Co-funded by the
Erasmus+ Programme
of the European Union

Project Title

Curriculum Development for Sustainable Seafood and Nutrition Security

Project Acronym

SSNS

Deliverable 2.4: Description of methodologies and Tools

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August 2019

Funding details:

Education, Audio-Visual and Culture Executive Agency
Erasmus+: Higher Education – International Capacity Building
KA2: Cooperation for innovation and the exchange of good practices – Capacity building in the field of Higher Education
Agreement Number: 2018 – 0028 / 001 - 001
Project Number: 585924-EPP-1-2017-1-TH-EPPKA2-CBHE-JP

Support:

Co-funded by the Erasmus+ programme of the European Union

Deliverable details:

Due date of Deliverable: 30-06-2018
Actual submission date: 30-03-2019

Start date of project: 15 - 10 - 2017 Duration: 3 years
Organisation name of lead contractor for this deliverable: University of Thessaly

Dissemination level		
☒ Department / Faculty	☐ Local	☐ National
☒ Institution	☐ Regional	☐ International

Disclaimer:

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Training Methodologies and Tools

1. Background

Training of university lecturers is an important part (WP3) of the project, "Curriculum Development for Sustainable Seafood and Nutrition Security (SSNS). The project team has designed the project realizing the problem that aquaculture/Fisheries programs are suffering from low enrolment when more experts and skilful workforce is needed to fulfil the human resource need for seafood industry, which is growing rapidly and often encountering several problems. The project has raised several issues of academic institutions, especially in the field of aquaculture and fisheries, behind not being enough attraction among students. For examples, weak curricula, boring traditional teaching learning methods applied mainly depending on class lectures, and most important is untrained teachers with limited knowledge and skills in student centred teaching/learning. Realizing the special need for the capacity development of universities and lecturers, SSNS project is engaging 54 lecturers from Indonesia, Thailand and Vietnam, and about 25 lecturers from Europe in this initiative. As a part of the curriculum development and capacity development process, two study visits and workshops were organized in Europe; namely, NTNU, Norway and University of Stirling, UK where they have learned how teaching learning has been made effective and how they have been attractive among the students from around the world. Each of the Asian university lectures has developed a new course for their MSc degree curriculum, and also a vocational education-training (VET) course. They need to deliver the courses differently and more effectively than before so that their curricula or courses attract more students and trainees. The project has a plan (WP3) to assist them while they are on-the-job in their own countries. This document has been produced outlining the methods and tools for the training the teachers.

2. Training goal and objectives

The goal of the training program is to contribute to achieve sustainability of seafood industry by building the capacity of universities and the lecturers with the aim of attracting more and smarter students

The main objective is to develop competent human resource required for maintaining the sustainability of seafood industry for nutrition security

Specific objectives of the training is to assist lecturers in:

- Aligning the learning outcomes with the needs of the industry
- Making proper plans for effective teaching
- Developing and practicing new skills in teaching
- Making the teaching and learning more effective and attractive
- Making use of new techniques for old skills
- Engaging more students in teaching and learning
- Linking academia with industry
- Utilizing experience of industry professionals in teaching learning process
- Making classrooms, labs and field better and safer places for learning
- A fair and equal workplace free of discrimination and harassment

3. Introduction to training

3.1 Importance of training

- We remember 20% of what we hear.
- We remember 30% of what we see.
- We remember 50 % of what we see and hear .
- We remember 90 % of what we say and do.
- We remember 100% (SURE?) of what we pass on to others.

3.2 Teaching skills

- 1-Language Skills (Listening-Speaking-Reading-Writing)
- 2-Teacher's Skills (Guiding, interviewing, Dialoguing, Observation)
- 3-Learner's Skills (Interactivity, Participation, Pair work, peer work, acting, elicitation, Group work, Dialoguing, Practice, Analysis, Synthesis, Evaluation, imagination, Exploration and Discovery)
- 4-Communication skills.

3.3 Teachers skills

Teachers are the special and respectful group in the community. They play important role to shape the society. They need the following skills:

- Artistic
- Classroom Organization
- Classroom Management
- Coaching
- Collaboration
- Communication
- Community Building
- Computer
- Conduct Testing
- Confidence Building
- Creating Assignments
- Creating a Comfortable Learning Environment
- Creating Exams
- Create a Positive Learning Environment
- Creating New Ideas
- Critical Thinking
- Curriculum Knowledge
- Delivery of Material
- Develop Lesson Plans
- Directing
- Disciplinary Action
- Education Plans
- Enthusiastic
- Evaluate Performance
- Extracurricular Activities
- Flexibility
- Grading Exams
- Group Counselling
- Improve Study Habits

- Individual Counselling
- Instruction
- Interpersonal
- Leadership
- Lesson Plans
- Listener
- Love of Learning
- Maintain Records
- Manage Student Behavior
- Management
- Microsoft Office
- Networking
- Organization
- Parent Communications
- Patience
- Passion
- Planning
- Positive Attitude
- Positive Role Model
- Prepared
- Professional
- Preparing Lessons
- Provide Student Support Services
- Public Relations
- Record Keeping
- Relationship Building
- Respectful
- Results Oriented
- Setting Expectations
- Setting Goals
- Scheduling
- Supervision
- Supportive
- Teaching
- Team Player
- Technology
- Time Management
- Training
- Understanding
- Verbal Communication
- Writing Lesson Plans
- Writing Reports

3.4 Training plan – schedule – period, time etc.

Training Plan has to identify the appropriate training strategies and activities required to achieve the desired learning outcome. The Training Plan has to provide a clear understanding of what must be done to meet the training requirements that have been defined, thus, end-users receive training in the knowledge, skills, and/or abilities that are required to meet the learning outcome. The audience of the training has to be defined, e.g. full time or part-time master students, aquaculture sector employees etc. The objectives and the scope of the

provided training have to be outlined in order to reach the desirable appropriate level of required skills. A training plan has to deal with the training methods, infrastructure, materials, schedule and curriculum. Additionally, training roles and responsibilities have to be described. Finally, evaluation of training effectiveness and the required budget are necessary.
For SSNS project, each Asian HEIs would be preferable to develop its own training plan according to its capabilities and trainees.

