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Experiential Learning Labs for Sustainable Development: A Case Study in Community Operational Research Education

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Agenda

- Introduction
- Background
- Method
- Results
- Discussion
- Conclusions

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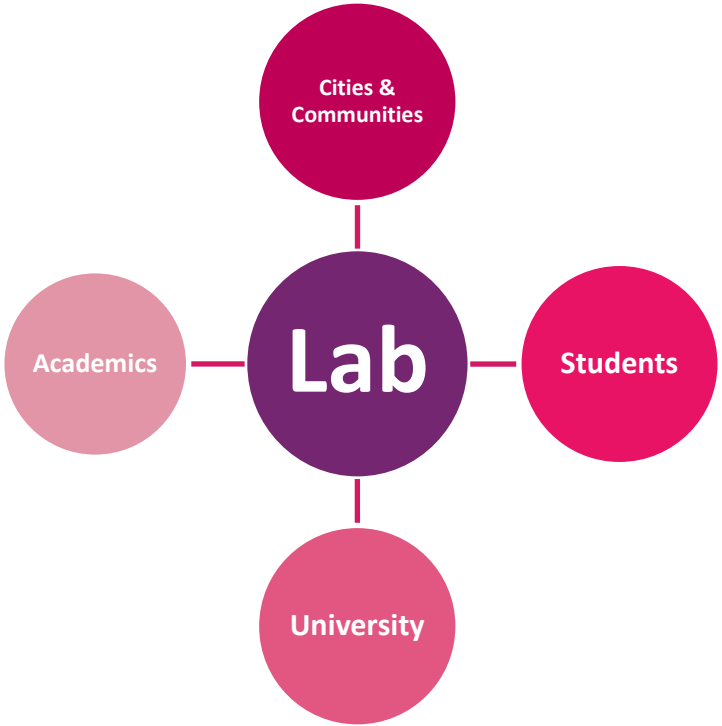
Introduction

- This work examines ***Experiential Learning Labs*** **(ELLs)** in **Community Operational Research (Community OR) education** to promote sustainability-related learning outcomes in Higher Education.
- Addressing the Sustainable Development Goals **(SDG's) #2** and Principles for Responsible Management Education (**PRME**).
- The aim is to provide **an *interactive*, *immersive*, and *learner-centered* approach** through **community-based learning experiences** linked to real-world situations in cities and communities.

Background

- **Learning and Teaching Community OR in Cities and Communities**.
- An **ELL** as a *social space for interaction* to undertake reflective and hands-on activities in specific contrived or real-world educational scenarios (Salinas-Navarro and Garay-Rondero, 2020) .



Background

- Involving **Kolb's Experiential Learning Cycle, constructive alignment** and **authentic assessment**
- With links to challenge based learning, service learning, and competency-based education
- Provide an interplay of ***cities and communities, as learning spaces***, and in-classroom activities
- Develop ***learning outcomes*** in Community OR education.

