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Finland: VET and Omnia

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Introduction

Until the economic crisis of 2008, the growth of Finland's GDP was faster than in the EU in general. During the last few years, however, the economy has been in recession. While this has led to the need to reduce public sector costs, it has also been a driver for overhauling the education system. The country has few natural resources and so has long emphasised the importance of maximising educational opportunities; its best capital is knowledge capital, as shown in its highly skilled labour force.

There are no tuition fees in the Finnish education system and the publicly funded comprehensive school system has no selection, tracking or streaming of students. The higher education system is divided into universities and polytechnics (also known as universities of applied sciences). The Education Index, published with the UN's Human Development Index in 2008,¹ lists Finland as one of the highest-ranked countries in the world in terms of education. Finland has also consistently ranked high in the PISA (Programme for International Student Assessment) study — and at one point was ranked first — prompting widespread international curiosity about its formula for success. The Finnish Ministry of Education attributes its success to the innovative basic education provided to all school-aged children, highly competent teachers and the autonomy granted to schools.

The Finnish VET system

As UNESCO-UNEVOC (2013) reports, reforms to the sector over the past decade have improved the image of Finland's Vocational Education and Training (VET) system; increased its popularity with students, parents and employers; and helped to reduce unemployment levels. VET study is undertaken in three ways:

1 http://hdr.undp.org/sites/default/files/reports/268/hdr_20072008_en_complete.pdf

through school-based education and training (about 50 per cent of the students take this route), apprenticeship training (about 22 per cent opt for this) and entry into formal VET studies by adult students who can demonstrate vocational skills regardless of how and where these were acquired (28 per cent enter by these means).

After their nine-year basic education in a comprehensive school, students aged 16 can choose to continue their secondary education in a general track or a vocational track, both of which typically take three years. Today, more than half of Finnish youth apply for the vocational track. One of the reasons for this, and something that distinguishes Finland from many other countries, is that completion in both general and vocational studies qualifies students for further study at university level. Around one fifth of those going on to study at a university of applied science have previously completed a vocational qualification. It is also possible for the students from vocational upper-secondary schools to enter an academic university.

In marked contrast to many countries, in Finland the VET qualifications are held in high regard by both employers and students. This is because of the close match in the curriculum between the higher-order skills that are taught and the higher-order skills that the economy needs. The students are not simply taught to become “compliant employees”; citizenship and learning to learn are part of the core curriculum.

Teachers in Finnish schools must hold a bachelor’s or master’s degree, but 85 per cent of the VET teachers also have a formal vocational teacher qualification. While those aiming to teach in general education are trained in the traditional universities, those planning to teach in the VET schools and colleges receive special training in the vocational teacher training units in five universities of applied sciences. In most cases, the essential entry requirements for vocational teacher education are a relevant university degree and a minimum of three years’ work experience in the field in which the teachers will specialise. The Vocational Teacher Education Programme involves one year of full-time study or two years of part-time study and includes basic studies in educational sciences, vocational pedagogy studies, teaching practice and other subjects.

The institutions promote their courses and services to parents by arranging parents’ evenings and regular visits for parents and prospective students. Deputy Mayor Sampo Suihko, Head of Education and Cultural Services in the City of Espoo, says:

VET used to be seen as for losers. Affluent, highly educated parents would never dream that it was for their children. But now, with the competition for places, you have these parents phoning up and demanding to know why their kids couldn’t get in! There’s a new pride too. The brand has changed. “VET” used to be a pejorative term — not anymore. (Hannon, Gillinson and Shanks, 2013, p. 42)

Preparatory education for upper-secondary vocational education and training is provided for special needs students, those without compulsory basic education, immigrants and people of immigrant origin (including children who were born in Finland after their parents immigrated). This programme helps them develop the abilities needed for their individual study plans. Participation in upper-secondary

vocational education and training requires basic Finnish or Swedish language skills, and so learners need to take a language proficiency test.