3.5 Pedagogy

As known, the dynamics and the complexity of the changes in Higher Education (HE) have a major impact on knowledge and on pedagogic practices, which, in turn, can affect in a recursive way the all system, systemically expanding the horizon of learning possibilities (Koretsky et al. 2018).

Pedagogy is a student-focused teaching approach. It is the art and science of helping students how to learn. It is the discipline that deals with the theory and practice of education and thus it concerns the study and practice of how best to teach. Its aims range from the general (full development of the human being via liberal education) to the narrower specifics of vocational education (the imparting and acquisition of specific skills). It is the method and practice of teaching, especially as an academic subject or theoretical concept: the relationship between applied linguistics and language pedagogy. With pedagogy, the learner is a dependent personality. The teacher determines what, when and how anything is learned. The learner gas few resources. The teacher devises transmission techniques to store knowledge in the learner's heart.
Discussions about pedagogy have never been as important as today. Bologna changes have put the focus on student-centered learning (on students experiences and interests) and on the outcomes of the learning process (development of competences and capabilities), rather than the teaching and curricular contents. The complexity of the societal transformations demands the construction of new meanings for HE and in this context transform pedagogy in HE is an inevitable need. There is a need to transform pedagogy in order to promote transformative learning. A set of transdisciplinary principles has to be taken into account in order to create transformative pedagogic practices in HE: intentionality, transparence, coherence, relevancy, reflexivity, democraticity, self-regulation and creativity/innovation.
Stating that the pedagogic dimensions are not always present in the globalized discourse on the learning arena, Ryan & Tilbury (2013) also argue the need for renewal of student and teachers approaches, specifically highlighting its potential for democratic and emancipatory purposes. In this sense, they articulate pedagogic innovation with flexibility in HE, exploring the possibilities given by Information and Communication Technologies, crossing boundaries within a systemic and integrative perspective.

3.6 Training topics

The training topics of a training course have to be defined according to the training scope and objectives. The topics must be suitable for the training purpose and has to take into account all the current and future trends to provide high level training into the field. The training topics have to be not only theoretical but also have to contain and practical training through laboratory or filed work.

3.7 Language

Language of training should be in English as the programme, not in local languages only.

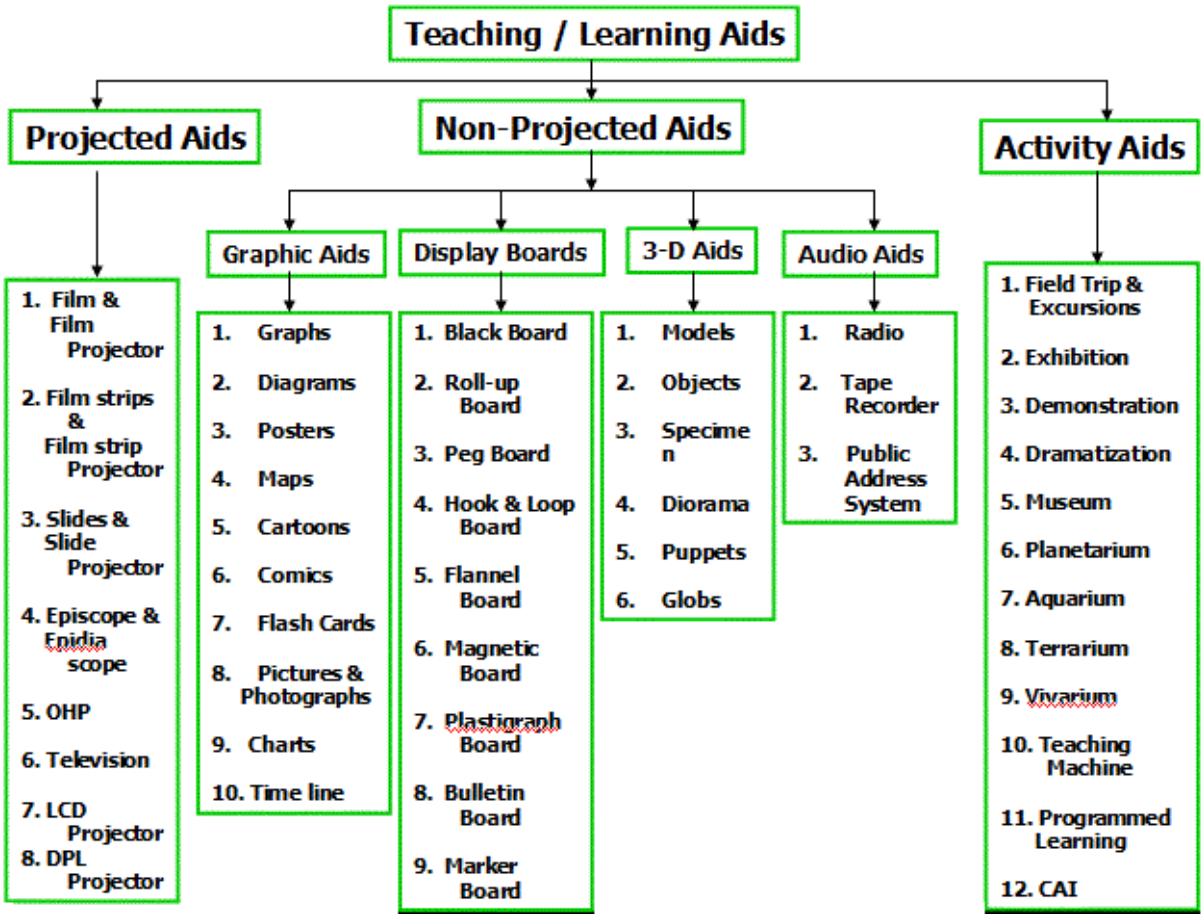
3.8 Compliance – any live animals needed to kill/use?

