

PBL PRACTITIONERS NETWORK IN AFRICA (PBL-Net Africa)

1st Strategy, 2024

Developed by the Consortia of partners of AgriSCALE and PBL Bio-Africa

1.0 Introduction

The 21st century skills have become a necessity for graduates to excel in employment and entrepreneurship in the globe. Similarly, in SSA, there has been a declared need for transformation of HEIs trainings to a competencies based system whose graduates are not only competent job seekers but also job creators. Aligning curricula to PBL and CBC provides a pathway to this transformation. PBL is a student centered pedagogy which empowers students to develop competencies through hand-on learning. To respond to this transformation call, EA countries have initiated the transition to competence based curricula. For instance, some countries have successfully enrolled students to the CBC equivalent of the previous primary and secondary level and have also trained teachers and lecturers in CBC. As witnessed in Uganda, Kenya, Zambia and other countries in SSA, pedagogy transformation to PBL and CBC, has been established to horn the 21st century skills in students; it is anchored by capacity building of instructors in HEIs in PBL and CBC. It is from this background, that PBL Practitioners' Network in Africa (PBL-Net Africa) was established. The AgriSCALE and PBL Bio-Africa projects that were implemented between 2020- 2024 in Sub-saharan Africa (SSA), aimed at co-creating agricultural education in Higher Education Institutions (HEIs), scaling bio-economy and agro-entrepreneurship, using the pedagogical approach of Problem Based Learning (PBL). The PBL Practitioners' Network was established as a sustainability strategy of the two interventions, to consolidate and further scale up their achievements on the continent.

The two are hereby described.

1.1 Background of the AgriSCALE project

The AgriSCALE project was a three-year project (2020-2023) that was implemented by a consortium of 9 universities; 3 in Europe and 6 in Sub-Saharan Africa. The three universities in Europe were Haame University of Applied Sciences (HAMK), the lead university in Finland, Aalto University (AU), also in Finland, and the University of Pavia (UNIPAV), in Italy. The universities in Sub-Saharan Africa were Egerton University (EGU), and Jomo Kenyatta University of Agriculture and Technology (JKUAT), both found in Kenya; University of Zambia (UNZA) and Mulungushi University (MU), both found in Zambia, Gulu University (GU) and Bishop Stuart University (BSU), both in Uganda. The project entitled *“Innovative learning and co-creation of teaching methodology for scaling entrepreneurship in food and agribusiness in Sub-Saharan Africa”* (AgriSCALE), was granted a no-cost extension up to March, 2024, due to the disturbances that occurred in project implementation as a result of COVID 19, in 2020-2021.

AgriSCALE project aimed to create a new entrepreneurship learning ecosystem, based on Problem Based Learning (PBL) principles of student- centred and competence-based education, collaboration and networking with industry, societal partners and sharing knowledge through a community of practice.

During the first half of the project, there was a series of on-line trainings for staff of the partner countries to build capacity among the partners on the use of the Problem Based Learning (PBL) methodology in teaching, and to enable a review of Agriculture programs in the partner universities in Sub-Saharan Africa. The on-line training was offered by HAMK. At the end of the training, partners were expected to revise selected agriculture programs to integrate the PBL methodology in the reviewed programs, and a number of programs were revised in each university. In order to pilot the PBL methodology in teaching and learning, the AgriSCALE project designed activities known as Student Challenges. These activities were to be

identified by each partner university, at least two for each partner, for students to investigate a ‘challenge’ proposed by a private sector/industry company, together with their teacher/lecturers as mentors. With at least one challenge in a university, the students of partner universities would get an opportunity to investigate the same challenge with the host university.

