# INSTRUCTIONAL DESIGN DRIVEN INNOVATIONS IN CAPACITY DEVELOPMENT

**ADDRESSING THE CAPACITY NEEDS OF (TODAY AND) TOMORROW'S RESEARCHERS TO MEET THE CHALLENGES AND OPPORTUNITIES OF FUTURE SCIENCE.**

Iddo Dror,

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Chair, CGIAR Capacity Development Community of Practice
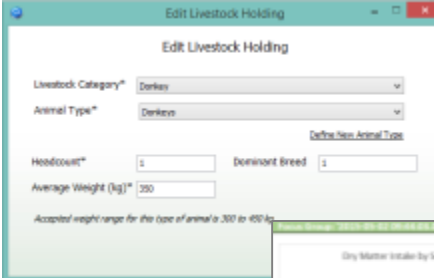
# What is Instructional Design?

In short, instructional design is the systematic process by which instructional materials are designed, developed, and delivered.

Note on terminology: The terms instructional design, instructional technology, educational technology, curriculum design, and instructional systems design (ISD), are often used interchangeably.
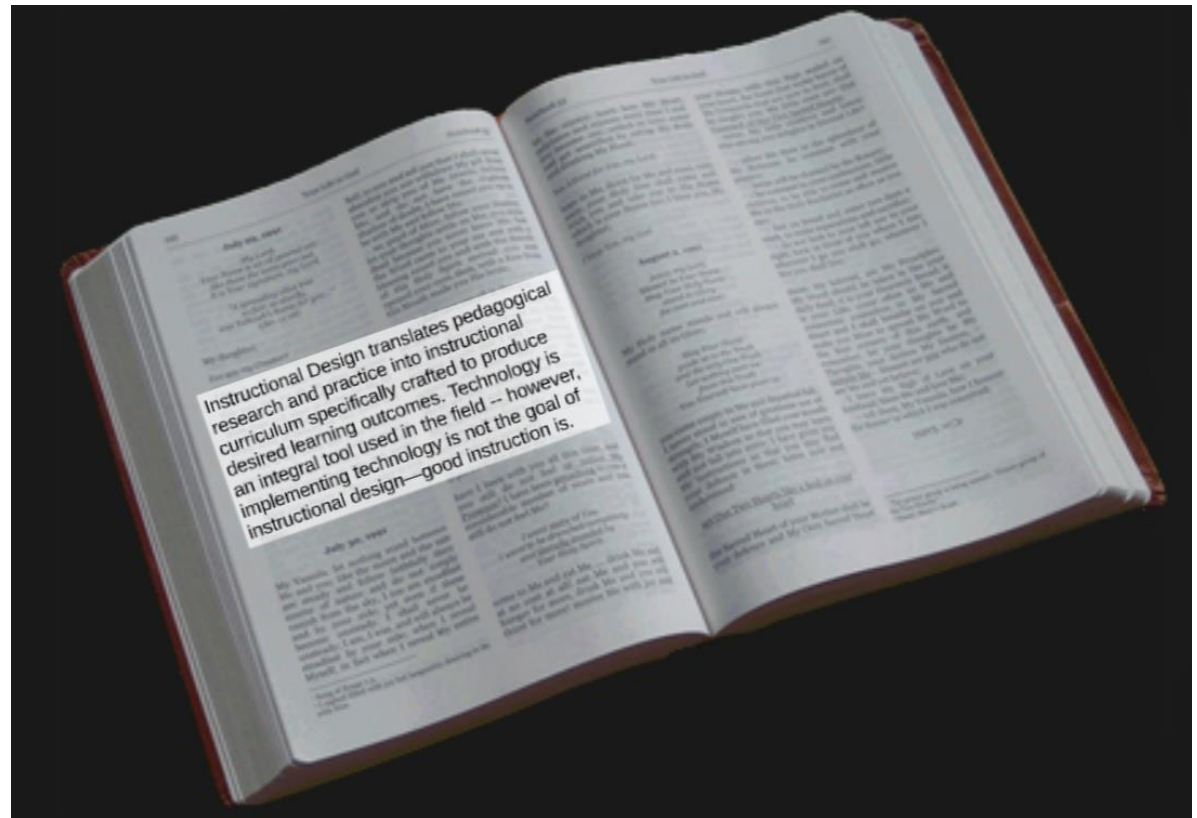
# In other words…

- An organization has a mission

- People working for / with organization must perform certain tasks to achieve it

- Sometimes individuals lack skills, knowledge or attitudes to effectively perform tasks

