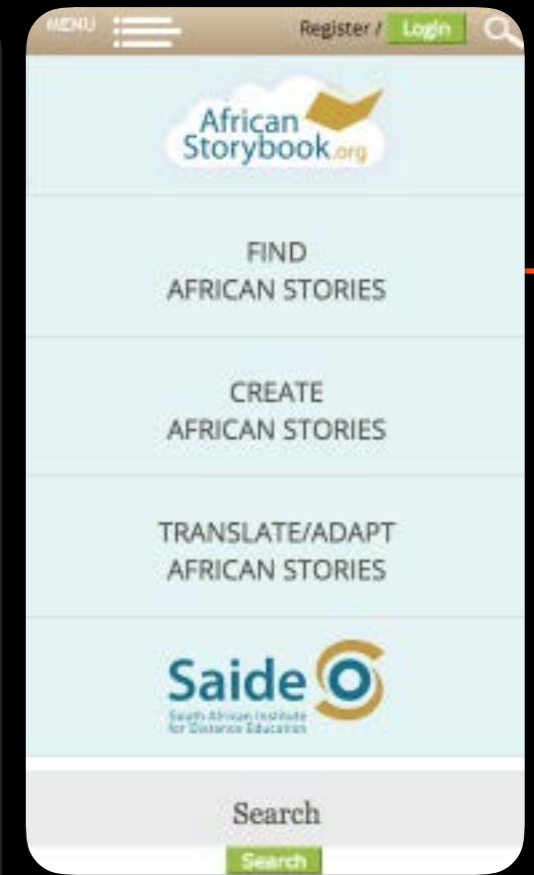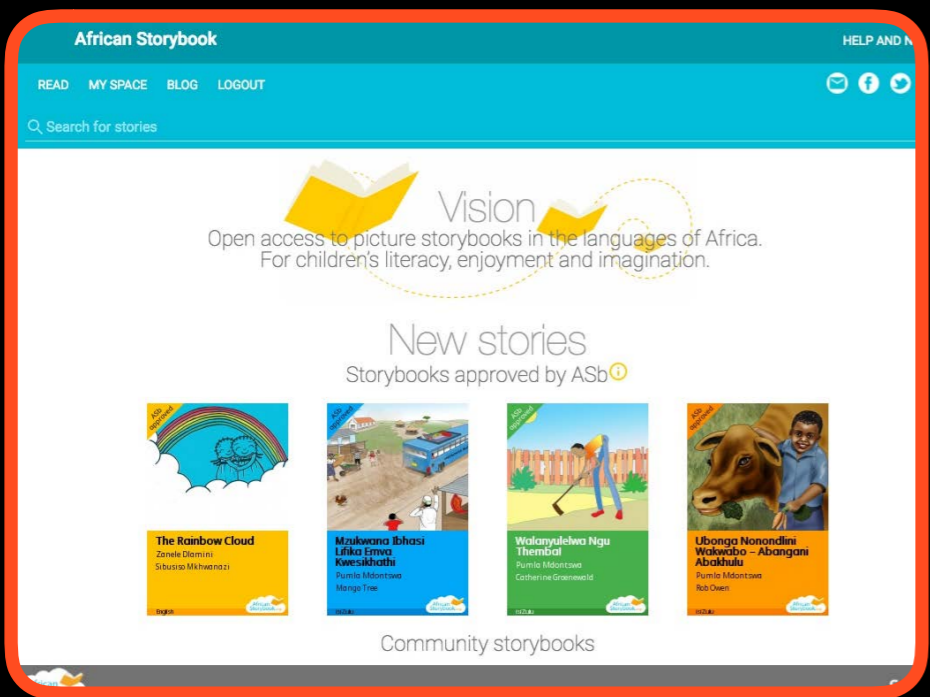
04

Subject of mediated activity
Individual - collective
A design that supports both individual and collective activities

