Career Preparation and Selection in High School
A Norwegian Context

Bjorn Magne Aakre, Telemark University College

The focus of this paper is career preparation and selection in secondary school. In most countries today many young people struggle with their career planning and selection. Traditional school programs and subjects seem not to designed to bridge the gap between general education, career preparation and the transition into a professional career. In this paper we discuss the challenge of implementing such programs for career preparation and selection in a time of globalization and increasing complexity in the labor market. The context of this study is the high school system in Norway, recent educational reforms and empirical data collected from surveys on vocational preparation and entrepreneurship education.

1. Introduction

Young people in most countries today seem to have a hard time to prepare for their future education and career. In Norway many fail to choose a relevant program in high school. Many also and tend to drop out of school long before an examination or a certificate of completed apprenticeship, (Hernes : 2010). Even after several years in college or university there are many students who are not sure about their career, and therefore change their program several times before they graduate. To cope with this challenge five steps have been taken in Norway : 1) Focus on Basic skills including Digital Literacy, 2) Entrepreneurship Education1, 3) Technology and Science2, 4) Career Preparation3, and finally : 5) A system of transfer from Vocational programs to Higher Education like Engineering.

2. Theory and Method

This research is carried out using system theory and didactic as a frame of reference, (Luhmann : 2000 and Klafki : 2001). Historical- hermeneutic method is the main approach. However, in addition empirical data from surveys on career preferences in Norway and Finland are used as a control. Finally, critical method has been used to investigate the relation between career selection and the complexity of late modern societies compare to the typical industrial society we had some decades ago. Niklas Luhmann has introduced a new way of understanding and analyzing modern societies as social systems in loose interaction with each other. The key points in his theory of social systems are complexity, differentiation and interaction. Change can not be explained as linear functions between two factors, but as a result of a complex number of factors interacting. There are similarities between the theory of systems and critical constructive didactic that explains learning as interaction between individuals and their culture through different kinds of medias or cultural tools, (Klafki : 2001). The System of Education is one of the many distinct social systems Luhmann has identified and analyzed, (Luhmann : 2000).

1 Entreprenerskap i utdanningen - fra grunnskole til høyere utdanning 2009-2014, the Ministry of Education, Ministry of Commerce and Ministry of Labor. This is a program for all levels of Education in Norway.
2 An elective subject in general course of upper secondary school in Norwegian from 2008.
3. Findings

Over the last decades young people and even young adults spend more and more of their lives on schools and education. The concept life long learning also indicates that few or any will be educated for one and the same career for the rest of their life. Most people today will face several careers, and need to educate themselves throughout their life cycle. These uncertainties make career preparation and career selection complex and difficult, and many students have hard to prepare for a career of their choice. The first problem is related to the aspirations of the students. The second problem is related to the lack of match between the aspirations of the students and demands from the society.

After many years of trials, digital competence was integrated with basic skills in all school subjects on all levels. (LK06 : 39). It is not only about skills in using a common operating system and some general application programs. However, more emphasis on concepts like "digital navigating competence", "critical reflection and evaluation" to "digital processing competence". This category we may call "digital collaboration competence". Finally we realize that digital media also involves culture, manners and ways of dealing with each other. That means we also need to discuss and deal with digital cultures and manners, and how to communicate with one another in a positive way.

Career preparation was introduced in Norway as a new elective school subject in 8th to 10th from 20094. Actually it is not a compulsory subject yet, but operated as a pilot project in some schools in 81 municipalities from 2009. The subject is elective with 227 lesson hours. The students have to choose it as an alternative to a second foreign language. The purpose of this subject is to be practical and to fill the gap between elementary education and upper secondary education, and to help students make a career selection that fits their interests and aspirations. The subject also intends to establish a positive attitude to the role as an employee, competence for entrepreneurship and to create new jobs. The content is similar to entrepreneurship education and technology and design, except that Career preparation is a school subject with dedicated time frame of 227 lesson hours.