1.2 Background of PBL Bio-Africa

The PBL Bio-Africa was implemented between September, 2020 – August, 2024. The consortium of partners implementing the project included three universities from Kenya (Egerton University, the University of Nairobi, and South Eastern Kenya University), two from Zambia (Mulungushi University, and the University of Zambia), and two HEIs from Finland (Aalto University and Häme University of Applied Sciences, as the lead partner). The project entitled “*Problem Based Learning Bioeconomy Entrepreneurship and Capacity Building Program in Africa*” (PBL Bio-Africa) was aimed at establishing an entrepreneurship and innovation ecosystem in the agricultural programs of African HEIs with particular emphasis on , introducing climate smart agricultural (CSA) as the guiding principle of business development that would help Kenya and Zambia to address global sustainability challenges both by adapting agriculture to changing climatic conditions, and reducing the use of non-renewable resources, promoting entrepreneurial innovativeness along agricultural value chains in order to address ongoing job creation crises, and recognising the role and potential of women in bio-entrepreneurship towards economic development and towards achieving gender equality.

PBL Bio-Africa recognized that by integrating the complexity of real-world problems through problem-based-learning (PBL) into curricula at partner HEIs, students would develop the problem solving and critical thinking skills upon which entrepreneurial decision-making would rest, and that through ODL quality education would be available for large student numbers in HEIs and agro-communities. It specifically focussed on the development of teaching modules and content for ODL courses aimed at a wider set of beneficiaries, while enhancing the pedagogical skills of faculty to embed student-centered PBL methods into both ODL contents and f2f teaching activities. The project had the following key outputs:

1. Improved HEI capacity to provide climate-smart bio-entrepreneurship education with problem-based learning (PBL) methodologies through open distance learning (ODL) formats and open education resources (OER);
2. Enhanced quality of climate-smart bio-entrepreneurship education through student-centred teaching that leverages PBL-methodologies;
3. Strengthened network-based learning ecosystem with academia, societal/industry partners and education governance;
4. Strengthened HEI capacity to further contextualize and develop curricula, pedagogical methodology and learning ecosystems through national and international partnerships.

In PBL Bio-Africa, HAMK and Aalto, with extensive expertise in entrepreneurship and business development, facilitated methodology and institutional capacity development and led the monitoring & evaluation process. Egerton University (EGU) and the University of Nairobi (UoN) were the Southern resource universities with experience on PBL, ODL and industry collaboration. Finnish funded private sector development programme (AGS) in Zambia would strengthen industry-academia partnership building while the Finnish HEI’s network UniPID provided expertise in ODL quality assurance.

AgriSCALE and PBL Bio-Africa have as their unifying factor, Problem Based Learning (PBL); an effective methodology that would bind together the outputs of both projects. At the end of the two projects therefore, there will be need to consolidate the achievements of the projects from their respective outputs. In order to achieve wide transformative change across SSA countries, there will be need for a rapid deployment of the adaptation of agro-entrepreneurship curricula to HEIs as well as non-formal and life-long education to reach entrepreneurs and practitioners. Curriculum content will need to be backed by a renewed teaching practice focused on students' skills development (team work, project management, critical thinking, problem-based analysis, as well as business development skills). This transition from traditional teaching paradigms is highly appreciated by faculty and students alike in African universities, as has been evident in the outcomes of both projects. It is therefore important that the PBL teaching practice is scaled up and the transfer of pedagogical skills takes place within the partner institutions of the two projects, as well as spreading to other HEIs that did not participate in these two interventions. The PBL Practitioners Network is a timely initiative to consolidate the achievements of both interventions, and ensure their sustainability in Africa.

1.2 RATIONAL AND PURPOSE

1. The network acts as a sustainability strategy to continue the implementation of the mandate of AgriSCALE in PBL BioAfrica projects namely; pedagogy capacity building, curricula review/development and enhancing entrepreneurial mind set of graduates
2. SSA universities are transitioning to CBC but are limited in terms of lecturer skills and knowledge in PBL and CBC
3. There has been an advocacy to incorporate PBL in SSA HEIs.

Why PBL?