FIND AFRICAN STORIES
CREATE AFRICAN STORIES
TRANSLATE/ADAPT AFRICAN STORIES
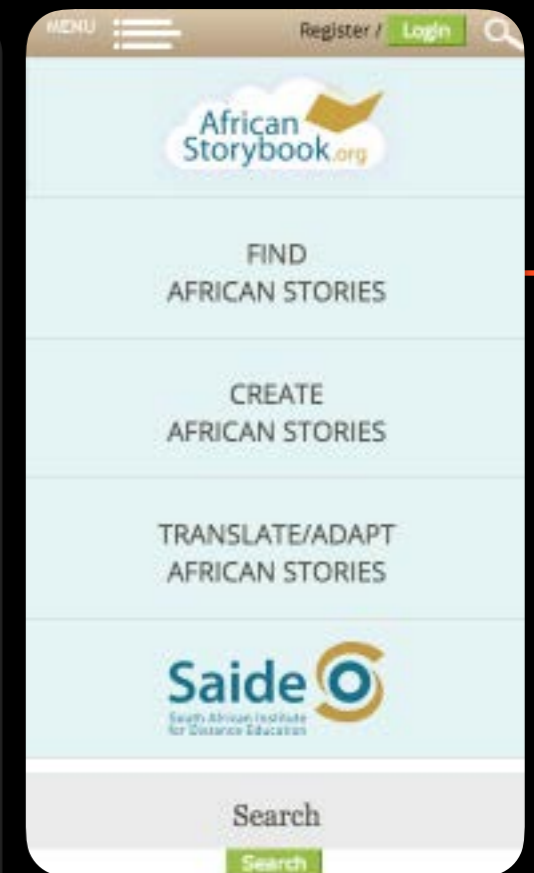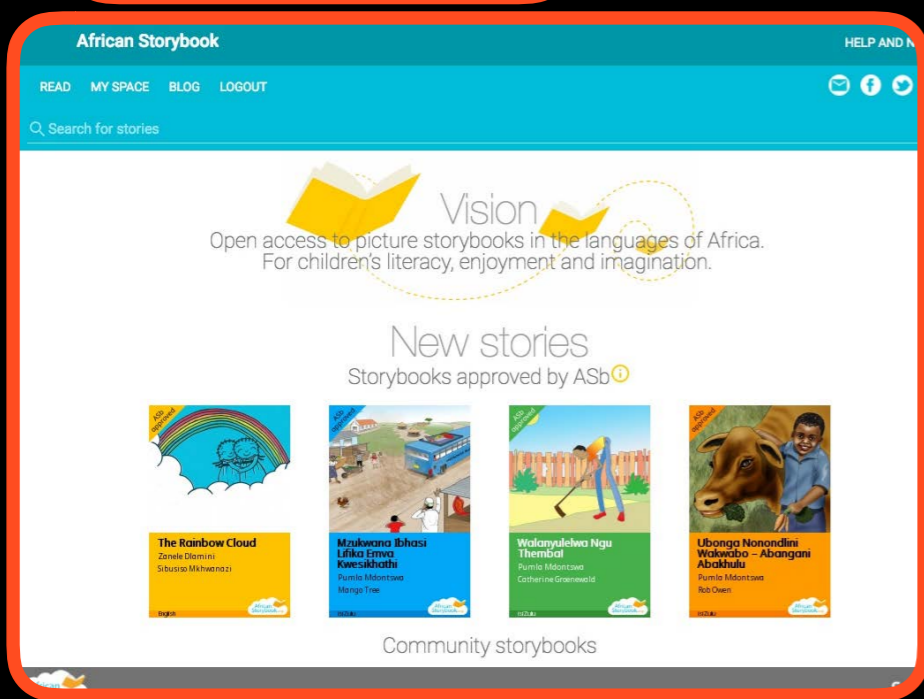
05

