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Blended learning to support training in climatology in the Andean region

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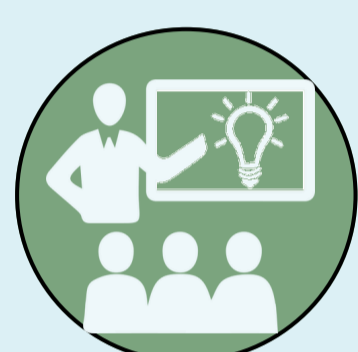
Blended learning is...

a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace

+   and

at least in part at a supervised brick-and-mortar location away from home.

Figure 1: Definition of blended learning (adapted from Staker, H. and Horn, M. B., 2012: Classifying K-12 blended learning; IAN Image and Video Library)
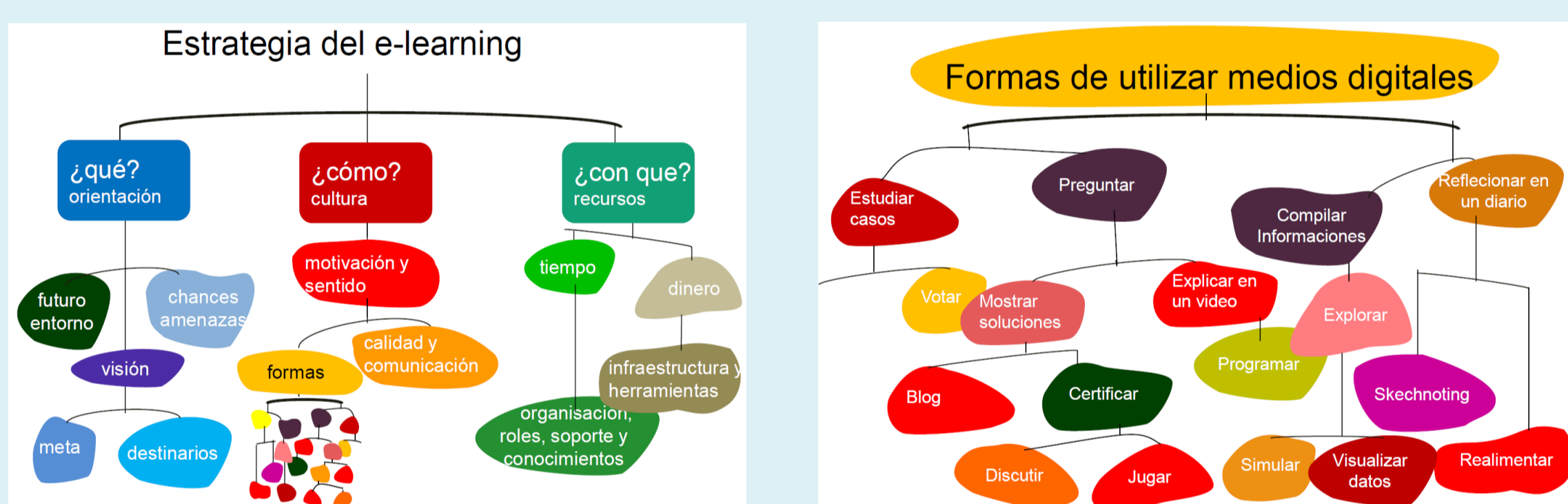
Why e-learning?

Figure 2: Reflection panel on the use of e-learning as a teaching resource (left) and different forms on how to use digital media in teaching activities (right). This material was used to develop the strategy on the implementation of blended learning at the RTC-Peru.

