The Development of Entrepreneurial Competences for Students of Mathematics and the Science Subjects: The Latvian Experience

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Abstract

The purpose of this study is to examine the development of entrepreneurial competences among Latvian students in mathematics and in the science subjects, as well as to indicate how recent graduates have evaluated their knowledge and skills in the various fields of endeavour at university. The research methodology implemented for this study is a mixed quantitative and qualitative approach. To assess the opportunities for development of entrepreneurial competences among students, a survey and analysis was undertaken of a broad range of educational and subject curricula, teaching/learning materials and of the academic performance results of graduates. The results of this study have revealed that, in Latvia, there is a unified system of methodological materials that has been worked out in four subject areas, and which provides the potential to develop the entrepreneurial competences of students. The survey results of recent university graduates reflect that, in general, while graduates (new teachers) in Latvian universities are mostly well prepared in accord with present-day labour market challenges, nevertheless, serious improvements are still necessary in regard to the process of entrepreneurship education.

Keywords: Entrepreneurial Competences, Entrepreneurship Education, Entrepreneurial Skills, Mathematics, Science;

1. Introduction

The overall changes taking place in our present-day society are also working to determine appropriate challenges for education, i.e., the whole paradigm of knowledge and skills acquisition, to the learning of new competences. In order to implement a learning process more appropriate to current issues in time, such educational curriculae and syllabi should be established/developed, that are inclusive of the development of the eight key competences, determined by the European Commission, including also the development of entrepreneurial competences. Androulla Vassiliou, Commissioner for Education, Culture, Multilingualism and Youth, said: “If Europe wants to stay competitive, it must invest in its people, in their skills, in their ability to adapt and in their ability to innovate. This means that we need to encourage a real change of mind-set in Europe towards entrepreneurial attitudes and this starts by instilling a spirit of entrepreneurship from early education onwards” (EC, 2012).

Entrepreneurial competence is defined as the totality of an individual's personal abilities, qualities and skills that ensures a successful entrepreneurship. It includes: the capability of introducing creativity and innovation, the competences of communication, organisation, project management, action planning and risk-taking skills, susceptibility as well as knowledge and skills needed for establishing a new enterprise and incarnate practical ideas in its successful development (Bikse, 2011).

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Entrepreneurial competences are developed in the process of gaining knowledge, skills and experience, i.e., during the entrepreneurship education process. Very often, the term entrepreneurship education is understood within too narrow a context – as business activities and learning in economics studies courses only. In this context one should take into account that entrepreneurial competences have to be developed not only by those who have decided to associate their future professional life with the economy and/or management sciences, but also by all specialists. Thus, the aim of entrepreneurship education is “to promote creativity, innovation and business start-up” (Guidance Supporting, 2011). It should be understood that the task of an educational institution – school, is to develop that totality of all of a students' personal qualities, characteristics and skills, that characterise the prescribed entrepreneurial competences. Therefore, the question of entrepreneurship education should be integrated (included) in all subjects throughout the study process, thus substantially altering subject content. This paper explores the good practice example with regard to opportunities for the development of student entrepreneurial competences for the sciences and maths disciplines and it also undertakes a graduate level assessment study on the issue of whether, while studying at a university, they are being sufficiently prepared for entrepreneurship education implementation in the schools situation.

1.1. Entrepreneurship education

Entrepreneurship education should be seen in the context of the development of entrepreneurial competences, and in accord with the role and function change of the entrepreneur from a historical perspective to the present day. Originally, the end of 18th century – 19th century economists (e.g., Cantillon, Say, von Thünen, Mill, Hermann, Clark) considered that an entrepreneur is the person who takes the risk, is the innovator, is the decision maker, the manager, the organiser and the co-ordinator of economic resources, as well as the owner of the enterprise (Veciana, 2007).

The end of 19th century was marked by a new trend in the economy – by the rapid concentration of capital and production that contributed to the development of large-scale production, to the formation of large companies and stock corporations. In increasingly modern circumstances, the role of the production organisation and its leader increased. This instigated A. Marshall to undertake some research and to describe, in detail, the role of the entrepreneur within the economy and the totality of characteristics and abilities required for such an entrepreneur. (Marshall, 1953). Josef Schumpeter emphasised that the important role of the entrepreneur is to express the creativity of the individual (Schumpeter, 1950). He also pointed out that the entrepreneur could be both an independent and/or a salaried employee of the enterprise, for example, a director (Veciana, 2007). The entrepreneur takes upon himself the initiative and risk to unite productions, to produce goods or to provide services. He is the manufacturing driving force and at the same time the intermediary that unites other resources. Leibenstein emphasised that it is the role of the manager to monitor the process of resource allocation and to manage the business portfolio efficiently, to build a good reputation and to develop a trust that promotes cooperation (Cuervo, Ribeiro, & Roig, 2007). In the command-style economy, any manager has a dual role and must at the same time fulfill two functions – he is a manager of the company, but, in relationships with superior organisations has to comply with their instructions/requirements, and, so he is exposed to/or also in the status of a contractor. (Bikse, 2011).