Subject of mediated activity
Impact
Impact of mediation on actors can either be *short-term*, such as helping to achieve an immediate goal, or *long-term*, such as intentional or unintentional transformation of an individual
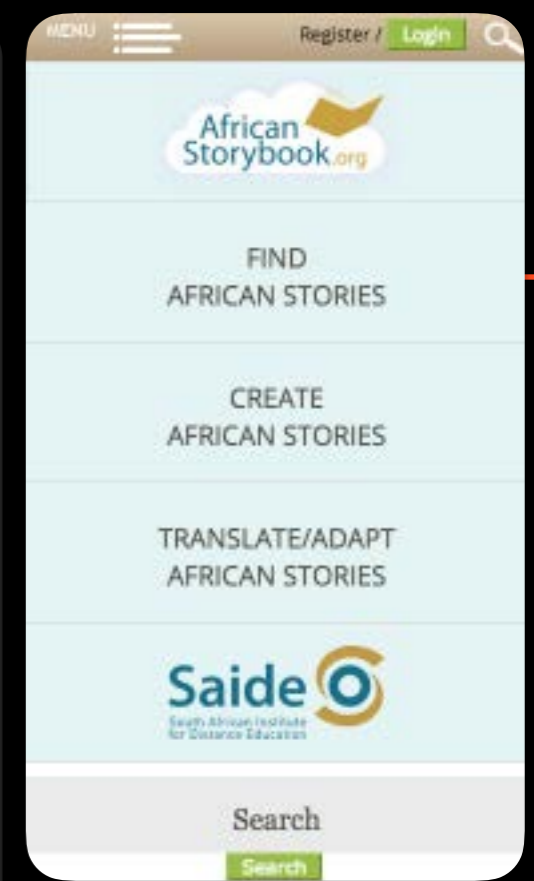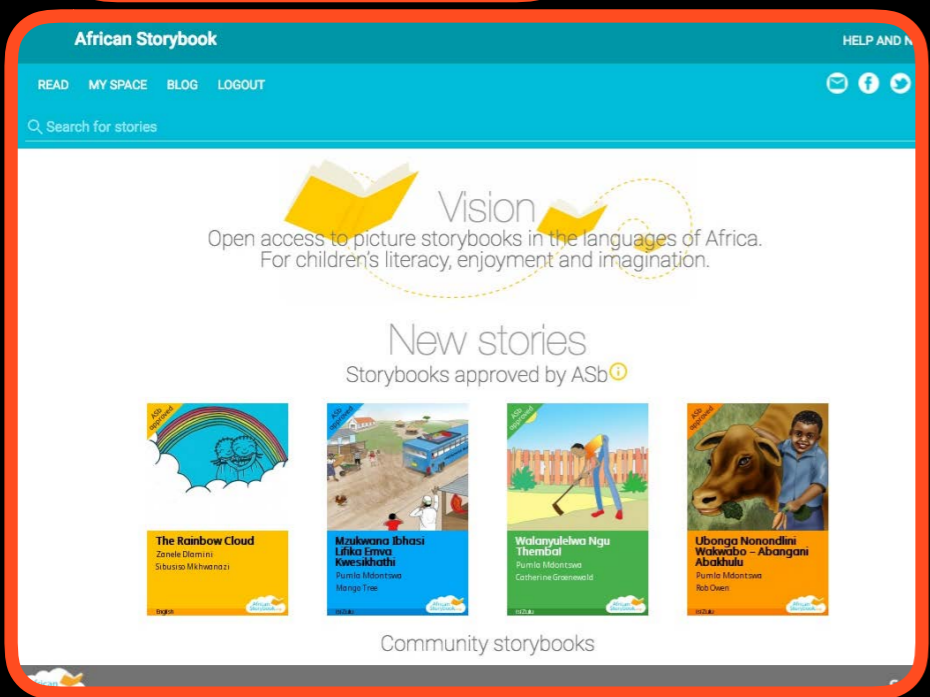
06