- Instructional designers apply systematic approach to helping learners acquire and retain new skills, knowledge and attitudes
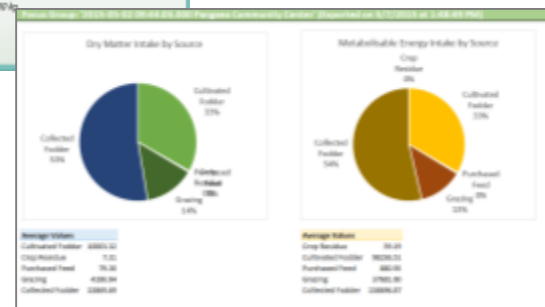
# Or for the more visually inclined…
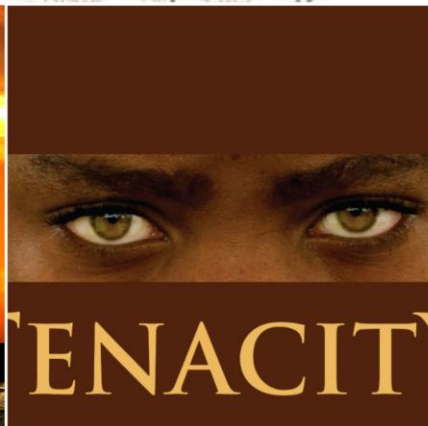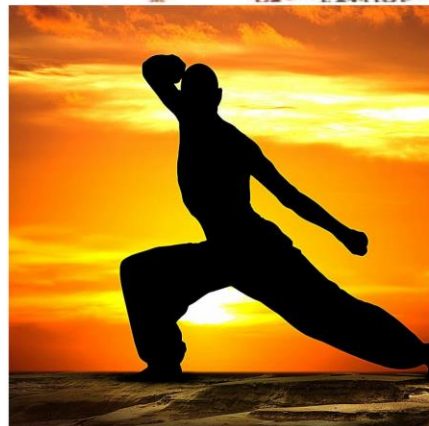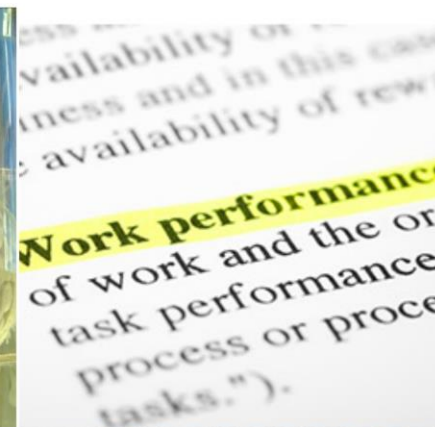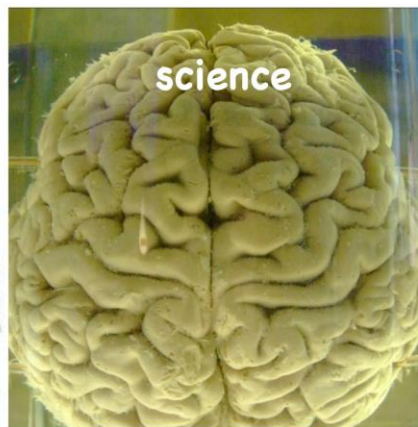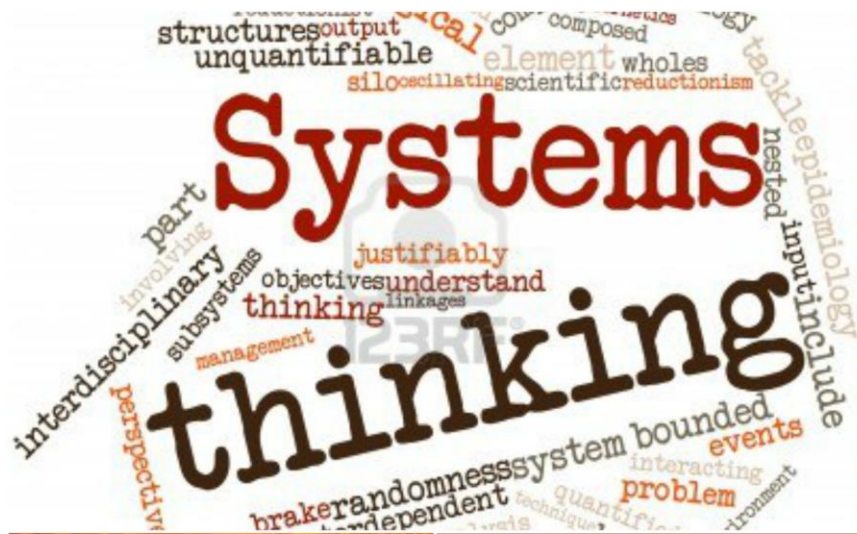
# Who does it?