There are also opportunities for the VET students to include international study in their schooling. Around 13 per cent of the students take the opportunity to spend some time studying in other countries. During the past 15 years, the Leonardo da Vinci programme, the European Commission-funded programme focussed on the teaching and training needs of those involved in VET and on building a skilled and mobile workforce across Europe, has funded 1,500 VET development and mobility projects as well as 15,000 mobility periods for Finnish students and experts. Finland also welcomes a very high number of VET students and experts from all over Europe every year.

The VET system accords with the five EU2020 objectives on employment, innovation, education, social inclusion and climate/energy and with the aims of the Copenhagen Process and Bruges Communiqué, which are to improve the performance, quality and attractiveness of VET through enhanced co-operation with the world of work. It also participates in the European Credit Transfer System for VET, utilising the National and European Qualification Frameworks and developing the European quality assurance systems.

Around 146,000 students enrol in initial VET every year. The main subjects taken are technology and transport (around 36 per cent), business and administration (19 per cent) and health and social services (17 per cent). The other fields studied are tourism, catering and home economics (13 per cent), culture (7 per cent), natural resources (6 per cent) and leisure and physical education (2 per cent). There are 119 study programmes leading to 53 different vocational qualifications recognised by the Ministry of Education and Culture and 305 higher-level and specialist competency-based qualifications.

Apprenticeships are another form of secondary-level vocational education and training, an alternative means of obtaining a vocational qualification with the same access to further education as other trainees. Apprenticeships are financed by the state, and newcomers to apprenticeship training are given a fixed-term employment contract for the duration of the training period. Finnish apprenticeships differ from those in the traditional European dual-system countries in that apprentices are mostly adults; about 80 per cent of them are over 25 years of age.

A variety of opportunities are also available for adults to maintain and enhance their knowledge and skills and to study for further qualifications or parts of qualifications through continuing education at various formal and vocational adult education centres or other learning providers. Municipalities or federations of municipalities own almost 80 per cent of VET institutions; the rest are owned by private organisations, foundations and the state.

The sector uses ICT-based and blended learning, relying largely upon the local institutions' own resources and expertise, but does not make much use of distance education because, although Finland occupies a large extended territory, the vast majority of its people live in or fairly close to cities and towns with VET schools and even universities, so there is little need for this form of provision. However, the country is transforming its VET systems to equip students with the knowledge and skills needed in the ever-changing and ICT-based world, and this is best

exemplified by the case of Omnia, Joint Authority in Education in the Espoo Region.

Omnia

Omnia was established to serve the VET needs of people of all ages in three neighbouring cities: Espoo, Kirkkonummi and Kauniainen. Espoo is the second-largest city and municipality in Finland. It is part of the Capital region with a population of over 265,000 residents, most of whom live in the inner urban core of the Helsinki metropolitan area. Several major companies are based in Espoo, including Nokia Solutions and Networks, Microsoft Mobile, KONE, Neste Oil, Fortum, the Orion Corporation, the Outokumpu Group and the video game developers Rovio and Remedy Entertainment. Kirkkonummi has a population of around 38,000 and Kauniainen has around 9,000 inhabitants.

It is said that education is in the DNA of Espoo. The mayor of Espoo, Jukka Mäkelä, stresses the strategic and economic importance of Omnia, saying:

The City of Espoo invests heavily in educational development [and] the image of Espoo is a city of high-quality education and competence and an innovative builder of the future. Learning and education have always been held in high esteem by the people and the City of Espoo city. Espoo is building its future success on a foundation of skills, education and innovation. (*Forerunner Magazine*, 2016)

Omnia has become a pioneer in and a catalyst for bringing in online VET teaching, learning and digital and other technological solutions to changing classrooms and what goes on in them. The Omnia vision is that learning can happen anywhere, can be personalised and is linked with social learning, co-operative learning, problem solving and development. It is a regional education development centre with five campuses and 860 staff serving around 40,000 learners (10,000 of whom are VET students). Its services include:

- An upper-secondary vocational school: offering upper-secondary and vocational training for young people.
- Vocational adult education and training: offering basic, further and specialist vocational qualifications and bespoke courses for adult students.
- Apprenticeship training: offering vocational education in the workplace supplemented with theoretical studies.
- Youth workshops for young people who are unemployed or not engaged in a course of study.
- A liberal adult education centre for open studies, personal development and lifelong learning, serving 30,000 students annually.
- A general upper-secondary school for adults: offering studies for the matriculation certificate and general education for people of all ages throughout the day, serving 2,000 students.
- InnoOmnia, the development unit of Omnia and a nationally and internationally recognised lifelong learning and entrepreneurial hub.

The Finnish National Board of Education (Opetushallitus) has made Omnia one of the national professional development providers for VET. It uses peer-to-peer learning and practical, hands-on training to extend teacher training beyond the traditional methods and provides in-service programmes for teachers and school leaders on:

- Digital learning environments.
- The use of game thinking and game mechanics in solving problems.
- Mobile learning.
- Entrepreneurial teaching and learning.
- Leading the 21st-century school.

Omnia challenges its own staff and students as well as teachers from other schools to step outside their comfort zones and embrace 21st-century learning solutions. In Omnia's view, conventional educational models are inadequate for meeting the challenges of the future. Omnia's vision of the future is that it will be digitised and continually require new knowledge and skills and new forms of teaching and learning anywhere and everywhere in both formal and non-formal settings. It also believes that the requirement for lifelong learning will change the role of educational institutions, that learning paths will be personal and non-linear, and that new jobs and new products and services will arise from different, sometimes surprising, combinations of knowledge, skills and know-how.

Omnia's road map for realising its vision includes providing test-beds and living labs for rapid and radical product-, service- and pedagogical-development projects that involve students, teachers and in-house entrepreneurs, as well as developing new physical and virtual learning environments and delivery models for VET. The following examples highlight the kinds of opportunities it provides for vocational students, teachers and entrepreneurs to not only learn about the new paradigms, but also to participate in and contribute to their creation.

InnoOmnia

In 2011, Omnia undertook an even more ambitious project: a new kind of development, learning, eLearning and entrepreneurship unit, a living lab. Rather than focusing solely on high-tech, high-growth entrepreneurship, its founders aimed to support diversity in entrepreneurship and include the service sector and arts and crafts micro-companies. Business incubator services had previously been tried out on university campuses, but this was the first time that encouragement and support for start-up and early stage companies had been provided on a VET campus. But this was not the only unique feature of InnoOmnia, as it was named. The plan was for this unit to not only offer support to entrepreneurs, but also to provide project opportunities and role models for the VET students. In these ways, InnoOmnia was seen to be a solution to the increasing rates of youth unemployment in the Espoo area, the low rate of entrepreneurs with a VET background and the need to embed entrepreneurship education in VET studies. Innovations in eLearning and pedagogy are centrally developed through InnoOmnia, and then distributed throughout the Omnia organisation.

To date, InnoOmnia has provided support and services to 200 new or aspiring entrepreneurs, trained 1,000 teachers and school leaders, trained 700 Omnia staff

in new pedagogies and received 3,000 visitors from, for example, the education sector, industry and commerce, and the EU. What sets InnoOmnia apart is its multifaceted character. It is part incubation unit, part teacher training/resource centre and part teaching and learning/career guidance service for students. By combining the world of learning and work, it is breaking down boundaries. For the students, it provides a real-life, work-based learning environment. For the entrepreneurs, it provides rented premises, business support and a network. For the teachers, it offers daily interaction and up-to-date knowledge on both entrepreneurship and the trades that the entrepreneurs represent. Everybody is a teacher and everybody is a learner. All the participants mingle and collaborate, engage in new forms of teamwork and combine work-based, ICT-based and social learning. The transferability of best practices is significant. Education has moved out of the silo of the classroom into shared spaces where the students' studies are embedded in solving entrepreneurs' real-life problems and helping to create real-life innovations. Some of the innovations being developed in InnoOmnia are described next.