Dynamics of mediation
Disruptive or incremental
New technologies typically substitute existing meditational means, and the adoption of new technologies causes re-mediation - *re-mediation* can be associated with a significant *disruption*
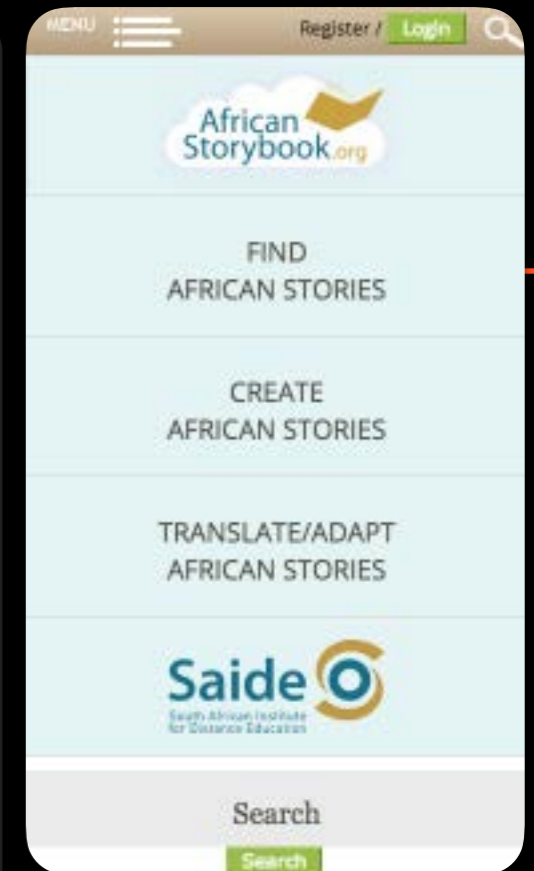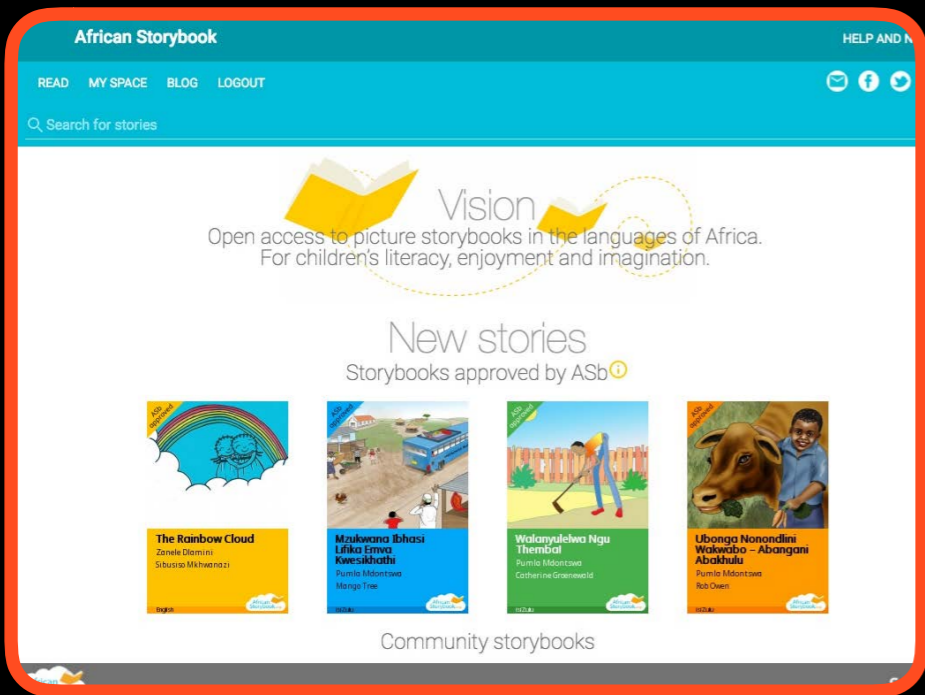
Learning design with technology