In theory...

Corporate trainers
Instructional designers
For-profit educators
Content developers
Librarians Teachers Professors
Distance educators

The New and Improved Instructional Designer

writer — problem solver
innovator — facilitator
researcher — IT'S A HARD JOB BUT SOMEONE HAS TO DO IT.
developer — project manager
media expert — editor

# Who does it?

In practice…

# What does it do?
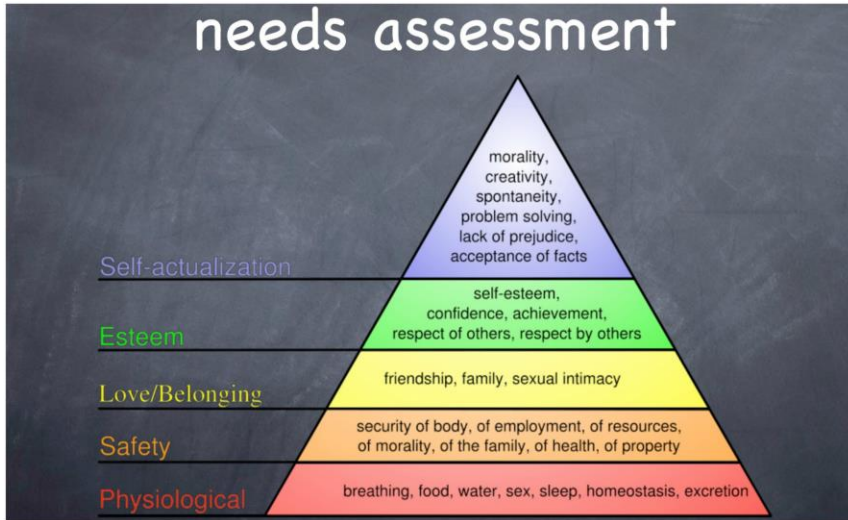
# Instructional Designers

**An instructional designer works with subject matter experts, trainers and e-Learning developers to create:**

- Logically sequenced curriculum that introduce skills and concepts in an accessible, step-by-step manner
- Activities that offer relevant practice
- Assessments that truly gauge learners' mastery of subject
- Insightful, memorable anecdotes and case studies
- An engaging experience for learners delivered through the most appropriate methods / channels
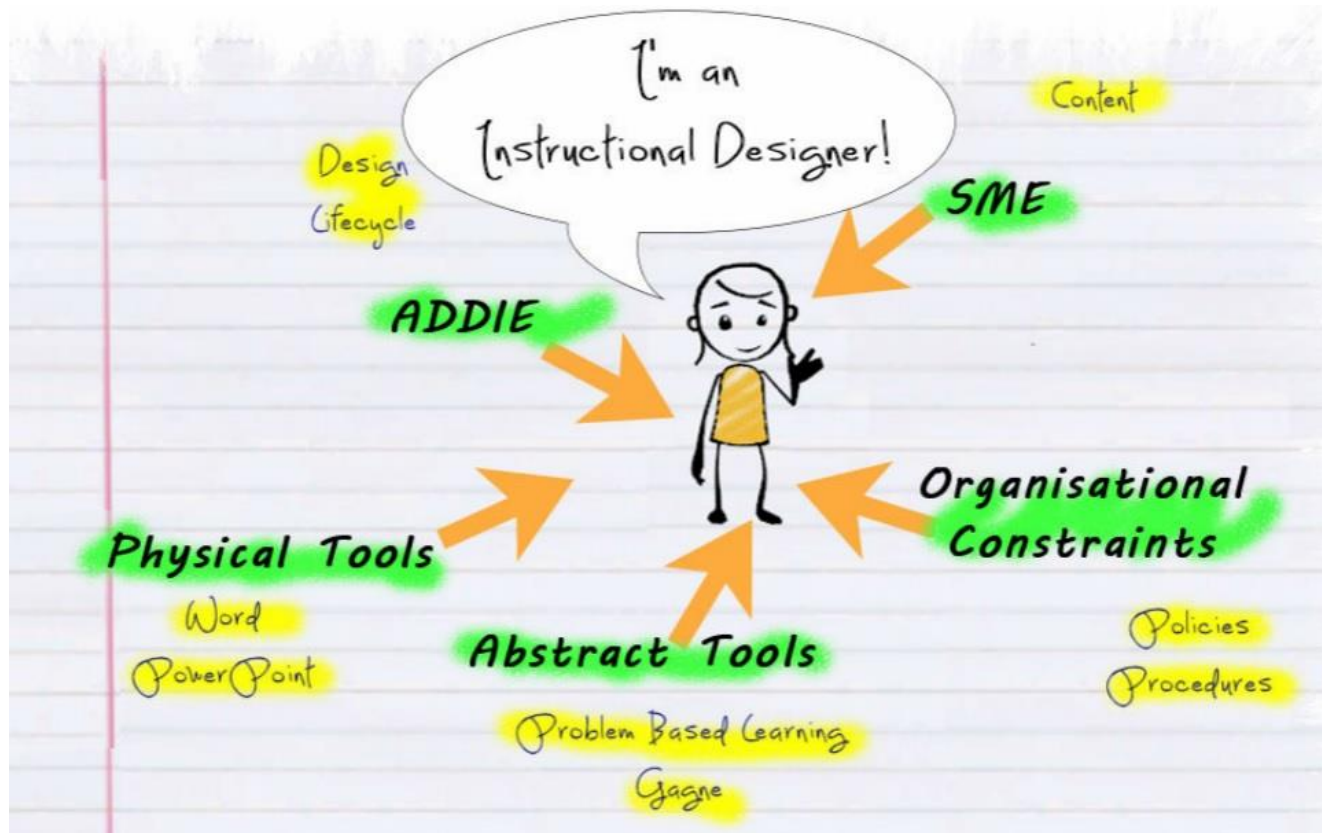
# What is this based on?

