Instructional Design at the International Livestock Research Institute (ILRI)

Deborah Wyburn

Instructional design is a process of working backwards from the learning objectives of a course to design, develop and implement learning experiences to help targeted learners master required skills and concepts. In the context of the International Livestock Research Institute (ILRI) and other CGIAR centres, a course’s learning objectives and content are largely defined by researchers seeking to pass on their findings to last-mile agencies such as governments and non-governmental organizations.

The courses—normally been piloted on a workshop basis by the initiating scientist—need to be scaled out. There are two particularly cost-effective ways of doing this. One is to package the course with enough detail to enable last-mile agencies to run it themselves. Alternatively, create a blended learning program. This would mix online learning and classroom workshops where learners apply new-found knowledge to professional contexts in the presence of an expert.

Such programs reduce the time commitment required of researchers in attending workshop sessions. As the target learners are always adults, ILRI instructional designers draw on adult learning principles (andragogy) to produce appropriately engaging courses. Based on relevant and practical examples, these highly interactive courses connect with learners’ existing knowledge and skill sets and mesh with perceived professional development needs.

This brief draws on examples from the instructional design work of the ILRI Capacity Development Unit over the last year to illustrate the process.

Instructional design and why is it important to CGIAR?

Figure 1: The ADDIE Model

There are a number of widely recognized models of the instructional design process that illustrate best practice in the field. The ADDIE\(^1\) and SAM\(^2\) models are probably two of the best known (Ryder 2014). Put simply, the instructional design process begins with the identification

2. Ibid.
of key skills and knowledge required for individuals to do their jobs effectively, and then sets about designing, developing and implementing learning experiences to help them master those skills and concepts.

A common starting point involves assessing the learning needs of typical course participants by finding out how many of the desired skills they already possess. Alternatively, subject matter experts (SME) could also be engaged to undertake a needs appraisal. In the case of CGIAR centres, such as ILRI, SMEs are scientists who have typically piloted a face-to-face course and now wish to scale it out. Since it is rarely cost-effective for initiating scientists to lead training program rollouts, the scientific knowledge and experience needs to be distilled into training support materials, thus empowering others to lead the process.

Depending on circumstances, the rollout will take different forms, including a series of workshops, training and mentoring programs, or a blended learning program where content is mastered online and then followed up in face-to-face meetings at which learners share experiences and apply their knowledge in a simulated work environment. Running large-scale, one-off workshops might seem like an efficient dissemination strategy, but these have limited lasting impact and should be avoided.

Effective instructional design and application of adult learning principles involves development of a comprehensive set of teaching and learning tools including slideshow presentations; interactive online activities including games, videos and online quizzes; instructor guides; and training preparation checklists. Materials are then reviewed and revised with the support of SMEs.

**Instructional design and FEAST**

*Figure 2: Instructional Design in FEAST*

The ILRI Feed Assessment Tool (FEAST) is a breakthrough toolkit, enabling local farmers to lead the process of identifying interventions that will improve livestock feed resources in their area. This process is known as farmer-centred diagnosis (FCD). By collecting and analysing data on a range of factors likely to impact on feed resources, FEAST and its graphic outputs can help identify interventions that consider the local context in its entirety and hence are more likely to succeed than single-factor interventions.

However, many development workers tasked with applying FEAST had limited experience using computer-based applications. Moreover, the FCD process required them to collect and analyse data from representative samples of farmers in the area, and make recommendations for action based on this data and the graphs generated by the tool. Many found this difficult and they failed to use the tool and the FCD process effectively.

Classroom-based training was somewhat successful in improving skill sets but delivering the training posed a considerable travel and logistical burden on ILRI staff, one which negatively impacted on other projects.

These logistical constraints limited the number and timing of training courses, often causing considerable delays before development workers could put their newly acquired skills into practice and further leading to skills being partly forgotten before they could be used.

Having observed the effectiveness of classroom training courses in various countries, ILRI worked with Sonata Learning to identify suitable learning modalities and design modules to help target participants efficiently achieve their learning objectives. It was clear from the beginning that a blended learning approach was the most appropriate solution. As much of the training would take place in locations where internet access was unstable, an offline learning management system (LMS) was developed, hosting off- and online learning activities.

**Instructional design and the mNutrition project**

*Figure 3: In this exercise, learners listen to a story and then drag and drop pictures of the protagonists to demonstrate their understanding.*

Led by the CAB International, the mNutrition project seeks to improve the nutritional status of more than three million Africans and South Asians people, primarily...
women and children, by helping them to access nutrition-based agricultural and health information using mobile technology. As a major project partner, ILRI has been tasked with delivering the training to the implementing organisations in 13 countries. Face-to-face training across multiple countries and contexts clearly requires significant resources. Once the initial round of training is complete, it is not cost-effective to provide training for new staff or the refresher courses required to mitigate the loss of knowledge and skills over the project lifetime.

ILRI’s Capacity Development Unit has worked with the project consortium to improve the original course design and address these issues by providing future content in both workshop and online formats. In this instance, the initial face-to-face sessions undertaken with a range of different learning groups acted both as training and a pilot of the learning materials. The training materials were subsequently adapted and an online version is currently under development. It will be hosted on the Sonata LMS. A continuous process of mentoring and quality control will further strengthen the learning process for the staff of participating organizations.

Instructional design for facilitators of innovation platforms in the Humidtropics program

On behalf of the CGIAR Research Program on Integrated Systems for the Humid Tropics (Humidtropics), ILRI is currently developing a blended learning program for innovation platforms facilitators. Working with SMEs from ILRI, International Institute of Tropical Agriculture (IITA), World Agroforestry (ICRAF) and Wageningen University, content developers are drawing on materials from the Forum for Agricultural Research in Africa (FARA) and International Centre for Tropical Agriculture (CIAT) to sequence content and learning experiences so learners can rapidly acquire and retain necessary skills and knowledge.

The course design is based on a constructivist approach, which recognises that learning occurs as the result of interaction with content and other learners. Self-paced online learning modules developed will include frequent quiz questions to provide feedback to learners on their progress and a rich variety of interactive learning assignments.

Related workshop modules, based on highly interactive group exercises, challenge learners to apply the skills and knowledge gained through the online program. The workshop sessions provide an opportunity for learners to discuss their experiences and challenges in the light of the content covered in the online course and their own diverse and complementary backgrounds. Some of the exercises are based on case studies of existing innovation platforms recently compiled by the CapDev Unit. The modular design of the online course and training workshops will enable the organizers to choose between conducting longer standalone workshops, piggy-backing onto other events or conducting smaller, more frequent workshops where resources are available.

As in the two previous examples, all online materials will be made available through the ILRI online and offline Learning Management System (LMS).
Capacity development is a prominent feature of ILRI’s strategy. This refers to the intentional and purpose-driven efforts to increase stakeholder capacity to undertake and use research to generate development outcomes and scale up in a sustainable manner. ILRI Capacity Development Briefs highlight the depth and breadth of these ILRI and partner activities, and are circulated to contribute to improved practices and better lives through livestock. The briefs are purposively kept short and provide ‘snapshots’ of the topics they cover.

Contact
Deborah Wyburn
Instructional Design Specialist
ILRI, Ethiopia
d.wyburn@cgiar.org
https://ilri.org/capacitydevelopment