Innovative Quality Mentoring program for development of a Blue Competence Framework in fin-fish production

Output 3 - Fin-fish work based learning resources

D3.2 - Repurposing existing aquaculture e-learning resources

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Content

Digital and E-learning resources used in VET programs in Iceland, UK and Norway:

What are E-learning resources? This is a question that is not necessarily so easy to answer quickly.

Iceland and Norway

Learning Management Systems (LMS)

A very strict definition can be used by saying that e-learning is a complete Learning Management System (LMS) where you as a student can log in and complete an whole education from start to finish regardless of time and place. The LMS then contains subject literature (textbook), exercises, tests and a final exam that gives you a form of a qualification.

However, when it comes to Nordic vocational aquaculture training, it is not that simple. In Nordic countries, there has been, and to some extent still exists, a perception that e-learning provides poorer quality and learning outcomes for each individual student. This mainly because the student then risks being left alone in his studies without being able to confer directly with teaching staff and/or fellow students. Academically strong and clever students can do well through such an e-learning education, while weaker and untrained students will probably have challenges following such an e-learning education.

It is also often the case that students choose a vocational education precisely because they do not like theory and long schooling. They want to be able to work with their hands and build something physically without dealing with a lot of theoretical subject matter.

E-learning "hybrid" solutions

When it comes to Aquaculture VET educations, blended learning and many forms of hybrid solutions are used in the Nordic countries. One component is very often physical teaching sessions with regular blackboard teaching, either with physical attendance or through video conferencing solutions. Video conferencing naturally also became a compelling necessity during the Covid19 pandemic.

Video conferencing is often combined with a form of LMS platform where learning material from the learning sessions is posted for perusal. It may also be that exercises and assignments are distributed to the students via such an LMS platform.

In aquaculture VET education, there is also extensive use of relevant websites from aquaculture companies and perhaps especially from relevant service and supplier companies as a resource for the students in the training.

Relevant and useful newspapers and specialist magazines within aquaculture are also used in the teaching.

In Norway, for example, there is a separate website (www.barentswatch.no) for registrations from the aquaculture industry when, for example, it concerns fish health. Here you can go to the website, click on any locality in Norway using a map and retrieve figures for a whole set of parameters for fish health and also registrations in relation to which localities have ongoing or suspected disease.

In addition, it may be that one also uses various interactive student response systems to communicate with the students between the learning sessions.

Consequences of the Covid19 pandemic

An old saying goes; "It's never so wrong that it's not good for anything".

This may well apply to the Covid19 pandemic when it comes to Nordic aquaculture VET. The Covid-19 pandemic at least opened the eyes to the use of more e-learning-like teaching methods and that there is not only a downside to this type of teaching.

It was discovered that several aspects of the e-learning methodology can be advantageously implemented in the aquaculture VET education.

Furthermore, In a relatively prosperous aquaculture industry, there is an increasing degree of focus on costs, also when it comes to raising the skills of its employees. E-learning is held to be expensive to develop, but cheaper to deploy once E-learning platforms are developed.

This leads us to believe that e-learning solutions will be more and more in demand from the industry in the future. Then the education providers will probably have to respond to this type of demand.

Examples of e-learning recourses:

Digital and E-learning resources:

E-Learning	Origin	Language	Cost
www.blueplanetacademy.com	Norwegian	Norwegian / English	Pay
www.thefishsite.com/learn	Irish	English	Pay
www.academy.aquaculturealliance.org	English	English	pay
www.hatcheryinternational.com	American	English	Free?
www.udemy.com	Global	English	Pay
www.hortcourses.com	Australian	English	Pay
www.kursagenten.no	Norwegian	Norwegian	Pay
www.distancelearningportal.com	Scottish	English	Pay
www.adlonlinecourses.com	English	English	pay
www.aquacase.org	Norwegian	English	Free
www.biosphera3d.com/product/3d-fish-anatomy-software/			
www.morefish.no	Norwegian	Norwegian	Pay
www.ndla.no	Norwegian	Norwegian	Free

Digital and E-learning resources:

Industry newspapers	Comments
www.ilaks.no	Norwegian/english
www.kyst.no	Norwegian
www.intrafish.no	Norwegian/english
www.seafood.no	Norwegian
www.fishfarmermagazine.com	Scottish
www.thefishsite.com	Irish
www.worldfishing.net	English
www.seafoodsource.com	American
www.aquaculturenorthamerica.com	American
www.afloat.ie	Irish
www.fishfarmingexpert.com	Global
www.fiskerioghavbruk.no	Norwegian

Digital and E-learning resources:

Info pages	Comments
www.Barentswatch.no	Fishhealth
www.lusedata.no	Sealice
www.hi.no	Enviroment and fishhealth
www.vetinst.no	Fishhealth
www.fiskdir.no	Regulations
www.lovdata.no	Laws and regulations
www.akvaplan.niva.no	Research
www.nina.no	Research
www.nofima.no	Research
www.sjomatnorge.no	Info
www.laksefakta.no	Info
https://www.kontali.com/	analytic\benchmark