Students study well by doing as they discover their environment. In this regard, learners should be presented with meaningful activities. Learners should be motivated to something in the process of learning rather than only just learning something. PBL enables learners to create their own knowledge and also be in position to collaboratively use their skills for realization of lesson objectives. PBL posits that since learners have the ability to develop their own understanding via negotiation inside their social setting, teachers/lecturers thus do not need to transfer knowledge from themselves to the learners. The teachers/lecturers are therefore, considered to be facilitators rather than an instructor during teaching and learning process. This is due to the following;

1) Development of Long-Term Knowledge Retention

Students who participate in problem-based learning activities can improve their abilities to retain and recall information. Elaboration of knowledge at the time of learning through sharing facts and ideas during discussions and answering of questions enhances subsequent retrieval. This form of elaborating reinforces understanding of subject matter, making it easier to remember.

2) Use of Diverse Instruction Types

PBL enables a teacher/lecturer to meet the diverse learning needs and styles of his/her students. Eventually a teacher is able to effectively engage a diverse classroom in the process. With this, students are able to;

- Address real-life issues that require real-life solutions, appealing to students who struggle to grasp abstract concepts
- Participate in small-groups and large-groups learning, helping students who don't excel in case of grasping new material in case of individual work.
- Talk about their ideas and challenge each other in a constructive manner, giving participatory learners an avenue to excel.
- Tackle a problem using a range of content provided by a teacher such as videos, audio recordings, news articles and other applicable material thereby allowing a lesson to appeal to distinct learning styles

3) Continuous engagement

Providing a problem-based learning challenge can engage students by acting as a break from normal lessons and common exercises. It's not hard to see the potential for engagement, as students collaborate to solve real-world problems that directly affect or heavily interest them. PBL increases students' attendance and creates better attitudes towards courses that feature problem-based learning activities.

4) Development of Transferable skills

Problem-based learning helps students to develop skills that they can transfer to real-world scenarios. The tangible contexts and consequences presented in a problem-based learning activity allow learning to become more profound and durable. As a teacher/lecturer presents lessons through these real-life scenarios, students are able to apply learnings if they eventually face similar issues. For example, if they work together to address a dispute within the school, they may develop lifelong skills related to negotiation and communicating their thoughts with others.

5) Improvement in teamwork and personal skills

Successful completion of a problem-based learning challenge hinges on interaction and communication, meaning students are also able to build transferable skills based on teamwork and collaboration. Instead of memorizing facts, they get chances to present their ideas to a group, defending and revising them when needed.

1.3 POLICY ENVIRONMENT AND LEGAL FRAMEWORK

The PBL-Net Africa is aligned to the SDGs. The network contributes to the achieving of the following SDGs; SDG 4-Quality Education, SDG 8-Decent work and Economic growth, SDG 9- Industry, Innovation and Infrastructure.

In SSA Higher Education policy and legal frameworks provide for the promotion of an integrated and labour market-driven higher education and training at all learning outlets. The framework provides for the recognition of prior learning, a mechanism of credit accumulation and transfer, equating of national and foreign qualifications and a platform for understanding higher education qualifications generally.

There are laws in SSA which recognize problem based Learning among HEI through Competence based assessment. It provides an opportunity where every student has to participate in and take charge of their own learning. The frame work encourages students to use critical thinking and reasoning skills to infer the meaning to the content. This makes learning extremely valid for the learners as they link it to the real world. Stakeholders should also support HEI in Implementing PBL.

The importance of PBL in HEI cannot be ignored because it is a form of active learning that leads students to develop key skills and abilities through collaboration, communication, problem solving, confidence, leadership, and more—that will prove invaluable professionally and personally. This strategy is also intended to provide guidance to policy makers and stakeholders in research and documentation of best practices related to PBL.