Authentic tasks (2010)
- Authentic context
- Authentic task
- Expert performances
- Multiple roles and perspectives
- Collaboration
- Reflection
- Articulation
- Coaching and scaffolding
- Authentic assessment

Role of technology
- As information stream
- As enabler of communication
- As enabler of collaboration
- As an information transformation tool
- As a professional tool
- As extrinsic mediator

Repeatable patterns
- Introduce new topic or learning outcome
- Stimulate engagement (student context and experience)
- Introduce new content
- Authentic task with assessment criteria
- Guided reflection
- Consolidation (feedback)

Extrinsic mediator
- Extension of individual versus external object
- Used independently or used in combination
- Single versus multiple purposes
- Individual and collective activities
- Short- to long term impact
- Re-mediation - disruption

Authentic extrinsic mediation

Tools
1. Core readings
2. Software
   - Google spreadsheet
   - Google presentation
   - Mind mapping
   - Weebly
   - Story board

   Honours BEd students

Authentic Tasks
1. Evaluation of school's e-maturity
2. Tools to support development of e-maturity
3. Knowledge, skills and attitudes of current students
4. Use of open source, open access and open resources in teaching and learning
5. Planning for a future education system

Example 1

Table 1. Analyses of students' opinions from 2010 to a number of questionnaire statements on the design and delivery of the course.

Table 2. Descriptive statistics for different courses

Course	Complex activities	N	Mean	SD	Score ± SE 2010 (n=27)

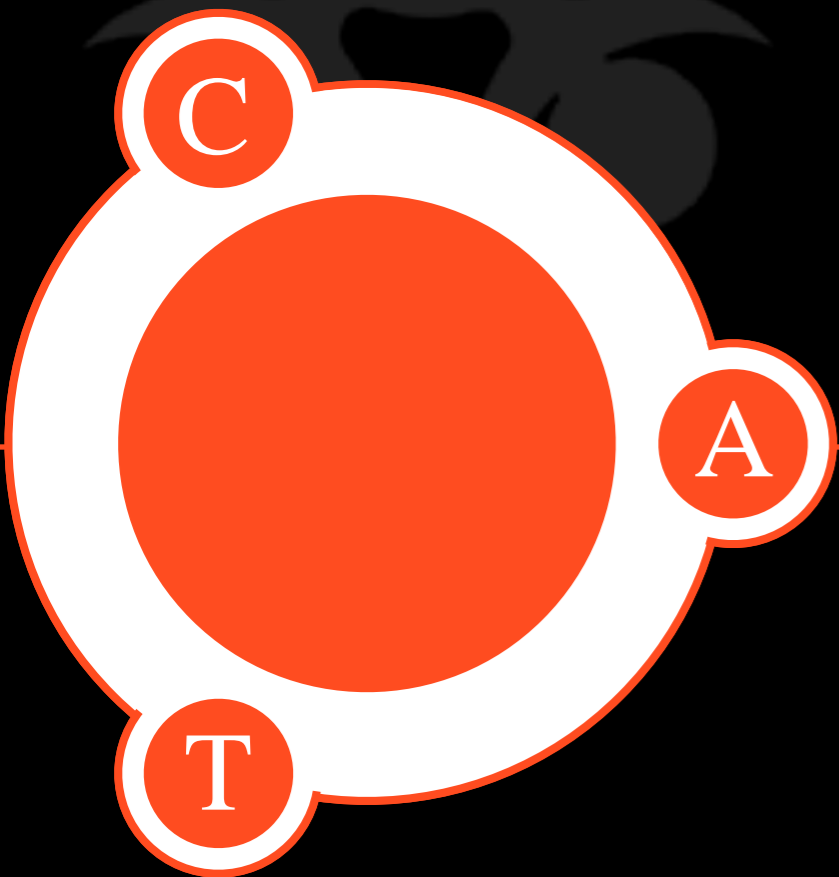| Item					Score ± SE 2010 (n=27)
Educational ICT	Collaborative	30	60.73	10.66	
Finding information for myself is a good way to learn					5.36 ± 0.18
Research methodology	Reflective	30	56.07	16.48	
Working in groups supported my learning					5.05 ± 0.32
Education theory	Integrated assessment	30	50.07	11.33	
Working in groups is effective					5.00 ± 0.27
By the end of the module, I learnt more than I expected					4.82 ± 0.28
I also learnt from information that other students found					4.77 ± 0.25
I did not like the way the module was presented in the beginning, but I now am comfortable with it					4.27 ± 0.35
I would prefer to be given all my learning materials					3.95 ± 0.35
I think the lecturer should have taught more					3.86 ± 0.35
I would have preferred that the classes were more structured					3.41 ± 0.35
The lecturer should decide who are in groups					1.91 ± 0.27