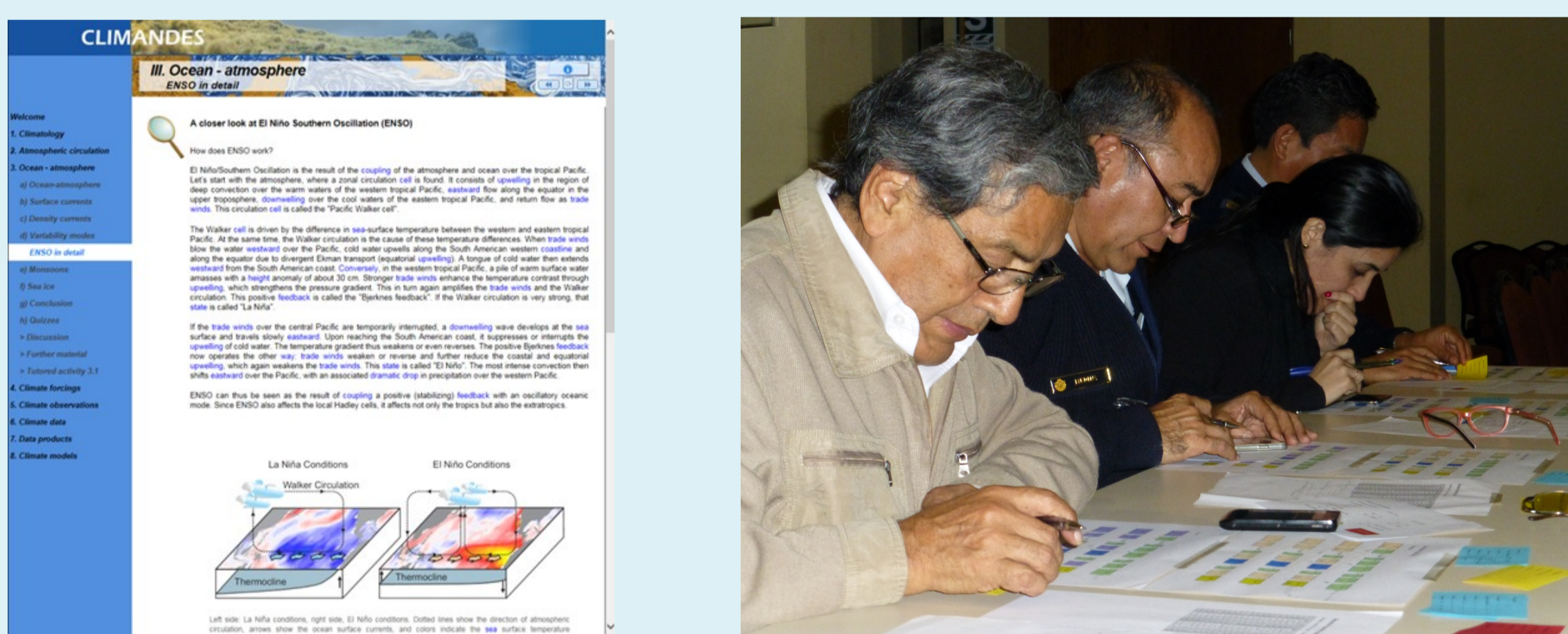## Development of online training material on climatology

Figure 3: Development of online material for use at the RTC-Peru (left). The introduction to the material included the conduction of several "train-the-trainers" workshops to instruct trainers of the RTC on the use of the material (right).