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1.4 SWOT ANALYSIS

<p>Strength</p> <ul style="list-style-type: none"> • The partners for AgriSCALE (The existing relationship already created between the partners is a key strength. • The already developed an operating website by partner institutions • The trained staff of different partner institutions • Existence of PBL modules to guide the process • PBL is a tested and proven methodology for achieving employability and productivity • Buy-in from institutional management, partner Institutions, academicians and communities. • A noticeable increase in numbers of students participating in the challenges • Program experiences; trained teachers in education faculties 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Rigid tendencies/ practices which promote traditional approach to teaching and learning. • Mind set change • Inadequate coordination of PBL network, its programs, approaches and activities. • Inadequate implementation of the proposed M&E framework (data collection tools and indicators) • Inadequately funded programs in the education sector at national level specifically targeting PBL.
<p>Opportunities</p> <ul style="list-style-type: none"> • Global movements on adopting PBL • Global movements and the supportive policies. For example, the direction the government of Kenya and Uganda has taken currently on CBC (the supportive national level policies). The same is being adopted in Zambia starting from secondary education and this will subsequently affect the universities. • HEI Willingness to adopt PBL • Acceptance and support from policy institutions. 	<p>Threats</p> <ul style="list-style-type: none"> • Group dynamics issues compromise its effectiveness. • Insufficient resources to support PBL programs, approaches and activities. • Limited budget in HEIs making it difficult for some PBL activities to be done. • Limited laws about implementation of PBL in HEI. • Insufficient skills for implementing PBL in HEIs. • Absence of PBL education and training in Industries/ communities. • Lack of dissemination, interpretation and awareness creation among non-partner HEIs. • The introduction of Artificial Intelligence, marrying coordination with group

	<p>dynamics, marrying implementation with coordination, the existence of funding.</p> <ul style="list-style-type: none"> • Most of the activities will be online and follow-ups may be a challenge.
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1.5 VISION

A leading network in pedagogical transformation of HEIs.

1.6 MISSION

To promote and facilitate training, research and innovation in HEIs for sustainable development.

1.7 GOAL

The goal of PBL is to help students to develop flexible knowledge and problem-solving skills through effective collaboration skills.

1.8 OBJECTIVES

Objective 1: To build capacity of faculty members

Activities

1. Development of the training course in PBL
2. Professional Training and certification of the faculty on PBL
3. Conducting webinars/ workshops/seminars online or physical

Objective 2: To create awareness about PBL in HEI

1. Sensitize staff and students on PBL through lectures posters brochures, staff meetings etc

Objective 3: To support the review of curricula

1. Developing the guidelines for review process
2. Reviewing the curricula

Objective 4: To engage policy makers at National and Regional levels

1. Hold policy dialogues on PBL
2. Developing communication materials e.g. policy briefs

Objective 5: Resource mobilization strategies

1. Individual contributions – Annually
2. Donor funds
3. Institutional contributions
4. Participation fees
5. Others

1.9 THE GUIDING PRINCIPLES

- 1) Active partner participation including students, lectures and management in planning, programming and implementation of PBL

- 2) Respect for human rights while reflecting on dominance.
- 3) Gender responsiveness.
- 4) Integrated and sustained delivery of PBL Curricula
- 5) Use of multi sectoral approach, partnerships and networks
- 6) Effective engagement with industry
- 7) Effective leadership and accountability.

1.10 TARGET GROUPS

The target groups, for this strategy will include:

- 1) High Education Institutions
- 2) Students
- 3) Industry

1.11 PRIORITY AREAS

This strategy focuses on the following areas

- 1) Policy and legal framework
- 2) Integrated problem-based learning
- 3) Capacity Building

1.12 STRATEGIC DIRECTIONS/WORK PACKAGES

Strategy 1: To build capacity of faculty members

Capacity building in PBL is a prerequisite for increasing demand and utilization PBL by Students, lecturers and Industry.