1 x 3 repeated measures analysis of variance (RM-ANOVA)
Significant effect for Course design, Wilks' Lambda = 0.48, $F_{(2, 28)}$ = 15.3, $p < 0.0001$, multivariate partial eta squared = 0.523

- Education ICT and research methodology courses were significantly different from the education theory course ($p < 0.0001$ and $p = 0.006$ respectively)
- Educational ICT and research methodology courses were similar ($p = 0.25$)

Figure 1. Student assessment of the authentic task design principles.

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Example 2

Interactive Learning and Teaching

A school-based continuing professional development course for primary level community school teachers
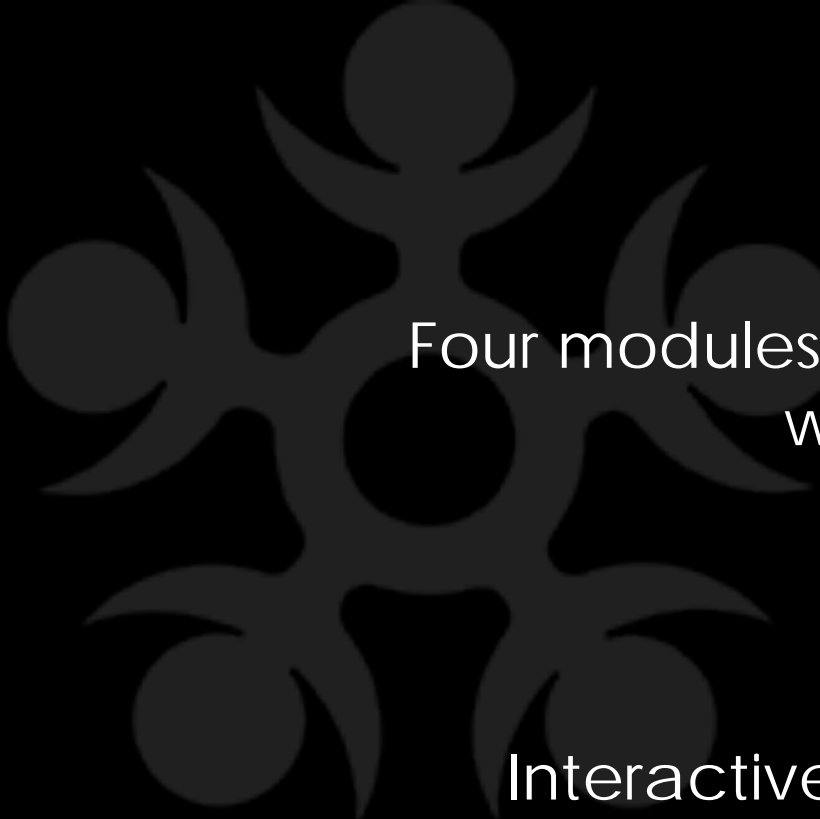
Background

Welcome to the Interactive Learning and Teaching Course for primary school teachers in Zambian Community Schools.