The use of live animals required for the purpose of training has to comply with the Legislation, Ethical considerations and Code of Practices to ensure animal well-being and humanitarian treatment. Apart from the appropriate handling and use of animals, it has to be ensured that they are kept and used for experimental purposes only when it is necessary and important reasons for doing so and ensure that a minimum number of animals are used and that the use of animals for experimental purposes causes the least possible amount of pain, suffering, distress or lasting harm.

3.9 Materials needed e.g. computers, LCD, white paper etc.

The infrastructure requirements have to be described in training plan. For lecturing, instructor computer attached to a project and a projection screen might be enough, while for laboratory practicals the required resources have to be defined in a way that all the participants will receive an appropriate level of training.

3.10 Budget / expenses



4. Training methodologies

4.1 Remote

Remote training requires a particular kind of preparation and execution. The dynamics of teaching and learning change when trainer and trainee aren't in the same room, and with the rise of e-learning, it's only happening more. If trainees are spread out in different locations, things get even more complicated. These are some guidelines for trainers looking to optimize the training of remote trainees.

Connect with remote trainees

Just because your trainees are far afield doesn't remove the value of getting to know them — it just makes it more challenging. But it's a challenge that can be overcome.

- **Set course requirements in advance**. In the spirit of prerequisite classes in the academic world, ascertain beforehand if all the trainees are prepared for the level of training you are about to provide.
- **Use email notifications**, invitations, and reminders to make sure participants remember and plan for training time.
- **Get to know students outside or before the course**. Class introductions have value as more than just ice-breakers. Consider setting up a blog page where trainees can interact before the course starts. Learn personal details that might stimulate discussion later, like where everyone is located or what they like to be called.

Master remote training technologies

Trainees expect the trainer to know what they're talking about, and that includes knowing how to use the technology used to present the training.

- **Only 45 minutes of every hour will go to instruction**. Establish a target pace for the presentation — one to three minutes per slide is a common threshold. Question-and-answer periods can happen during breaks or at the end. Include only 45 minutes of slides per hour of training time. The remaining 15 minutes will disappear into class-management time, breaks, Q-and-As, and other class "overhead."
- **Familiarize yourself with tools and commands**. Make a few practice runs on the same equipment you intend to use during the training, and familiarize yourself with how to control the volume or post questions. It may be your last chance to notice problems like technology incompatibility or bandwidth troubles.
- **Be mindful of students' technology needs**. Likewise, make sure trainees have the right equipment to participate fully. A list of requirements should be included in the earliest communications, so there's time to plan workarounds before sessions begin.

Use presentation best practices

The standards of organization and behavior for delivering PowerPoint presentations applies to remote trainings, so familiarize yourself with some of the presentation sins to avoid. Beyond that, here are a few simple guidelines:

- **Move it along**. If you have a slide that can't be read in its entirety in 15 seconds (from the back of the room), or explained in a minute, then it's time to break that point into several slides.
- **Keep it lively**. Savvy trainers mix things up by changing the content, altering their voice, or including audio or video for a change of pace. If you use slide transition animations, consider throwing a new one in here and there.

- **Use a variety of tools**. PowerPoint has become the technological standard for delivering presentations, but don't get stuck in a rut of one textual slide after another. Consider using quizzes during breaks, even if only for the trainees to get a review of the material.

Use educational best practices

Among the volume of literature on what constitutes effective teaching and training, a few techniques are particularly important when dealing with trainees who aren't in the same room:

- **Telegraph your actions**. Provide a clear outline of the course flow before starting. Continually remind trainees where they are within the course outline. Alert them when break times or question and answer periods are only a few slides away.
- **Make it interactive**. Penalizing students for non-participation can be an effective technique. This is also a good time to call on the familiarity with trainees that was gained by learning more about them at the start of the course. Phrase questions in specific ways so they actually relate to an individual's experience.
- **Use answers to stimulate discussion**. Use trainee responses as the jumping-off point for broader discussion. So long as you can remain within time limits, creating discussion in this way gets students involved, creates ways for them to learn from each other, and helps the time pass more productively.

Remote training promises to add flexibility to training programs while reducing costs, but doing it effectively requires adopting some new techniques. With a little practice, remote training may become as comfortable as having everyone in the room.

For SSNS project, the remote method will be used before and after the field visits to Asian HEIs using VLE platform/e-Learning, online/webinar, Skype or other methods whenever necessary.