Activities

1. Development of the training course in PBL
2. Professional Training and certification of the faculty on PBL
3. Conducting webinars/ workshops/seminars online or physical
4. Updating and disseminating relevant guidelines and standards that relate to including PBL in curricula.
5. Integrating technology, such as zoom links to address logistical challenges and provide convenient access.
6. Influencing positive attitude change of some lecturers to deliver PBL activities.
7. Supervision, mentorship and management of programs and resources for PBL in HEIs.
8. Supporting infrastructural needs that are relevant to the delivery PBL activities

Strategy 2: To create awareness about PBL in HEI

Activities

1. Sensitizing staff and students on PBL through lectures posters brochures, staff meetings etc

Strategy 3: To support the review of curricula

Activities

1. Developing the guidelines for review process

2. Reviewing the curricula

Strategy 4: To engage policy makers at National and Regional levels

Activities

1. Hold policy dialogues on PBL
2. Developing communication materials e.g. policy briefs

Strategy 5: Resource mobilization strategies

The main purpose of advocacy will be to influence legislation, policies, programmes and strategies to promote the inclusion of PBL in curricula review and development. Successful advocacy outcomes will include increased allocation of resources, enabling environment and development of supportive policies to achieve the Network objectives.

Activities

1. Exploring options for securing targeted funding for programs and interventions focusing on the Network and PBL activities.
2. Appropriately packaging information on the Network and PBL to create awareness amongst various stakeholders.
3. Working with different media channels and settings to propagate and disseminate information on the benefits of the Network and adopting PBL in curricula in HEIs.
4. Working with industries/communities in a well-coordinated manner to stimulate the necessary critical consciousness of the Network and PBL activities.
5. Influencing the Education, political, legal, and socio-economic environment to support programs that aim at adopting and enhancing the Network and PBL in HEIs.
6. Integrating messages that address the growing need/benefit of the Network and including PBL in curricula review and development.
7. Developing an advocacy, communication, strategy for students' involvement,

2.0 INSTITUTION/IMPLEMENTATION FRAMEWORK

The institutional implementation framework provides a detailed mechanism in which processes and interventions will be implemented using existing structures with the Ministry of Education and Sports and National Council for Higher Education as the lead agencies. This framework will be used by different HEIs, Students, industries/communities and other partners in guiding and promoting the Network and PBL.

2.1 Institutional framework for implementation

Stakeholder	Specific Role
<ul style="list-style-type: none">• Ministries of education	<ul style="list-style-type: none">• Integrate new strategies to national systems.• Set policy direction for implementing and overseeing activities.
<ul style="list-style-type: none">• Regulatory bodies	<ul style="list-style-type: none">• To regulate, supervise, accredit, certify, approve new/ updated curricula.

<p>Includes: Kenya National Qualification Authority, National Curricula development Centre, Higher Education Authority</p>	
<ul style="list-style-type: none"> • Educational institutions Incl. Higher and lower education 	<ul style="list-style-type: none"> • Implement Problem Based Learning method. • University management to provide support and institutionalise the programs of the network. • Build partnerships amongst stakeholders to support the mobilization and involvement of all staff in successful implementation of PBL. • Mobilize and advocate for increased resource allocation for promoting PBL activities with their respective institutions. • Empower staff to embrace PBL in curricular development and review process • Formulate policies that address the inclusion and implementation of PBL in curricula. • Mobilise and allocate adequate resources for the implementation of PBL activities • Plan, coordinate and implement programs which promote PBL in different Faculties/schools • Resource mobilisation and allocation for the network and PBL activities • Support networks, expand coverage and scope of PBL through promoting collaboration with industry.
<ul style="list-style-type: none"> • Institutional management 	<ul style="list-style-type: none"> • Provide support and institutionalize the activities of the network. • Formulating policies to support the implementation.
<ul style="list-style-type: none"> • Trainers <p>Teacher Service Commission Kenya Union of teachers</p>	<ul style="list-style-type: none"> • Deliver the PBL training. • Support curricula development and review.
<ul style="list-style-type: none"> • Students (represented by Student Association) 	<ul style="list-style-type: none"> • Provide insights to course development. • Serve as linkage between the industry and higher education institutes.
<ul style="list-style-type: none"> • Industry <p>Includes: private and public industries, NGOs, Organisations, Cooperatives etc.</p>	<ul style="list-style-type: none"> • Support universities in implementing PBL. • Provide universities with the required competences in work life.