The fact that there are over 3000 primary level Community Schools in Zambia is testament to the high value that many local communities place on education. It is also evidence of the commitment of teachers, parents and community leaders to providing educational opportunities to their children, even though this is often done in very difficult circumstances.

Equally, the hard work of many individuals, community based

Four modules each five
weeks long

92 authentic tasks
39 video clips
African storybooks
Curriculum documents

Interactive Android
tablet app

iAct

iAct - Interactive Learning and Teaching

Introduction: About the course, registration, exploring the app   ›

Module One: Planning interactive learning   ›

Module Two: Managing interactive learning   ›

Module Three: Questioning for interactive learning   ›

Module Four: Observing and investigating for interactive learning   ›

Help   ›

Acknowledgements   ›

African Storybooks   ›

Administration   ›

WEEK 1   WEEK 2   WEEK 3   WEEK 4   WEEK 5

Activities   1   2   3   4   5   6   TEST
Progress

Think about your own teaching experience

Time:
20 mins

Purpose:
To think about conditions in your schools.

What you will need:
Your tablet, pen or pencil to make notes

What you will do:
- In your group watch Video 1 on your tablet.
- This is a video about school conditions that might be similar to yours.

1. As you watch video 1, ask yourself:
   - Are these schools and classrooms like mine?
   - Are they different?
   - In what ways are they the same?

PLAY VIDEO 1

2. After watching the video, discuss the questions and write down three things which are the same.

Activities   **1**   **2**   **3**   **4**

Progress   **TEST**

Observation and investigation activities in Integrated Science

Time:
1 Hour

Purpose:
- To watch and discuss the video clips that show how the teacher (Chintu) has created opportunities for learners to investigate and participate in a number of Science experiments using real materials that are found locally.
- To familiarise yourself with the "work station" approach to managing group work experiments in a context of limited resources.

What you will need:
- The description of how to set up and use work stations
- Videos 32, 33 and 34 on the tablet
- A pen or pencil

What you will do:
- Read about work stations and how they can be used.
- Watch the three video clips (32, 33 and 34) which provide examples of how Chintu created opportunities for her learners to investigate and participate in a number of Science experiments using real materials that are found locally.
- Think about and discuss how Chintu used Science work stations, setting up different experiments on each one, allowing learners to move from one to another.
- Answer the questions in the space provided.