4.2 Face-to-face

One of the main ways in which SSNS will build capacity in the Asian partner HEIs is through the professional development of their academic and administrative staff. Professional development opportunities are often limited in higher education institutions (also in the EU) and via this project, professors will be given the opportunity to meet other peers in their field, in different countries. By working together in international consortia, professors will be exposed to different perspectives and gain new insights into their subject. Training face-to-face will allow professors from Asia to work together with leading experts in their field from Europe, update their skills and knowledge and be ready for the delivery of the new MSc programme in their respective Universities.

This activity will involve, intensive one-week training courses for both teaching staff intended to deliver the academic programme and administrative staff intended to manage the programme. All the participating lecturers will gather in one place for training, and experts from Europe will provide teacher's training during the workshop. One-week training courses will be held in Thailand (September 2019), Vietnam (November 2019) and Indonesia (December 2019). Two committees involving EU and Asian Countries partners will be established to engage in the development of concise training material, which will be based on the curriculum and material already developed in WP2 and combine them with short sections on innovative teaching and learning methods, student assessment methods, research methods and effective class management.

4.3 Lecture

Like a seminar, the lecture is taught at a big technologically equipped teaching hall. The attendants are big in number. The topic is presented through a data show screen, a projector and a computer. The time usually is from 1 to 2 hours. It is followed by the attendants' questions and comments. Preparing a lecture in advance allows you time to research valuable resources, such as academic articles, educational videos etc.
The teacher should try to vary the intonation (pitch and tone) of his/her voice. No matter how interesting are the contents, a monotone voice will make students unwilling to watch the lecture. Some tips are to be conversational in tone, use humour, since students are more motivated when they're having fun. One of the most effective tools a lecturer has at their disposal and which ensures interaction, is to ask and encourage questions. Questions can be used as a plenary, can stimulate interaction throughout the lecture and can be used to re-visit content at the end. An interactive lecture is one that includes and encourages student participation. Using techniques that encourage all students to contribute, helps to promote student retention and learning of the content presented during lecture. Some technological resources are very helpful such as Power-Point, which is great for summarizing key points and presenting visual stimulus. Educational videos are both engaging and informative. Finally, Virtual Learning Environments such as Moodle are great for ensuring that the students continue to be engaged with the content after the lectures have ended.
The end of the lecture is a good time to collect a feedback. By ending your lectures well you have given students the chance to 'come full circle' by providing a: positive start, purposeful middle and reflective end, all of which are key ingredients when creating a dynamic lecture. Questioning students about their opinion about the lecture/educational video etc. provides a valuable feedback that you can use to inform future planning.

4.4 Workshop

The word work in workshop indicates that participants need to do work rather than just receive ideas and information as they scribble in their notebooks. A workshop should be a platform to engage the audience in activities and provide opportunities to share ideas and experiences with one another. The topic is presented through a data show screen, a projector and a computer. The time is from from 1 to 2 hours. The topic content is taught and implemented through group work. It is followed by the attendants' questions, comments and a written report.
At the initial phase, we will be using this for group of teachers.

4.4 On-the-job training

Academic institutions are faced with challenges particularly on the skills they produced which do not match the needs of the industry. A significant number of graduates today are unable to fill the job openings due to job-skill mismatch. A great number of these skills found lacking by companies are taught in the academe that is, technical, human resource and conceptual skills. In addition to that, these same skills can also be reinforced through on-the-job training programs. On-the-job training (OJT) programs are course requirements providing an opportunity to apply the theories, principles and ideas learned in the academe under supervision. These training programs expose the students to work realities which will ideally hone their skills and prepare them once they get out of the university or college. Achievement

of the OJT program objectives ensures the possibility of good performer graduates. The opposite will most likely produce poor performer graduates thus, promoting job-skill mismatch. Hence, on-the-job training programs, vital as it is, should be dynamic and skill centered for the students to effectively grasp the practical learning in the workplace.

For SSNS project, the OJT will be used after workshops held in Asian HEIs with teachers being asked to teach students and the trainers will sit backside to observe and give comments and suggestions, discuss in-depth later.

4.5 Warm-activities

What is a warming up activity? According to Allwright (1984) warm up activities are designed to attract students' attention, to help them put aside distracting thoughts, and to get them ready to focus individually and as groups on whatever activities that follow. They will cause people to stop whatever they are doing or thinking and refocus their attention. We could say a warming up activity is a motivating starting point that will lead students to become animated to work efficiently in the language class.
Some specific aspects related to warm up activities could be: i) Breaking the monotony of learning, ii) Making the tasks more interesting and iii) Increasing the involvement of the students by Introduction and asking background what they know already about the topic, what they have learn in the last class and what do they expect to learn from the current class.

4.6 Mentoring

The term ‘mentor’ is used to describe a knowledgeable, experienced, and highly proficient teacher who works with and alongside a new teacher or less experienced colleague – quite closely at first but this gradually diminishes as the new teacher becomes more capable and confident. A mentor is not an instructor and the mentee is not a student; they are both colleagues. Mentors know a great deal about teaching and learning, students, parents and the school, which often leads to a kind of practical wisdom that can’t be printed in a book – this knowledge and know-how is invaluable to new teachers.
There are potentially many benefits of mentoring for both mentor and new teacher as well as benefits for the school, the system and the profession. Having opportunities to offer deep, practical knowledge, both pedagogical content and experience, can be a very rewarding and mutually beneficial aspect of effective mentoring. Other significant benefits include:

- an increase in the rate of professional growth, self-reflection and problem solving capacity for both mentor and new teacher
- an increase in confidence, self-esteem, morale and sense of identity
- opportunities for learning new skills, teaching strategies and communication techniques, including how to engage in rigorous evidence-informed conversations
- a greater sense of inclusion or reduced feelings of isolation
- opportunities for close collaboration, shared challenges and the sense of achievement that comes from successfully working through such challenges
- learning from frequent opportunities to talk about teaching and learning, students, strategies and successes as well as challenges
- opportunities to capture and analyse evidence of student learning, leading to professional insights for both the mentor and new teacher
- developing a sense of belonging, as a contributor to the school and its community.