<ul style="list-style-type: none"> • Media 	<ul style="list-style-type: none"> • Create awareness and publicity. • To support the dissemination of findings.
<p>Research Institutions</p>	<ul style="list-style-type: none"> • Carry out primary and secondary research on PBL activities and disseminate findings. • Provide technical assistance in assessments/surveys/evaluations related to PBL programs • Support capacity building for research on PBL amongst High Education institutions and within programmes • Conduct periodic evaluation to determine efficiency, effectiveness and relevance of programmes related to PBL.

THE ILLUSTRATIVE ORGANOGRAM



Advisory Board

Formed with representatives from RUFORUM, Ministries, Education Commission, Inter University Council. **Chairmanship rotated annually.**

Steering Committee

Formed with Regional representatives from country institutions
(decision making body)

Secretariat

Formed with Local Coordinators of PBL-BioAfrica & AgriSCALE projects, an Industry representative, a staff representative of member Institutions, a Student representative.

3.0 MEASURING PERFORMANCE

Categories	Number	Description	Method of measuring the indicator	Indicator	How often
Students	Number of programs reviewed	Assessing whether pedagogical aspects were included	Interviews	Survey results	Bi-annually or annually
			Surveys with staff/students		
	Number of students who have graduated from PBL programs		Surveys with students	Survey results	At the end of each course
	Number of staff and students who participated in PBL programs/courses	Cross-institutional review/ evaluation	Surveys with staff/students	Survey results	Annually
Staff (profs, lecturers, mentors, admin personnel)	Number of staff that has been trained in PBL methodology	Inner institutional review of training faculty and staff	Workshops and surveys	Workshop and survey results	Annually
	Number of exchanged faculty	Assessing cross-institutional PBL methodology and training	Workshops and interviews	Interviews and workshops	Annually
	Number of faculty/school implementing PBL methodology	Chairs of Departments providing input	Workshops with Chairpersons of the Departments	Workshops	Annually
	CUE				
Community/ local stakeholders					
	Industries involved		Number of MoUs		
	Regulatory bodies involved		Number of MoUs		
	Communities that are part of the student challenges				

4.0 IMPLEMENTATION PLAN

Activities	Indicator	targets	Responsible agents	Source of funding	Y R 1	Y R 2	Y R 3	Y R 4	Y R 5
Capacity building of faculty members Activities -Development of the training course in PBL -Professional Training and certification of the faculty on PBL -Conducting webinars/ workshops/seminars online or physical	Number of staff trained Training Manuals developed Number of webinars/ workshops/seminars online or physical meetings held	3 years per Institution	Secretariat Partner Institutions	Individual contributions – Annually -Donor funds -Institutional contributions Participation fees Others					
Creating awareness about PBL in HEI -Sensitize staff and students on PBL through lectures posters brochures, staff meetings etc	Number of staff sensitized Number of Industries involved	3 years per Institution	Secretariat Partner Institutions Media	Individual contributions – Annually -Donor funds -Institutional contributions Participation fees Others					
Supporting the review of curricula -Developing the guidelines for review process -Reviewing the curricula	Number of programs reviewed/developed A copy of the guidelines	5 years per Institution	Secretariat Partner Institutions Media	Individual contributions – Annually -Donor funds -Institutional contributions Participation fees Others					
Engaging policy makers at National and Regional levels -Hold policy dialogues on PBL -Developing communication materials e.g. policy briefs	Number of policy dialogues held Communication materials developed	3 years per Institution	Secretariat Partner Institutions Media	Individual contributions – Annually -Donor funds -Institutional contributions Participation fees Others					

Mobilizing resources for the network	No of individuals subscribed No of institutions subscribed Amount of donor funds received No of proposals developed No of proposals funded Amount of participation fees received	10 per year per institution	The secretariat	-Individual contributions – Annually -Donor funds -Institutional contributions Participation fees Others					