Individually

Activities (1) (2) (3) (4)   TEST
Progress

Observation and investigation activities in Integrated Science

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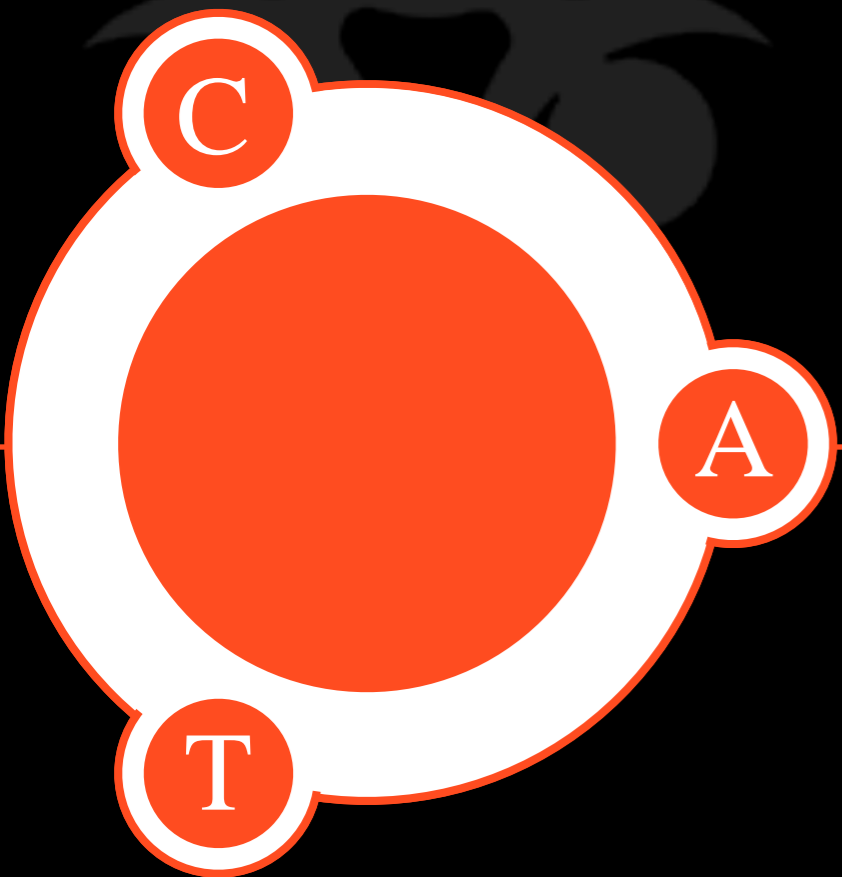
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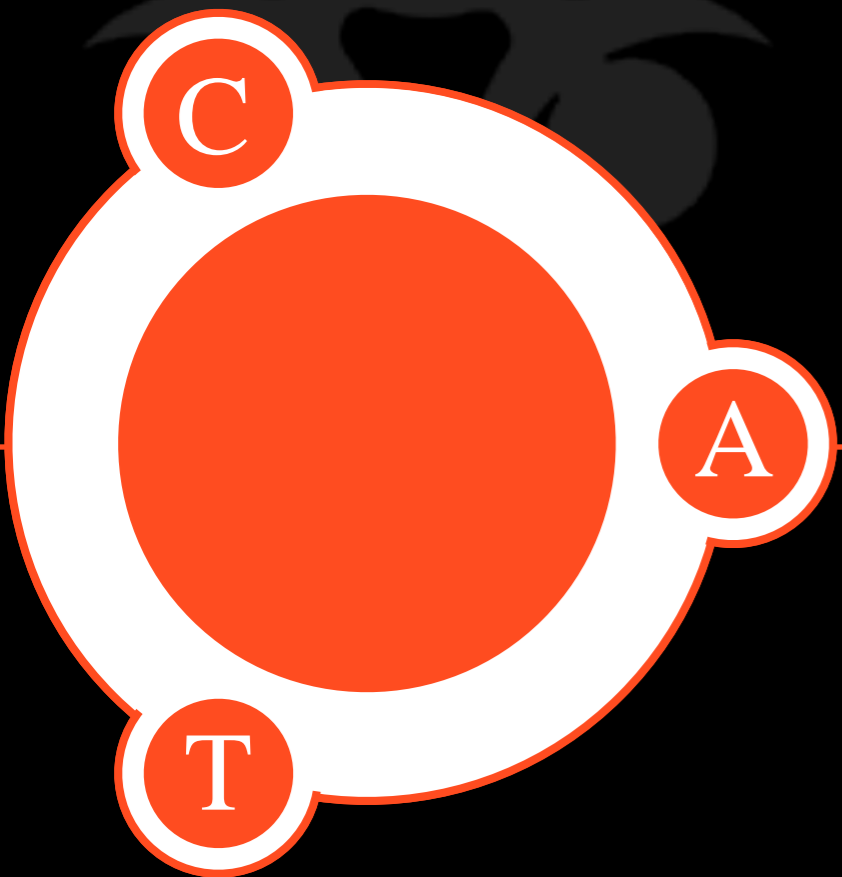- As extrinsic mediator

Repeatable patterns
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Extrinsic mediator
- Extension of individual versus external object
- Used independently or used in combination
- Single versus multiple purposes
- Individual and collective activities
- Short- to long term impact
- Re-mediation - disruption

C   A   T

What about the design of the MOOC?

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Thank you