4.7 Showing Videos

Students can watch an educational video for a specific topic e.g. about overfishing, about sustainability etc. After the video students can criticize and react to the content of the video. After watching the video, students can do a feedback, followed by a discussion by the teacher to measure their extent of understanding and responding.

4.8 Demonstration

Demonstration is an active learning technique targeting to eliminate misunderstandings of a specific topic. Interactive Lecture Demonstrations introduce a carefully scripted activity, creating a "time for telling" in a traditional lecture format. The activity can be a classroom experiment, a survey, a simulation, or an analysis of secondary data. Because the activity causes students to confront their prior understanding of a core concept, students are ready to learn in a follow-up lecture.
Unlike most other active learning techniques Interactive Lecture Demonstrations include three scripted steps without which students often revert to their initial incomplete or faulty understanding when they leave the classroom. These three steps require students to:

i) Predict

After the instructor describes the problem or shows the demonstration, students make a prediction about the result. In this step, students articulate their understanding, even if it is ill-formed or incorrect. Students explain their choice to a partner, changing their answers if they like. The instructor polls student answers without revealing which are correct.

ii) Experience

The demonstration can be a survey using student data, a simulation, an analysis of data from a secondary source, or a lab experiment. The demonstration may be conducted by the instructor in front of the class or by students in small groups.

iii) Reflect

After the demonstration, students record and report the results, identifying differences between what they predicted and what occurred in the demonstration. In the rush to end a class meeting, it may be tempting to skip the reflection step. However, research on learning shows that it is important for students to think explicitly about what they have learned, making connections to what they knew before, and identifying what specifically has changed in their thinking. Also, in order to understand a concept deeply, students need practice using it in a variety of contexts.

4.9 Assignments

Assignment is a task given to students by their teachers to be completed out of the class time. It is considered as one of the main pedagogical tools, in an attempt to improve the teaching efficiency by decreasing the lecturing time. Another reason is that students apart from learning something academically, they will also learn to plan out their work and learn to organize it neatly. In addition, the assignment could provide awareness and knowledge about a technical topic, improve the writing skills and enhance the planning and organizing abilities of the student.

4.10 Group discussions

Group discussion helps students to develop thinking skills and social interaction. Discussions can be used as an introduction to a lesson to get students into the proper mindset or compose an entire lesson. There are two types of discussion, whole-class and small-group. Whole-class discussion, is when the entire class is involved in a discussion on a particular topic. Instructors generally lead the discussion, but students can lead student-centered discussions in some cases. The instructor has to keep the group focused, not drift too far from the topic, and keep the discussion going in an organized and steady fashion.
The teacher's responsibilities include planning the discussion thoroughly, creating key questions to ask of the group to:
- keep the discussion goals within reach, keep the learners in mind when planning, know the issue well,
- provide an objective, create a "supportive classroom environment",
- correct incorrect discussions,
-show the relationship of facts and brought up during the exercise,
-and keep things interesting and light to avoid conflicts. Student responsibilities include: knowledge of the topic, respect others' opinions, and think about their own opinions.

4.11 Field visits

The use of educational field visits has long been a major part of the education programming for Higher Education. An educational field trip can be an integral part of the instructional program. Good field trips provide participants with first hand experience related to the topic or concept being discussed in the program. They provide unique opportunities for learning that are not available within the four walls of a classroom. An example of this would be a field visit to a fish farm. A trip such as this would allow participants to see first-hand the many principles of fish growth and management, disease control, and water quality monitoring discussed in the program. As with any type of educational program component, field trips should be designed around specific educational objectives. A field trip should be designed so participants can easily make connections between the focus of the field trip and the concepts they are learning in the rest of the educational program. Numerous research studies in science education have documented significant increases in participant factual knowledge and conceptual understanding after participation in well-planned field trips.

4.12 Laboratory methods

This method is one of the important methods of teaching science and it forms an integral part of effective science teaching. Under this method, teachers encourages the students to derive various scientific laws and principle on their own by getting personally involved in the experiment work.
Major Types of Laboratory Methods:

- Situation where students work in the laboratory: In this situation student’s work informally in pairs or groups where equipment cannot go around all students individually.
- Demonstration- is a process of presenting or establishing facts or principles. It is a procedure of doing or performing something in the presence of others or either as a means of showing them how to do it or illustrating a principle.

Major goals of laboratory works

- Teaching Manuals and Observational skills relevant to the subject

- Improving understanding methods of scientific inquiry
- Developing problem solving and doing by self skills.