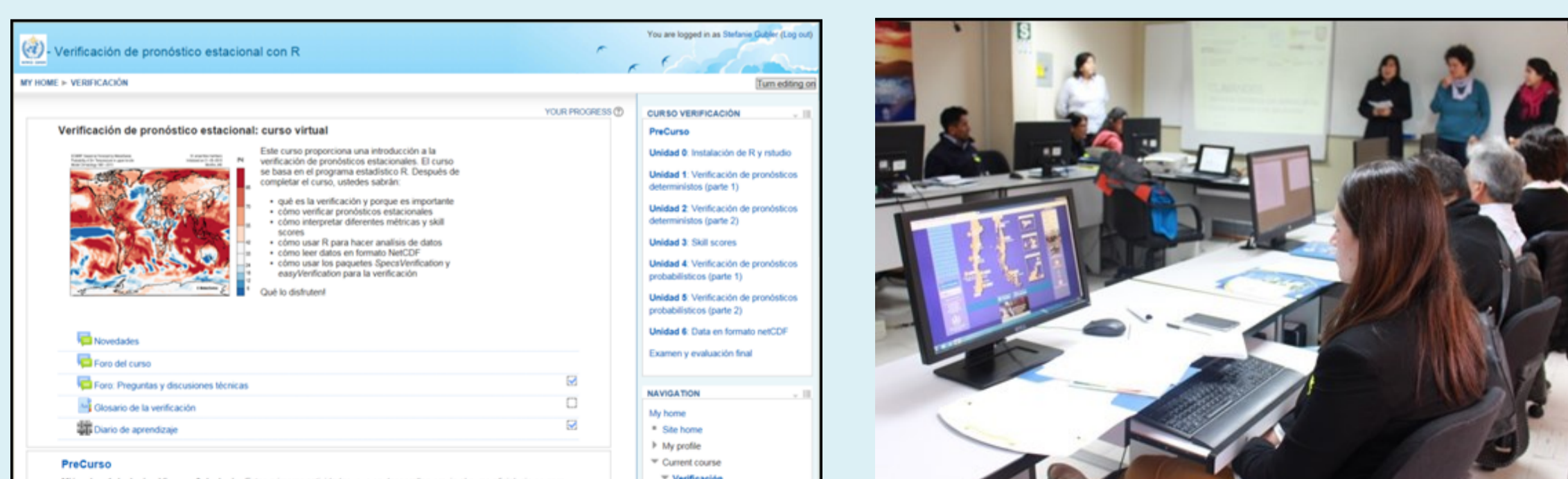## Teaching of the first blended course at the RTC-Peru

Figure 4: Example of a blended course realized in 2016 on the topic „Verification of seasonal forecasts applying R". During a three week online course on the WMO-Moodle platform participants were introduced to the main methods for verification (left figure). One month later, during a one-week classroom seminar in Lima, these verification methods were applied and discussed further with the instructors.

MOTIVATION

The project Climandes supports the WMO Regional Training Center (RTC) in Peru through providing training in climatology to the Andean region. The main goals are:

· Introduction and establishment of e-learning methods at the RTC-Peru (Figs. 1 & 2)

· Provision of specialized training in climatology

To achieve these goals, Climandes has developed online training material on climate related topics (Fig. 3), and is conducting several blended courses for the Andean region (Fig. 4).

RESULTS

1. Development of a strategy to implement e-learning at the RTC-Peru (Fig. 2):

   · Introduction to blended and e-learning

   · Definition of main targets and target groups

   · Implementation of a Moodle platform at the RTC

2. Implementation of a blended course on verification of seasonal forecasts to (Fig. 4):

   · 56 participants from Venezuela, Ecuador, Peru, Chile, Bolivia, Argentina, and Uruguay through online training

   · 24 participants from Peru, Ecuador, Chile, Argentina, and Bolivia during a follow-up classroom seminars in Lima

3. Planning of several blended courses by the RTC

CHALLENGES

· Time availability of participants during online phase is limited (often, online courses are taken in addition to daily business)

· Time required to prepare and supervise online courses is high

· Participation in the classroom seminars, which are an integral part of the blended learning experience, are costly and covering these costs remains a challenge, especially for developing countries

CONCLUSIONS & OUTLOOK

The blended course format has proven to be very successful and efficient in the context of the RTC. Experience has shown that the participants are highly motivated and pleased with the blended approach, allowing them to individually determine their required time for learning in the online training, and providing a higher amount of time for practical sessions in the classroom seminars. Further, both served as places to mutually exchange social learning experiences.

Diverse follow-up projects are arising from these training efforts: a cooperation in South America on the verification of seasonal forecasts, as well as a cooperation with the RTC-Italy to develop training resources on seasonal forecasts for the WMO Global Campus.

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