## Mumbo-jumbo, pseudoscience piece of fluff... or?

As a field, instructional design is historically and traditionally rooted in cognitive and behavioral psychology, though recently Constructivism (learning theory) has influenced thinking in the field



50+ Theories of Learning
www.instructionaldesign.org/theories/

- ACT (Anderson)
- Adult Learning Theory (Cross)
- Algo-Heuristic Theory (Landa)
- Andragogy (Knowles)
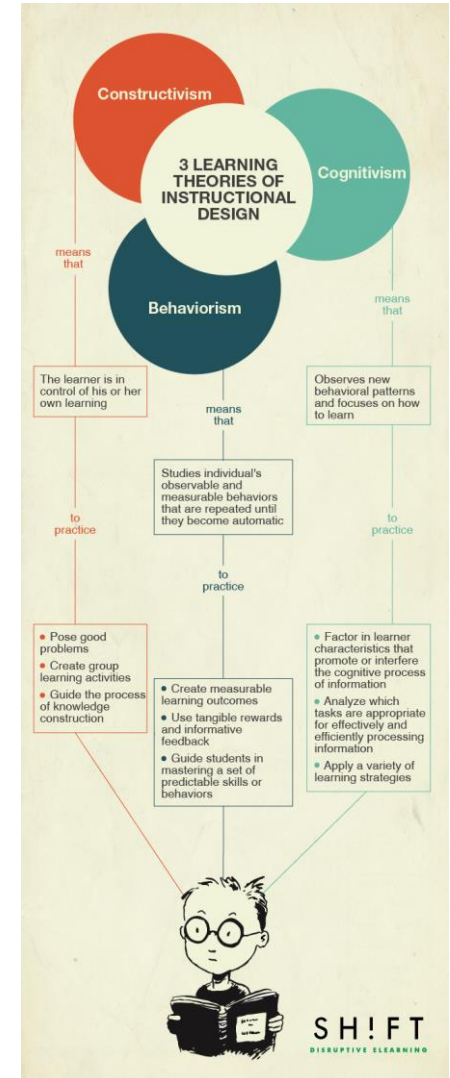- Anchored Instruction (Bransford-CTGV)
- Aptitude-Treatment Interaction (Cronbach & Snow)
- Attribution Theory (Weiner)
- Cognitive Dissonance (Festinger)
- Cognitive Flexibility (Spiro)
- Cognitive Load Theory (Sweller)
- Component Display (Merrill)
- Conditions of Learning (Gagne)
- Connectionism (Thorndike)
- Constructivist Theory (Bruner)
- Contiguity Theory (Guthrie)
- Conversation Theory (Pask)
- Criterion Referenced Instruction (Mager)
- Double Loop Learning (Argyris)
- Drive Reduction Theory (Hull)
- Dual Coding Theory (Paivio)
- Elaboration Theory (Reigeluth)
- Experiential Learning (Rogers)
- Functional Context (Sticht)
- Genetic Epistemology (Piaget)
- Gestalt Theory (Wertheimer)
- GOMS (Card, Moran & Newell)
- GPS (Newell & Simon)