Correct methods of teaching in laboratory:
- Self Preparation
- Right Explanation
- Starting Experiments
- Handling instruments
- Explaining observations
- Writing reports
- Lab safety

Advantages of Laboratory Method
- Students learn by doing and come in contact with raw data or materials in teaching learning process.
- Develops the power of observation and reasoning.
- Develops the scientific attitudes
- Gives an understanding of what research is and how to apply the scientific method
- Gives training in organizing data gathered from real materials object and how these objects are manipulated to attain the objectives.
- Since students come in contact with real life situations, it can be a preparation for solving real life problems

4.13 Role playing

Role play is a simulation in which each participant is given a role to play. Trainees are given with some information related to description of the role, concerns, objectives, responsibilities, emotions, etc. Then, a general description of the situation, and the problem that each one of them faces, is given. For instance, situation could be strike in factory, managing conflict, two parties in conflict, scheduling vacation days, etc. Once the participants read their role descriptions, they act out their roles by interacting with one another. Role Plays helps in
- Developing interpersonal skills and communication skills
- Conflict resolution
- Group decision making
- Developing insight into one's own behavior and its impact on others

There are various types of role plays, such as:
- Multiple Role Play. In this type of role play, all trainees are in groups, with each group acting out the role play simultaneously. After the role play, each group analyzes the interactions and identifies the learning points.
- Single Role Play. One group of participants plays the role for the rest, providing demonstrations of situation. Other participants observe the role play, analyze their interactions with one another and learn from the play.
- Role Rotation. It starts as a single role play. After the interaction of participants, the trainer will stop the role play and discuss what happened so far. Then the participants are asked to exchange characters. This method allows a variety of ways to approach the roles.
- Spontaneous Role Play. In this kind of role play, one of the trainees plays herself while the other trainees play people with whom the first participant interacted before.

4.14 Using games

A didactic game is construed as some sort of game where set rules are observed. It is an educating tool serving the didactic purpose. An important aspect of the game is to achieve a strictly defined score. Competences acquired when playing didactic games, e.g. persistence, critical thinking or readiness to run risk, facilitate the development of entrepreneurial attitudes. Examples of didactic games strengthening those competences are location-based games and strategic games.
A complex and multifaceted nature of teaching – learning requires a rich repertoire of teaching methods. The essence of modern understanding of methods is the evocation of action, development of thinking and creativity (Kruszewski 2005; Król 2007). Coping with risk, persistence and critical thinking are ones of many skills that we can develop using available teaching methods, which are frequently still seen as unconventional. Those are for instance didactic games.

4.15 Writing

As a learning tool, writing is valuable because it helps students think critically about the course material while encouraging them to grasp, organize, and integrate prior knowledge with new concepts. Furthermore, good communication skills are valuable assets both in and out of the classroom. When instructors provide students with opportunities to organize ideas and improve their ability to articulate those ideas, they contribute to both the education and professional development of their students.

Here are some examples of types of short writing activities to try out in class. They will most likely need to be customized to suit the needs of particular classes across campus. As well, instructors might want to consider various marking options to help ease the paper load. Consider, for instance, randomly or periodically collecting assignments from different students each week, using a check mark and minus sign or pass/fail system to let students know that their work is on the right track, or giving bonus marks for the satisfactory completion of certain assignments. In addition, length guidelines vary with each exercise; for some, a paragraph might suffice, while others could require a few pages of writing.

Writing to encourage active thinking and learning

Critical thinking problems are designed to convert students from passive to active learners who use course concepts to confront problems, gather and analyze data, prepare hypotheses, and formulate arguments. Most writing activities aim to promote the use of active critical thinking strategies on the part of students. To best obtain this goal, try assigning short, focussed problems that require thorough and innovative approaches to course material. When designing these activities, you might find it useful to use terms like formulate, develop, defend, appraise, criticize, judge, argue, determine, evaluate.

Writing to explore

The main goals for exploratory writing exercises are to clarify thinking, explore ideas, ask questions, reflect on learning, and search for connections between theory and practice. These exercises are not meant to refine and polish writing skills (at least, not directly). Rather, exploratory writing exercises value process over product. Make clear to students that issues of writing style and structure are secondary in these activities while evidence of in-depth and thoughtful engagement with course material is highly valued. When designing these activities, use terms like discuss, explore, imagine, propose, consider, contemplate, respond, reflect.

Writing to explain

These activities encourage critical thinking while, at the same time, they promote a thorough understanding of concepts through review and analysis. Exercises like these ask students to take on the role of instructor, making them search for ways to present course concepts so that they are clear and accessible. Not only do writing to explain exercises make students aware of context and audience concerns; they also require students to step outside the course material in order to see it more objectively. Fresh ideas and a deeper understanding often result from such distancing techniques. When designing these exercises, use terms like list, select, describe, define, tell, express, explain, reveal, summarize, identify.

4.16 Debating

Some scholars argue that lecture is an effective way of communicating the intrinsic interest of the subject matter (Cashin 1985, 54; Frederick 1999, 63). Others contend that lecture experiences are "boring, irrelevant, and not useful" (Renner 1995; Nandi et al. 1999). Debates, on the other hand, often generate a highly-engaged learning environment.
A kind of debate or conversation can be held among the learners themselves as a kind of integration that supports the method of active learning. This helps the learner to feel self-esteem and self confidence among learners themselves.

Lectures also do not excel in fostering the skills of application, analysis, and evaluation. In a lecture class, students are passive learners, engaged in extensive note-taking. This format of instruction enhances students' ability to memorize and reproduce the presented information directly without examining and analyzing it. Educational debate, on the other hand, can help students learn how to formulate clear, precise, and logical arguments. The latter is one of the most complex cognitive tasks as it requires research, analysis, synthesis, organization, and evaluation of information. In debates, students often invoke real-life examples to corroborate their theoretical arguments. Motivated to persuade the audience to their side, debaters can appeal to familiar practices to make their arguments relevant to students' lives.