Nowadays, micro, small and medium-sized enterprises form the basis of the economy, and their importance increases both within the economy and in employment opportunities. In Latvia, for the year 2010, small and medium-sized enterprises formed 99.7% (in the EU 99.8%) of the market structure. The largest proportion in Latvia and the other EU countries in the small and medium-sized enterprise structure are formed by the so-called micro enterprises (91.2%) (Eurostat).

Changes in enterprise structure can substantially change an individual person’s place in the production sector.

First of all, micro enterprises provide more freedom and independence for individual persons. Their work becomes more varied and mobile both in terms of professional growth and competitiveness aspects on the global market. Under these conditions, a new entrepreneur model is being formed, unifying the functions and characteristics of employee and employer. The same person turns out to be owner, manager, employee (besides, performing tasks of several fields). This person has to be a “manager of her/himself”, that means s/he has to be able to work independently, able to plan his/her working time, able to take optimal decisions, to organise his/her work and to find solutions for different questions related to the enterprise.
Secondly, the present-day attitude towards the individual, to his/her development and to their values system has changed substantially, as, by putting a competent personality in front, apart from professional activities, this person has to ensure their social role/position in society no less. Each individual person has to become the subject of social changes, and must be able to understand the complicated processes of societal development, and, to influence them. All of this in turn serves to determine new requirements for the further development of the entrepreneurial competences of a human being. (Bikse, 2011). Thus, the changing function and role of the entrepreneur and the content of the entrepreneurship educational curriculum must change. In the scientific literature on this subject area, until the beginning of the 21st century, and with the then existing notion of entrepreneurship education, business education was understood as meaning that corporate executives were prepared within its framework. The educational process included the elaboration of a business plan, business management, the business start-ups in changing conditions, and the formation of a training enterprise (Kuratko, 2007). The educational process was oriented to the knowledge of acquisition of entrepreneurship. It was based on the gaining of knowledge on what it is to be an entrepreneur, what is an enterprise, what is the role of an enterprise in the economy. It should be noted that up until the 1970s of the 20th century, the education of entrepreneurs and the development of entrepreneurial skills was dominated by an economic approach that was associated with the development of personal qualities and the learning of knowledge and skills needed for a position of a manager.

In the present-day situation, and in accord with the newer vision on the role of an entrepreneur, the education of entrepreneurs is seen in a much broader context. According to the European Commission (2002, 2004, 2008), entrepreneurship education may include the following elements: the developing of personal qualities, attitudes and skills that form the basis of an entrepreneurial mindset and behaviour (creativity, making decisions, communication, responsibility, risk-taking, independence, self-confidence, leadership, team spirit, etc.) and is not directly focused on the creation of new businesses; and/or specific training in how to create a business. Fayolle and Kickul identified the changes of pedagogic elements: the role of the practice is increasing, the teacher as distinct from being the knowledge giver is now becoming a co-operation partner in the further acquisition of knowledge. Equally important are inductive and deductive learning processes and the role of different approaches and information technology opportunities that are also being used in the process of learning. “The Entrepreneurship education programme that includes an interdisciplinary orientation departs from the conventional ways in which educators have taught entrepreneurship in the past. As proposed by Solomon et al., there is now a need to move toward a more unconventional, experienced-based [experiential] teaching, and evaluation methodology. They concluded that the traditional paradigms will no longer be applicable when the focus of the learning process is to broaden the horizons and perceptions of entrepreneurship.” (Kickul & Fayolle, 2007)

Such a developing of personal qualities, attitudes and skills is applicable to anyone, regardless of one's choice of career. Thus, the contemporary entrepreneurship education model/paradigm means “to help create entrepreneurs – to develop in its students the attributes and behaviours of the enterprising or entrepreneurial person. Such people do not just know about how to create new ventures, or even possess the functional tools to enable them to do so. Instead, they are equipped with a set of personal attitudes and competences that enable them to see opportunities and bring them to fruition” (Kirby, 2007). Entrepreneurship education needs to be applied to a whole range of subject areas and settings and integrated as an important part of the curriculum.