Digital and E-learning resources:

Suppliers	Comments
www.scaleaq.no	Norwegian
www.aquagroup.com	Norwegian
www.fiizk.com	Norwegian
www.egersundnet.no	Norwegian
www.skretting.no	Global
www.ewos.com	Global
www.biomar.no	Global
www.frøygruppen.no	Norwegian
www.aqs.no	Norwegian
www.Akerbla.no	Norwegian
www.aquagen.no	Norwegian

Other resources:

Conferences	Comments
Tekmar	Innovation
Aqua Nor	Farming technology
Norfishing	Farming\Fishing technology
Produktivitetskonferansen	Competence enhancement and networking
NCE Aquatech Cluster	Aquaculture technology cluster
Tekset	Farming technology
Teknologi- og servicekonferasen	Meting place for suppliers to the aquaculture industry

Scotland

Currently Scotland has no public sector VET provider offering full time aquaculture VET. The education and training available at this level for school leavers is limited to the work based Modern Apprenticeship in Aquaculture, which is delivered by the UHI at the North Atlantic Fisheries College (NAFC) on Shetland, and Argyll College on the Scottish mainland.

Some of the larger companies have developed their own in-house provision and are moving forward with the development of their own company 'e learning' to ease training delivery across their dispersed farm sites.

Existing E Learning in aquaculture

Aquaculture courses are offered by two providers utilising 'e learning' to varying degrees. They own the courses and 'e learning' materials. Registered learners on their courses can access their provision presented using a Learning Management System (LMS).

They currently do not make their materials publicly available or collaborate other Scottish providers or third parties.

Scottish providers of aquaculture courses that apply 'e learning' are:

UHI North Atlantic Fisheries College (NAFC) in Shetland
The Modern Apprenticeship in Aquaculture at levels 2, 3 and 4 and short courses for industry on specific high demand topics are offered.

The practical skills training for the Aquaculture MA is delivered by farm staff on the farm where trainees are employed. The underpinning knowledge required to complete the National Qualification is delivered through 'e-learning' by the NAFC remotely. Some short courses in specialist subjects are offered through 'e learning' and are non-certificated.

Argyll College as the only UHI provider on the Scottish mainland, has a strong interest in developing and aquaculture 'e learning' collaboration. They have an LMS that their apprentices can access, but it is not well populated with aquaculture content.

St Andrews University

'Sustainable Aquaculture' courses are offered at Higher VET Degree and post-graduate Degree level.

This provision is 100% e learning course supported by remote tutoring. Courses are often undertaken by those in work who already have practical experience and are seeking a St Andrews Degree to assist them in their career progression.

Scottish Industry involvement in aquaculture E learning development

Mowi Scotland are developing an in-company e learning capability and are in conversation with Argyll College to develop linkage with the Scottish MA in Aquaculture. This may offer an opportunity for increased VET provider industry collaboration within Scotland and ultimately Europe. But in the short term, any 'e learning' resources developed are not available outside of the company in Scotland.

In summary, it is not possible to access the 'e learning' resources held by industry or the public tertiary education in Scotland to evaluate them.

Aquaculture digital resources available through the world wide web

There are materials available on the world wide web that can be sourced through search engines, reviewed, and used within e learning courses and blended learning.

PLI searches have revealed limited high-quality 'technically specific' resources available for saltwater and freshwater salmon production in a suitable format for VET learners.

Searches have included:

Images from royalty free creative commons

A limited quantity of aquaculture images is available at no cost, but they can be hard to find. When used educationally within digital learning resources, the owner must be credited. There is a wider availability of images that can be purchased for educational use at a cost of approximately £10 per image.

You tube videos

Some videos are available to support aquaculture subjects. Within a Learning Management System (LMS) it is possible to provide links to a video and start and stop anywhere in the timeline to present relevant sequences to learners.

Using Software such as H5P, over lay of information in text or interactivity such as multiple-choice questions become possible, making available video resources more educationally useful.

The Moodle open source LMS can host H5P, but most commercial LMS do not have this capability.

However, the owner of these YouTube videos can take them down at any time. The development of bespoke instructional videos is a much more secure solution longer term.

Scientific Aquaculture papers

Many papers are published online and accessible. Most are unsuitable for Scottish VET level but may have occasional use for Higher VET in specific topics, especially when used to support investigative learning activities.

Aquaculture information available online

There is a lot of general information in the public domain on aquaculture that could be accessed, but not copied without formal consent. For example, vendors show case their equipment and services, and the information is posted at a range of levels for various purposes. Some of this may be useful as a reference source within educational activities.

Any web-based aquaculture information can be sourced, vetted, and levelled for VET use.

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