4.17 Case studies

Experts describe this method as the teacher presenting a case (or story) to the class without a conclusion. Using prepared questions, the teacher then leads students through a discussion, allowing students to construct a conclusion for the case. Bring in case studies for students to read (for example, I will put a case example of a volcano). Have students discuss and analyze the case, applying, data, and the phenomena. They can work as individuals or in groups or do this as a (think-pair-share). Consider combining this with a brief in-class writing assignment.

4.18 Quiz method

Quick quizzes throughout the day can help teachers assess the effectiveness of their instruction, as well as student understanding of the concepts taught.

- **Determine what you want to learn from a quiz.**

The primary function of these frequent classroom quizzes is to evaluate student learning in relation to the teachers instructional methods. Using online quiz-making software can help significantly with that process. When selecting such software, be sure to choose one that allows you to easily track quiz takers and one that provides analytics, i.e. analyzes the results of the quiz and shows statistics and reports about those results.

- **Be sure quizzes are developed around content-related questions**

What you get out of your quizzes will be determined by the content-related questions asked. If you want to find out how well students have mastered the concept of figurative language, for example, dont ask them to rate themselves on how well they understand metaphors; ask a couple of quick questions about figurative language. Make sure to always include a very simple question and a more complex question to determine how well they' ve mastered the concept.

- **Evaluate quizzes, don't grade them**

Did your students pass or fail the quiz? That answer alone will measure student understanding and your teaching effectiveness, and allow you to see where you stand. Looking at the question(s) students answered incorrectly will help you determine where there might have been a gap in instruction, or where students became confused.

- **Create simple, easy-to-use quizzes**

You' ll get the most information from students if you dont bombard them with too many questions. Quizzes should include three to five questions and take no longer then ten minutes to complete. The ideal is to ask students two questions about the concept currently being taught and one question about another topic. The first concept question should be difficult; the second concept question should be easier. Together, theyll help you see how well students understand the concept. An alternative to a simple 2-3 question quiz is to incorporate a video quiz to help you assess student learning in another modality. When using a web-based quiz-making format, you easily can add this type of instructional method to your quiz to help students apply learning to different modalities and to assess students in all learning styles.

- **Let students know what youre doing**

Explain to students your goals for quizzes. Frequent quizzes can frighten some students and cause test anxiety. Simply explain to students right from the beginning that, in your class, they will be taking frequent short quizzes. Tell them the quizzes will not be graded; they are simply meant to let you know whether youve taught the material in a way theyve understood. When they hear theyre helping you, theyll be more receptive to the quizzes.

Remember, the most important goal in assessing your teaching with a quiz is to think about how students are learning and associate that with an evaluation of your instruction. When you do that, you help your students and improve your pedagogy simultaneously.

4.19 Competition

Competition, if used effectively, it can enhance learning significantly. Certainly, competition in the classroom is healthy; it should, in fact, be encouraged. It allows students to extend themselves, to exploit their real capabilities and maximize their true potential. It is most productive when it occurs among students of similar abilities.
Competition can exist among different groups and at different levels in the same class.

Among the top students

For e.g. in the case of students who usually come in the top three positions, competition exists among them for the first place position. While each will concede defeat to the other two as worthy adversaries, if someone from outside of that trio were to come into one of these positions then this outsider would become a threat to the other three. On the other hand, the newcomer would have scored a huge victory which he/she would not be willing to relinquish.

The competition would, therefore, have expanded to include four, rather than three persons. Each must now strive considerably harder to avoid falling to the fourth position. One possible, positive outcome of this situation would be improved grades for all four students and a higher overall class average.

Among other groups
Competition will also exist among other clusters apart from the top three or even between individuals. However, motivation to compete decreases as one gets closer to the bottom of the class. This means that while students who place in the top and even perhaps the middle positions may be motivated to compete with those whom they perceive as close rivals, there is hardly any motivation for those who constantly come at the bottom of the class.

In subject areas
Competition can also exist in particular subject areas so that even the top three performers overall may recognize that in a specific subject area, there is a particular student whom no one can touch. Efforts will be made to beat him/her and this student who experiences profound gratification for being best in his/her area and for beating the top three, will do all in his/her power to hold on to the position.

Competition is good in the sense that it discourages complacency and raises students' consciousness of the value of good grades. As a result, the keener the competition, the higher the output among students. This is manifested not only in high individual averages, but in overall high class averages. It is, therefore, a very effective tool to keep your high achievers achieving.

4.20 Simulation

Simulations as teaching tools could promote the use of critical and evaluative thinking. Because they are ambiguous or open-ended, they encourage students to contemplate the implications of a scenario. According to Bello 2016 et al., The situation feels real and thus leads to more engaging interaction by learners. It further promotes concept attainment through experiential practice. They help students understand the nuances of a concept. Students often find them more deeply engaging than other activities, as they experience the activity first-hand, rather than hearing about it or seeing it.

Simulations help students appreciate more deeply the management of the environment, politics, community and culture. For example, by participating in a resource distribution activity, students might gain an understanding of inequity in society. Simulations can reinforce other skills indirectly, such as debating, a method associated with some large-scale simulations, and research skills.

4.21 Questions and answers

The participation of learners in the teaching process, could be substantially increased by implementing questions and answers, during the teaching process. Students are focusing in the discussion taking place trying also to give an answer in a question. In addition, competition among students could be achieved, in an attempt to improve the benefits from the lecture.