Diago (2015, p. 1) claims:

By bringing together entrepreneurs, students and teachers from all levels of education, InnoOmnia is breaking boundaries and is in itself a radical innovation combining the worlds of learning and work ... it is a lifelong learning hub and a meeting point for entrepreneurs, teachers and students nested within a larger structure that is Omnia. InnoOmnia defies attempts to classify it.

An entrepreneurial route for students

InnoOmnia's modus operandi is to break away from conventional learning modalities, roles and classroom thinking. Its curriculum focuses not only on the development of technical and vocational skills but also on skills in problem solving, teamwork and interpersonal communications. The learning is very high-tech with tablets, video, and online and mobile learning applications in daily use. At InnoOmnia, all participants are equal. The aim is to create a true knowledge community wherein all the participants have a chance to make an impact. Conventional teacher-student and expert-novice roles are revamped. No longer is the teacher the sole or main source of knowledge and information. Facts, ideas and opinions flow in all directions, and the teacher's role is more that of a tutor, guide and coach than an expert who has all the answers. In such an experimental environment, the conceptual and practical problems that all the participants face change daily and from task to task, so there can never be any certainty about what capabilities will be needed. This changes the nature of teaching. The InnoOmnia Learning Solutions project manager Mimmi Heiniö says in a personal communication:

Such cooperation is very rewarding for both students and entrepreneurs. Students have access to the genuine involvement of businesses and entrepreneurs get new, fresh perspectives on everyday tasks. In addition, our students learn more about entrepreneurship and the use of mobile devices at work.

This fusion of work life, entrepreneurship, schooling and applications of new technologies in education leads Kim, one of the students, to observe:

It's much easier to dedicate yourself to something when you know the result will be utilised by an actual business.

Another student, Miikka, says:

It's a great change of pace from regular learning. We get to perform real tasks and develop solutions to meet the needs of real enterprises.

Taking the entrepreneurial route to learning is popular among students — there is a consistent flow of applicants every year.

LOL: A Gamified Online Learning Environment for Students and Entrepreneurs

Gamification — introducing game-like features into learning — has recently received a lot of attention. One learning resource developed and now offered for general use by Omnia is a business development game called LOL (the acronym of the game's Finnish name, *Lievästi Outoa Liiketoimintaa*) that combines real-life interaction between students and entrepreneurs with working on an online board game. The students and entrepreneurs form an online community within which the entrepreneurs present their business challenges and the students suggest creative solutions to the problems put to them. The game enables the students to work on authentic business problems in an entertaining and engaging manner, the entrepreneurs to gain new insights and ideas and contribute their knowledge and skills to the learning process, and the teachers to observe first-hand how business ideas are put to the test and learners explore real-world possibilities.

The initial work on LOL was funded by the Uusimaa Regional Council as part of the European Regional Development Fund Programme. Uusimaa Regional Council is a regional developer, strategic planner, land-use planner and consensus builder that promotes the Baltic Sea region and neighbouring parts of Russia as a leading knowledge region in Europe. The original game concept was developed in co-operation with the Kasavuori Secondary School of Kauniainen and Laurea University of Applied Sciences. The game was programmed by a game designer agency using the Google Education platform; a graphic designer created the board's visuals, aiming for a layout that was attractive and motivating; and the game is now a part of Omnia's educational offerings.

The students playing the game are assigned to teams, which compete with each other, and are given virtual workspaces for developing and sharing their ideas. The game features a Facebook page for communication and collaboration. Game updates, new tasks and feedback on tasks also appear as notifications in Facebook. YouTube is used to present interviews and reports.