2. Research methodology and participants

During the research process for this paper a collected resource of specialised literature, publications, and documents of the European Council and Commission was utilised. To assess the opportunities for the development of entrepreneurial competences among Latvian students, the overall educational and specific subject curriculae of Latvia were analysed. The analysis of the role of methodology as elaborated for entrepreneurial competences development by the project Sciences and Mathematics (2005-2011), was realised with the assistance of the European Union (EU) Social Fund (SF) - methodology materials, teacher support materials created during this project and the results of a student survey were analysed. In this survey there were 402 respondent students from 64 Latvian schools that had participated in the authorisation of the materials being elaborated. Students were asked to identify 1-3 subjects in which, according to them, the most significant skills of
those mentioned/identified were best being developed. In the selection of schools, the principle of the region, school location (urban, rural) and the number of students, teacher’s qualifications, local municipality aid, the language of instruction, school results in state examinations etc. were all considered/factored and acknowledged. The necessary research and data processing was performed with the help of the company Solid Data SIA survey website visidati.lv

To achieve the purpose of this scientific study to determine whether educators in Latvian universities are prepared in accord with present-day labour market challenges, a survey was undertaken in all Latvian universities and an analysis of the results has been prepared. The survey was performed during the period November – December 2011, and 4,909 graduates (from the years 2006 – 2011) representing all Latvian universities were surveyed via internet (WAPI). In total, there were 17,160 potential respondents who were originally invited to take part in the survey, by using the email addresses made available in the university databases. Of this potential response 6,500 completed questionnaires were returned. Among the other replies, 332 questionnaires were considered as inappropriate for the target group, and 1,529 questionnaires had not been filled out as prescribed. Thus, 4,909 remaining questionnaire responses were considered as suitable for the purposes of this study. The survey was realised/undertaken and the data processed by the SIA Marketing and Public Opinion Research Centre (SKDS Ltd) in November – December 2011, within the framework of the project “Universities Investments in the Latvian Economy” (UILF).

With regard to the educational thematic groups/fields in which the graduates had studied, the proportional breakdown of the graduates was as follows – social sciences, commercial sciences and law (37.3%), engineering sciences, production and construction (16.6%), natural sciences, mathematics and information technologies (14.0%), the teacher education and educational sciences (9.7% or 478), humanitarian sciences and the arts (9.5%), healthcare and social welfare (6.2%), services (4.7%) and agriculture (2.0%).

Most of the respondents of the teacher education and educational sciences thematic group were women – 434, and 44 were male. An estimated 78.7% of the respondents were in the age group 18 – 44. Of these, 36.8% had gained a bachelor’s degree, 32.2% - were qualified with a master’s degree, and others held a first (2.5%) or second level (28%) professional higher education qualification. The overall distribution of the individuals surveyed (%) was the following – University of Latvia – 40.6%, Latvian University of Agriculture – 9%, Daugavpils University – 15.7%, Liepāja University – 34.7%.

3. Research findings

3.1. The development of entrepreneurial competences for students in science and mathematics

At this moment in the schools of Latvia, reforms are taking place that are connected to an overall change of the educational paradigm. This new educational process is based on the development of key competences. A good practice example of this process is demonstrated by the contemporary learning content that was elaborated within the framework of the project co-financed by the European Union (EU) Social Fund (SF).

Methodology materials for the sciences (biology, physics, and chemistry) and mathematics components were authorised, prepared and introduced into all schools in Latvia. Within the framework of the realisation of the project, further education aspects for teacher’s programmes were also elaborated/designed, as well as preparations made for the improvement of professional teacher competences and specialist teacher trainers were prepared. All materials within the project are presently accessible in every school in Latvia as well as on the Internet library of the Educational Centre for Science and Mathematics at the University of Latvia.

“The pedagogic methodology was elaborated based on a science education paradigm (Toldsep) that is oriented to the formation of a scientific and mathematically literate personality by emphasising higher order cognitive skills development in the context of science, technology, environmental, and social needs. Scientific and mathematical literacy includes/assumes the ability to transfer the knowledge and skills acquired in the teaching and learning-process to various real-life practical situations. It may be developed by making the curriculum and learning process relevant to the student, by actualising the student experience, which only becomes possible if the curriculum and learning process are linked to real life” (Curriculum Development., 2008).

Key competences and entrepreneurial competences development opportunities using the new learning content and a how to teach it methodology in the sciences (biology, physics, chemistry) and in mathematics, are being
assessed in accord with the elements of an entrepreneurship education framework elaborated by the author of the report “Educating the Next Wave of Entrepreneurs” and are collected in Table 1.