3 LEARNING THEORIES OF INSTRUCTIONAL DESIGN

Constructivism
Cognitivism
Behaviorism

means that — The learner is in control of his or her own learning

means that — Observes new behavioral patterns and focuses on how to learn

means that — Studies individual's observable and measurable behaviors that are repeated until they become automatic

to practice
- Pose good problems
- Create group learning activities
- Guide the process of knowledge construction

to practice
- Create measurable learning outcomes
- Use tangible rewards and informative feedback
- Guide students in mastering a set of predictable skills or behaviors

to practice
- Factor in learner characteristics that promote or interfere the cognitive process of information
- Analyze which tasks are appropriate for effectively and efficiently processing information
- Apply a variety of learning strategies

SH!FT
DISRUPTIVE ELEARNING

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# Do you have an example 'closer to home' ?

Why yes...

Thank you for asking :)

# Placing Instructional Design in the broader CGIAR context:

- Capacity development is recognized as a crucial and strategic enabler in the journey from research outputs to development outcomes.

- The CGIAR CapDev Framework takes a broad, holistic approach, with nine elements defined, of which one on: "Design and delivery of innovative learning materials and approaches".

- This includes:
  - Content development
  - Adult learning theory and instructional design
  - Harnessing technology for CapDev initiatives

# The 'FEAST' example



Instructional design and blended Learning to extend the reach of a research product for impact at scale:
Reflections from the FEAST tool

Iddo Dror (ILRI) and Emil Heidkamp (Sonata Learning)

FEAST e-Learning Materials Launch
Addis Ababa, 22 May 2015

RESEARCH PROGRAM ON
Integrated Systems for the Humid Tropics
CGIAR

RESEARCH PROGRAM ON
Livestock and Fish
CGIAR

Full presentation available from: http://www.slideshare.net/ILRI/feast-elaunch-iddoemilmay2015

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# The Goal and Approach

- The goal was to improve the classroom experience and extend the reach of the training program while lessening the logistical burden on ILRI scientists.

- ToR developed and a instructional design firm contracted to help execute the work, as little instructional design capacity at ILRI at the time

- From the start, it was clear that a blended learning approach combining classroom training with online learning

- was the most appropriate solution.

# What we focused on…

## Research Skills

Class participants will learn to collect better data by:

- Applying proven techniques for leading productive focus group discussions
- Developing interview skills to gather more complete data from farmers
- Using the interview / discussion guides included in the FEAST Tool

## Computer & Data Analysis Skills

Participants will receive hands-on practice using the FEAST Data Template to:

- Track and analyze data collected from farmers
- Calculate key metrics for feed availability, animal nutrition, farmer income & economic factors
- Produce graphs to support findings & recommendations in reports

## Report Writing Skills

Course features activities to help learners:

- Recognize good writing / well-organized reports
- Present findings with appropriate supporting data, graphs, etc.
- Clearly explain recommendations for livestock feed interventions and why they should work in local context

## Instructional Design Matters!

Instructional Design enabled the project to:

- Revise and expand classroom instruction
- Adapt course for online delivery
- Develop hands-on classroom and eLearning activities
- Design new FEAST forms and reference guides
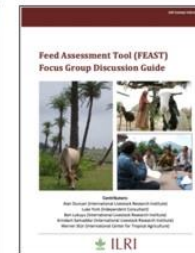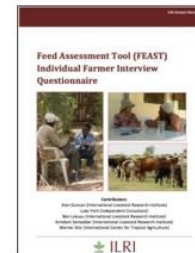- Work carried out in partnership with Sonata Learning, a firm specialized in learning development.

**SONATA LEARNING**

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# What the end result looks like

# Why should we care?

**How is this relevant to "Keeping science relevant and future--focused"**

- To 'walk the R4D talk' we need our science to entice and fulfill diverse audiences

- A pathway "from research to impact" needs a focus on behavioral change - instructional design can play a big part in making this happen.

- Many researchers will need to learn (at least the basics) of this field to remain relevant in a future of 'on demand' learning environments

- More investments are needed in 'experts / facilitators' at the organizational levels.



DON'T BE *SUCH* A SCIENTIST
TALKING SUBSTANCE IN AN AGE OF STYLE

KEEP CALM AND DELIVER RESULTS

# Thank you for your attention!

# Questions?

For more info contact i.dror@cgiar.org