The teams of students are presented with problems and then challenged to come up with creative solutions while bearing in mind the logistical, commercial and other constraints confronting the entrepreneurs. The participating entrepreneurs present their ideas and problems in videos. To give one example, a local restaurant owner had a business that was thriving at lunchtime but grew very quiet during the afternoons. In this case, the students' task was to come up with ideas for making the business more popular and profitable by creating a marketing plan, changing the menu, broadening the customer base or doing whatever else they felt would help. As the competing teams progress in their work, the game offers them

various incentives and rewards to maintain their motivation and create friendly competition.

As the student teams work through the issues and present their ideas to the entrepreneurs, they receive feedback on the originality, usefulness and feasibility of their suggestions. The teachers also give the students feedback on their learning and communication skills. Finally, a jury of participating entrepreneurs chooses the winners based on the best match between the solutions and the business objectives. Virtual trophies and awards are then presented to the winning teams.

Entrepreneur feedback on LOL has been very positive. Not only has the game resulted in co-operation, shared learning and transfer of knowledge but it has actually also created new business insights and opportunities. One entrepreneur said:

For me, the biggest thing is that we got to think about issues together. The kids brought up new ideas — like suggesting new youth target groups for my products — and I have expanded my marketing scope based on these ideas.

The students also report that they find LOL useful and illuminating. One of the students observed:

We worked on this innovative product and talked to the entrepreneur. I'm thinking entrepreneurship is not so far away anymore. If I had a good idea, I might think about commercialising it and becoming an entrepreneur.

LOL has now been mainstreamed into Omnia's training programmes where it has been found to deepen learning and improve teamwork, resourcefulness, self-direction and collaborative skills. The game and its development are described in greater detail by Ylikoski and Oksanen-Ylikoski (2014).

The Open Badges Passport for Students and Teachers

Jisc (2013) describes an "Open Badge" as a digital reward that can be stored inside a student's "digital backpack." The badges can be earned by successfully completing tasks and goals set by a learning provider according to certain criteria, the results of which are embedded inside the badge in the form of metadata, along with details such as who issued the badge, when it was issued and an expiry date (if relevant).

The Open Badges Infrastructure (OBI), which is being developed by the non-profit Mozilla Foundation and an international community of developers, is used by educational providers and communities such as NASA, the Clinton Global Initiative, De Paul University, DigitalMe and the City of Chicago.

Open Badges have been criticised for lack of user-friendliness, fragmentation, data exploitation and data management issues. Working in collaboration with the Finnish learning solutions specialist company Discendum² and the French non-profit ADPIOS,³ Omnia has developed a novel Open Badges Passport system that addresses these problems. This project was one of the 13 winners in the US\$1.2 million international Trust Challenge: Building Trust in Connected Learning Environments competition in 2015. These awards were for projects that

² www.discendum.com

³ www.eportfolio.eu/organisations/adpios

tackled issues of access, trust, privacy and equity in online learning environments, data management and technical interoperability.

The Open Badges Passport enables the seamless sending, receipt, organisation, display and search of digital badges. It encourages a new generation of services supporting learning, employment (including self-employment), social inclusion and citizenship. It is based on the principles of trust and equality upon which the Finnish education system is based; reflects the shift of Finnish education towards the adoption of outcomes-based and competency-based learning and the transfer of responsibility for this to the schools; resonates with Omnia's assessment and credentialing systems which are learner-centred, focussed on mastery instead of time, and use formative and summative assessment to inform learning; and responds to the need for new and flexible methods to recognise and reward prior learning. All this makes InnoOmnia a perfect home for this initiative, and all the goals can be achieved by the Open Badge Passport system. It provides a simple tool for anybody to show what they have achieved and what knowledge, skills and experience they have to offer. It can serve as a lifelong learning portfolio, wherein individuals collect their learning achievements, both in and outside of the formal education system, and can be used by teachers as well as students, stored in human resources management systems and applied in a whole new generation of services.

The Open Badges Passport is still in an early development phase. The first step is to provide a proof of concept to invite the provision of a new generation of services. In the future, Omnia plans to introduce Open Badges for not only its students but also its staff. The Open Badges Passport also provides an easy scalable tool for staff development.