In 1997 the Norwegian government decided to implement a national strategic plan on entrepreneurship in education, not only for trade and industry but also for the system of education. As a consequence Young Entrepreneurship was establishes as a national organization with local units in all counties. Through the Knowledge promotion reform of 2006, entrepreneurship education was integrated in the national curriculum in two ways: 1) As a compulsory and interdisciplinary activity on all grades from 1-13, and 2) As an elective subject in upper secondary school no grade 12-13 with a total of 280 lesson hours. The elective subject in upper secondary school is organized in two modules that can be selected independently, or together.

Technology and Research5 was introduced as a new school subject in upper secondary school with the school reform of 2006. It is an elective subject, primarily for students who specialize in scientific subjects. However, the new subject also has elements of design and social science. The idea seems to originate from the 1980’s when subjects like computer science and natural science were implemented as separate combined programs6. During the years that followed there was along discussion on how technology and science should be take care of and implemented in secondary school, (Aakre : 2005 : 361). The new subject is divided into 3 modules. The young engineer is about technology in a creative and practical context. That means the students will plan and build and test technological products. The students shall experience how to use engineering tools, materials and relevant means of design and construction. Sensors and control systems are also included.

The young scientist is about investigating problems related to health and environment, learn how to plan, carry out and publish the results from such research. In addition it is about systematic measurements and analyses of results. Technology, natural science and society are about to study and understand the role of science in a historical context, and to evaluate environmental, cultural and ethical problems related to the implementation of new technology. To study and understanding

4 KD (2009). Utdanningsalinja - kap. 2.3.2 : Et mer variert og praktisk ungdomstrinn.
5 In Norwegian : Teknologi og forskningslære
6 Edb med allmenne fag (teknisk gymnas) og naturbruk (grønt gymnas)

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the principles and functions of technological systems are also included. Design and product development is about development of new products. It involves experiments with electronic circuits and how they can be used in the development of products based on own ideas. Testing, simulation and quality assurance of form, function, aesthetic and environmental functionality is emphasized. Research methods are about method and methodology in natural science. It is also about the relation between empirical data and theory, and how knowledge is developed and published in scientific communities. Philosophy of science is about ideas and the reasoning behind science as well as the role of technology in hit development. In addition it is about to understand the basis of argumentation within science and science discourse.

In Norway more than 50% of the students choose to enter one of 10 vocational programs from grade 11. They are 3-4 years integrated programs.

Career preparation and education need to be understood in relation to the concept "Life Long Learning". This is also about how skilled workers can have a chance to continue their education into higher education. This problem has also been discussed over many years. In 2008 Telemark University College was awarded a national price for its program Y-veien for engineers. This is a program where candidates from a vocational program in high school and with an advance craft certificate can enter the university and take a bachelor and later on if they like, a master of engineering on the same level as ordinary students, (Aakre and Hagen : 2010). The program has proved that Y-veien, vocational education as a base for higher education had been quite successful. Over 95% of the students complete their program in time, their results are well above average, they are very attractive on the job market and they do an outstanding job from the first day. And finally: we think it is a good example of Life Long Learning.

4. Conclusion

In this article career preparation through general programs in high school has been explored and discussed in relation to a social and cultural context characterized by complexity, rapid change and globalization of economy and labor. The conclusion may be summarized in four main points:

1. We live in a time of complexity and change with far less predictability than before. Therefore the system of education need to foster flexibility combined with a selective and critical mind.

2. The strict separation between school and work, between general education and vocational education that was typical for the industrial society seems not to be suitable for a late modern knowledge based society. Therefore ways to bridge the gap will be needed.

3. The job market has changed over the last decades. Many jobs have disappeared and are replaced by new professions. New jobs will also be created in the future that requires new kinds of competences. For example: The peak oil theory indicates that new jobs need to be based on sustainable energy production.

4. There is a growing demand for competences related to innovation and entrepreneurship, technology and science as well as cultural understanding beyond national borders.

5. In all welfare states health and social services are growing. Therefore more skilled people will be needed in these areas, as well and social and medical technology.

The overall conclusion from this research is that the complexity of late modern society requires a better integration between the system of education and other social systems. Students need to be more familiar with practice, and the classical separation between vocational and general programs should be replaced by an integrated system well adapted to system life long learning that allows for easy alternation between education and work.