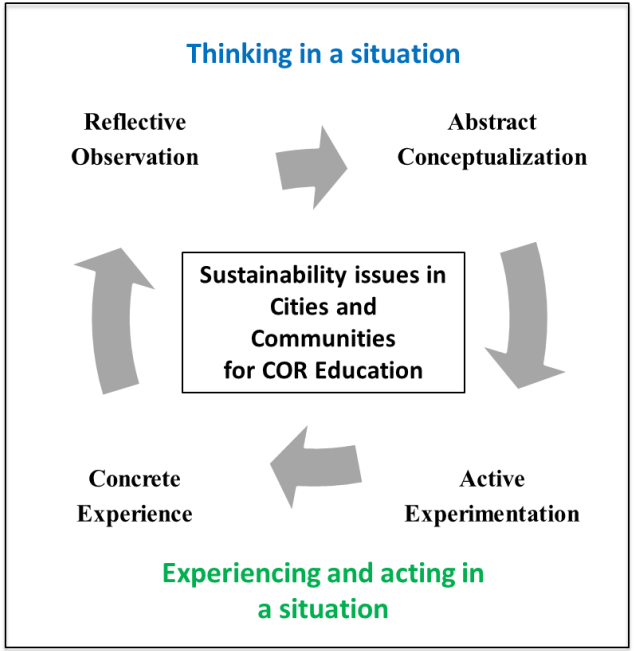
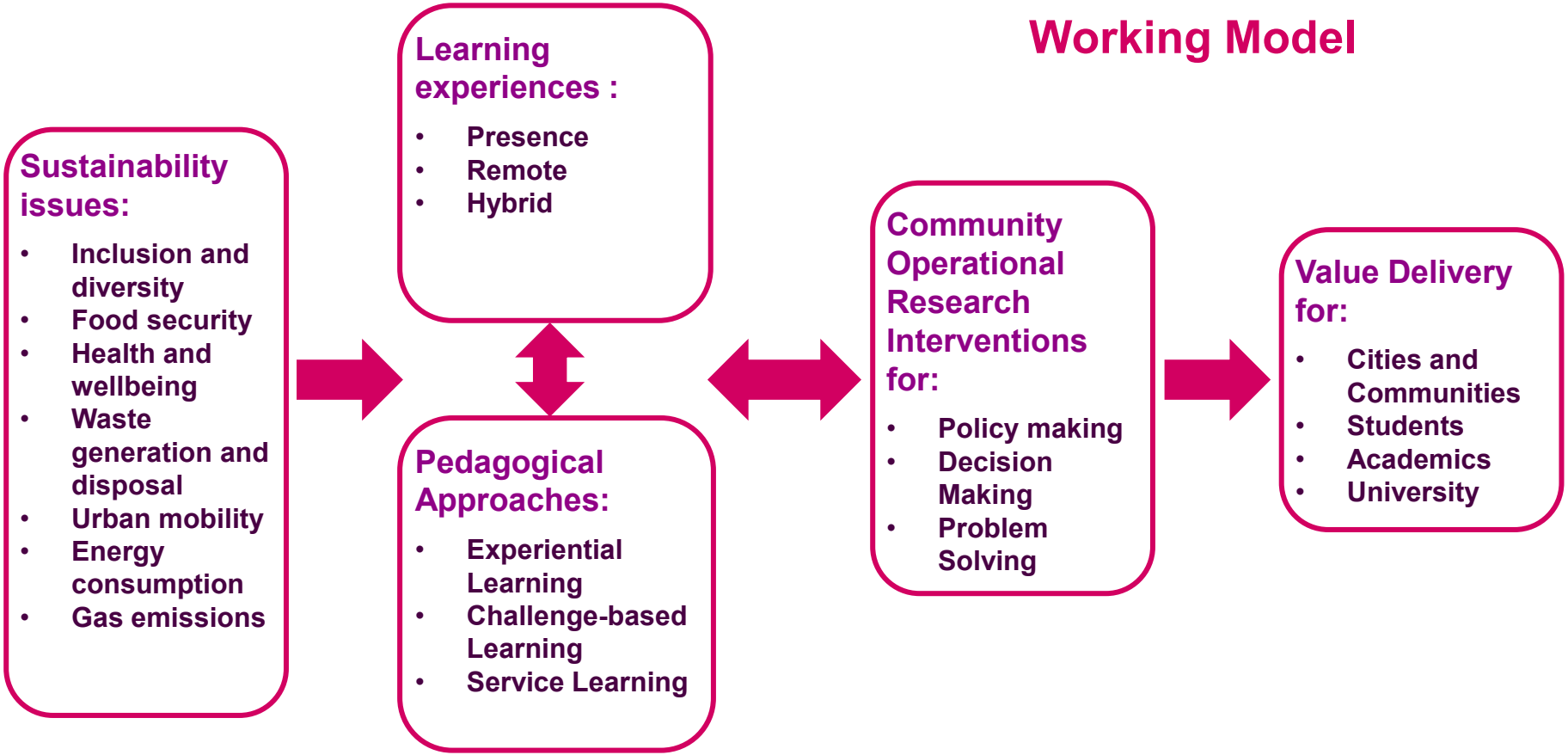


Figure 1 Experiential Learning for COR Education
Adapted from Kolb (1984)

Method

Working Model

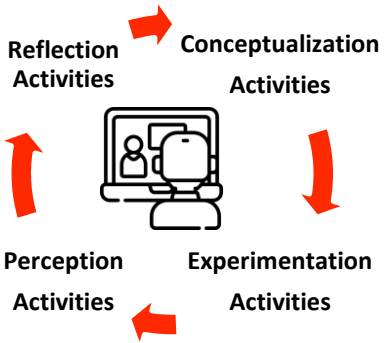


Method

- **Defining the case**: Nanostore Food Supply in Metropolis of Latin America
- **Selecting the case**:
  - The Social Lab for Sustainable Logistics @ Mexico City & Bolivia (Rangel-Espinosa et al., 2020; Salinas-Navarro and Rodríguez Calvo, 2020)
  - Systems Dynamics and Logistics Design modules
- **Developing the learning experience**:
  - ABET learning outcomes (problem solving under realistic restrictions)
  - Studying local shops' food supply in neighbourhoods to enhance local food security
- **Evaluating learning results**
  - Students' opinions and learning outcomes' achievement
- **Reporting findings** (disciplinary and learning experience)

Results

The Social Lab for Sustainable Logistics



Developing **last-mile strategies** by studying the ***complexity of interactions*** between suppliers, local shops, and communities in **specific geographical areas** through ***proximity logistics*** (using causal loop modelling, descriptive statistics and clustering analysis) to enhance product **availability, accessibility** and **affordability**.

Findings

- **Discoveries are twofold:**
  1. **Nanostore supply**
     a. Traditional food supply strategies to local shops are based on long-hauling vehicles with low frequency deliveries, which increase gas emissions and local in-store inventory levels. However, these provide cost-effective alternatives for suppliers
     b. Looking at the contextual characteristics of neighbourhoods, shopkeepers' expectations, and consumers' profiles to develop last-mile deliveries through distributed crossdocking alternatives
     c. Efficiently and effectively articulating supply and demand.
  2. **Learning experience**
     a. Students carry out experiential learning linked to relevant sustainability issues incorporating multidisciplinary knowledge
     b. **Communities** are seen as a **first-hand** and **well-known opportunities** for ***learning by experience***
     c. **Community OR** is recognized **as useful and practical**.

Conclusions

- ELLs can grow **sustainability-related skills, engagement, motivation, and learning relevance** in Community OR education
- Valuable insights into the **key factors and challenges** associated with implementing ELLs and **highlights the potential** of this approach for other educational contexts in Higher Education
- The design and execution of learning experiences turns out **demanding and time consuming**
- **Further learning experiences** to exemplify the use of Community OR tools in practical community settings for learning outcome development.

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- Kolb, D.A. (1984) Experiential learning: experience as the source of learning and development. Englewood Cliffs, N.J: Prentice-Hall.
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