The Edutech Bootcamp

In military and business contexts, bootcamps are short, intensive courses of training for new recruits. Omnia's Edutech Bootcamp is a blended learning experience that applies the intensive, immersive nature of this training method to helping VET teachers and teachers in training acquire the knowledge, skills and attitudes called for in mastering new technologies and new ways of acquiring and constructing knowledge. It places the students in the role of novices and dares them to ask questions, to try things out and to learn through a mix of collaborative, hands-on and online learning. The aim is to involve the students in authentic experiential learning where they take the initiative, challenge assumptions, reflect on their experiences, share their learning and develop new depths of understanding in demanding but enjoyable ways. The core learning outcome targets of the Edutech Bootcamp are to improve the students' familiarity with the role of technology in the traditional classroom and online and mobile learning; understanding of the pedagogical applications of ICTs including social media, mobile and cloud-based services; and ability to create and share mobile and online educational content.

Prior to an orientation session, the Bootcampers create accounts in selected cloud-based services that will be used to support learning, share the content and make the learning permanent during the course of the programme. They start off with an online orientation package and accompanying webinar, and at the end of the programme there is a wrap-up in the form of another webinar. During the two

intensive days of learning, the students are exposed to various hands-on learning experiences using tablet devices, different apps and online services. The students must follow a route that features information access points and educational technology-related learning activities and collaborative tasks. QR code scanners are used in the physical access points, and other options such as shared mobile videos and Popplet boards are used with the non-physical access points. As a final assignment, the students prepare online instructional videos to teach the other students what they have learned about an educational technology tool of their choice. This experience has been shown to increase the students' awareness of the various new tools and methods at their disposal in a challenging but safe environment where both technical and pedagogical support are available where needed.

The first students to undergo the two-day Bootcamp were from the Oulu University of Applied Sciences iVET teacher-training programme. The students' reactions to this experience have been positive. One student commented:

It is always important to reflect [on] our assumptions. It is easy to fall back and hide behind a belief that technology is either something that makes learning happen or is something of a hindrance.

A teacher undergoing the Bootcamp described the experience as “fruitful,” saying,

The use of [the] Qrafter application at the end was a new experience for me. I would also like to try to use it in my workplace, as it seems to be interesting and useful to scan and parse the contents of QR codes. The QR codes can be used to link to a website, text message, email, video, audio or any other useful information.

Conclusion

Omnia aims at being a forerunner in developing TVET. In 2013, the Ministry of Education and Culture awarded Omnia the National Quality Award with special recognition for entrepreneurial learning. In the same year, InnoOmnia received a national award for promoting innovation in learning. Omnia's approach has also gained a lot of international attention. It has been showcased by the European Training Foundation in Brussels as one of the 12 best entrepreneurship-promoting models from across the globe, its learning initiatives have been showcased in online promotions of micro innovation practices in ICT for learning and it is also co-developing vocational training in Egypt and Kosovo through EU twinning projects.

Omnia's approach to 21st-century learning is taking place through a centralised development hub — the living lab that is InnoOmnia. This approach has proven to be an effective route to the quick adoption of new learning environments and other innovations. At InnoOmnia, everyone is a learner and a teacher — learning is designed to be an enjoyable, engaging and challenging process in innovative learning environments that bring together students, staff and entrepreneurs. However, a continuing challenge is that innovations being developed in InnoOmnia are not always easy to integrate and scale into Omnia as a whole.

The design of a development unit as an entrepreneurial living lab has brought several benefits. Innovations in eLearning are closely tied with the needs of local

employers, sometimes serving multiple purposes. For example, the LOL learning platform works as an innovative eLearning instrument as well as a service for local small businesses. Scaling the pilot projects into Omnia's various study programmes, at both a national and an international scale, will be a next step in the development process.

A number of traditional silos have been broken in order to build the co-learning environment, and the transition has not been painless. Issues arising from community borders, operational culture, structures and leadership have all been identified. InnoOmnia will have to pay attention to these issues as it moves forward.

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