4.22 Closing activities – summarizing what they learn

Closing or exit activities help to wrap up a learning session. The activities are generally simple and quick tasks and can be conducted as individual or group tasks. They considered as key teaching tool as they could help students to:

1. Review and summarize the information presented during the lecture.
2. Connect new learning with past knowledge.
3. Apply their problem solving skills and understanding of the content.

In addition, closing activities also serve as effective assessment tools, providing teachers with feedback regarding Students' understanding of the lesson and highlights areas that require further clarification or re-teaching.
classes.

4.23 Assessment and evaluation

Assessment and evaluation of teaching involves collecting evidence, in order to improve the effectiveness of the teaching-learning process. A successful evaluation generates outcomes that are valid, reliable, indicating also directions and action for development.
The evaluation should focus on:

- the **quality of the educational provision** - which could be the whole programme, a course (module), a class (lecture, seminar, laboratory, etc)

- the **performance of the provider**(s) - the academic staff, tutors, support staff, involved in the delivery of this programme/course/class

- the **experience of the learners** as partners in the process - their experience of what is provided, and of the providers their motivation and approach to learning

- a **combination** of these things - provided that the various purposes are made absolutely clear to those asked to make the evaluation

5. Training tools

Learning, teaching and training become more powerful and dynamic when several training/teaching tools are used. Training tools are any tool and aid that helps teachers teach and students learn. They facilitate the process of teaching, training and learning inside the classroom compared to the traditional method of teaching using a blackboard and a chalk.

These may include the following:

Audio-visual tools, such as CDs – DVDs/movies/videos, charts, flash cards, pictures/photos, maps & atlases, bulletin board, chalkboard, projector slides, posters etc.

These tools involve the sense of vision and of hearing that tools actually motivate students so that they can learn better and by their own. The subject matter is better clarified and more easily digested. Teaching through using aids takes a shorter time than traditional teaching that depends on lecturing and more repetition from the side of the teacher. Also, these tools make the classroom live and active.

Printed Material, such as reference books, journals/scientific papers, textbooks, lecture notes / hand-outs, magazines, powerpoint printouts, study guides, teacher guides, guides of writing essays etc.

IT-digital tools, such as online journals/scientific papers, open access papers/books, digital textbooks, online courses, softwares (e.g. Word, Excel, Power-point, Access, MS picture management, websites, social media, academic blogs, virtual classroom/meeting tool, Virtual Learning Environments (e.g. Moodle), etc.
Digital tools and technologies during teaching and learning give teachers the opportunity to design engaging learning opportunities in the courses they teach. They can use multiple methods to deliver learning by combining face-to-face interactions with online activities. Electronic teaching enables the teacher to do an electronic lesson plan and give an electronic lesson presentation. For students, online learning offers many benefits as they have the chance to study flexibly and from a different location other than the classroom itself.

6. Indicative references

Allwright, R. (1984). The importance of interaction in classroom language learning. Applied Linguistics, 5(2), 156-171.

Bello, S., Baba I. M., Bukar I. B., (2016). Effect of Simulation Techniques and Lecture Method on Students' Academic Performance in Mafoni Day Secondary School Maiduguri, Borno State, Nigeria. Journal of Education and Practice www.iiste.org ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.7, No.23, 2016

Bean, J.C. (1996). Engaging Ideas. San Francisco, CA: Jossey-Bass Inc.

Cashin, W. E. 1985. *Improving Lectures*. Manhattan: Kansas State University.

EdPartnerships International, commissioned by the Victorian Department of Education and Early Childhood Development (2014). A Reflective Guide to Mentoring and being a Teacher Mentor. https://education.nt.gov.au/__data/assets/pdf_file/0011/427583/2017_teachers_guide_to_effective_mentoring.pdf

Frederick, P. J. 1999. "The Lively Lecture: Eight Variations." In *Fieldguide for Teaching in a New Century*, eds. B. A. Pescosolido and R. Aminzade. Thousand Oaks, CA: Pine Forge Press, 62–71.

Kaszkowiak N. (2017). Games as teaching method. http://cometaresearch.org/educationvet/didactic-games-as-teaching-method/

Koretsky M., Keeler J., Ivanovitch J. and Cao Y. (2018). The role of pedagogical tools in active learning: a case for sense-making. International Journal of STEM Education (2018) 5:18

Myers B. and Jones L. (2018). Effective Use of Field Trips in Educational Programming: A Three Stage Approach. http://edis.ifas.ufl.edu/pdffiles/wc/wc05400.pdf

Nandi, P. L., J. N. F. Chan, C. P. K. Chan, P. Chan, and L. P. K. Chan. 2000. "Undergraduate Medical Education: Comparison of Problem-Based Learning and Conventional Teaching." *HKMJ* 6(3): 301–6.

Pires, A., Rodrigues, M., & Pessoa, A. (2018). Transforming pedagogy in Higher Education. In I. Kunnari & M. Laurikainen (eds.) Students' perspectives in ePortfolios. HAMK Unlimited Journal 26.1.2018. Retrieved [August 2018] from https://unlimited.hamk.fi/ammatillinen-osaaminen-ja-opetus/transforming-pedagogy-in-higher-education

Renner, P. 1993. *The Art of Teaching Adults*. Vancouver, BC: Training Associates.

Ryan, A., & Tilbury, D. (2013). Flexible Pedagogies: new pedagogical ideas. York: The Higher Education Academy.

Wulff, D. ed. (2005). Aligning for Learning: Strategies for Teaching Effectiveness. Bolton, MA: Anker.