Table 1. Elements of an entrepreneurship education framework in the process of the acquisition of science and maths*

| Elements of Entrepreneurship Education Framework | Methods and Techniques of the Developed Methodology |
|-----------------------------------------------|--------------------------------------------------|
| Interactive, learning centred pedagogy         | The educational process based on promotion of self-discovery, (problem solving, detecting learning, exploring learning). |
| Multi-disciplinary programmes and projects     | Learning subject content is elaborated so that knowledge acquired in one subject area could be used in another subject. Skills development is planned among subjects, by gradually increasing student independence and responsibility. |
| Case studies, games simulations                | Within the framework of the project, didactic games in biology, physics, chemistry and maths. One production simulation Fabrikants is elaborated so as to help students to understand how, on the basis of exact science, to create an entrepreneurship and how to develop the necessary skills. |
| Extensive use of visual aids, digital tools and multimedia | In all four subjects for every topic from grades 7 - 12 the teacher’s visual material set and student self-instruction CD is elaborated, and includes interactive exercises, animations and video fragments. 27 educational movies are released. |
| Experiential learning/labs                     | For biology, chemistry and physics - for each topic there are several planned laboratory tasks; for maths - research tasks are set and descriptions of these practices are elaborated and a suggested methodology is created by the teacher on the direction of these practices. |
| Interactions with entrepreneurs                | The methodology for student seminars organisation is elaborated, including classes meeting with an entrepreneur and meeting with a scientist. The interactive roadmap is created with schools where “opened” enterprises, journeys are detailed and work sheets prepared for educational excursions. |

* Source. Author’s table, according “Educating the Next Wave of Entrepreneurs” (2009)

The research results (student and teacher surveys) show that by learning the subjects mentioned (within the new learning content and methodology) students had developed additional skills to study and act independently, to be able to set goals and to act in a creative way, to be able to assess their work, to be able to analyse the reasons for failure and to be able to plan further activity; to co-operate and work in a team, to assess, to classify and structure the information, to identify the problem and to plan a solution. On the deficit side there was an identified insufficiency of any obviously developed skills for the pro-active taking up of initiative and personal responsibility (Table 2).

Table 2. Development of entrepreneurial competences for Latvian students in different subjects (number of answers of respondents from a total of 402 respondents*) **

| Subjects             | Ability to learn and act independently | Set goals and act in a creative way | Ability to analyse and plan further action | To take the initiative and responsibility | Cooperate and work in a team | Assess and classify the information | Find the problem and plan the solution |
|----------------------|----------------------------------------|-----------------------------------|------------------------------------------|------------------------------------------|-------------------------------|-----------------------------------|--------------------------------------|
| Latvian language, literature | 79                                    | 153                               | 97                                       | 96                                       | 163                           | 108                               | 88                                   |
| Foreign language     | 93                                    | 91                                | 78                                       | 75                                       | 80                            | 58                                | 52                                   |
| Mathematics          | 190                                   | 92                                | 187                                      | 101                                      | 84                            | 205                               | 263                                  |
| Physics              | 141                                   | 100                               | 162                                      | 86                                       | 99                            | 151                               | 194                                  |
| Chemistry            | 98                                    | 73                                | 124                                      | 82                                       | 109                           | 102                               | 110                                  |
| Biology              | 86                                    | 101                               | 93                                       | 69                                       | 125                           | 117                               | 143                                  |
| Sports               | 25                                    | 51                                | 24                                       | 91                                       | 181                           | 9                                 | 23                                   |
| Economics            | 49                                    | 53                                | 41                                       | 53                                       | 50                            | 77                                | 114                                  |
| History              | 57                                    | 64                                | 28                                       | 46                                       | 86                            | 104                               | 62                                   |
| Music                | 3                                     | 26                                | 5                                        | 7                                        | 12                            | 1                                 | 4                                    |
| Did not improve this skill | 16                                    | 28                                | 23                                       | 55                                       | 7                             | 11                                | 8                                    |

*Each student could name 1-3 subjects in which, according to him, corresponding skills were developed the most.

**Source. Author’s table, according to the research (Project “Science and Mathematics”)
It is evident that there should be more attention paid to the skills required to be able to set a goal, to act in a creative way and to effectively assess one’s work. According to the student responses, the skills mentioned (above) are less developed in subjects such as economics, history and music.

Nevertheless, according to studies being undertaken in Latvia, changes in education are not yet fully being based on competences development, and especially with regard to entrepreneurial competences development. For instance, the comparative analyses of educational standards and subject standards clearly reveals that, while they include the development of some skills, none of these directly mentions the need for students to develop such or other specified competences. Also, the issue and question of applied entrepreneurship through the process of educational pedagogy has not yet received the necessary significant attention of the creative powers that reside at government level within the Republic of Latvia. Until the present there has been insufficient attention devoted to the issue, although, most recently, the National Development Plan (2014-2020) has included a section on the need for the development of life-long learning competences. This advance may well also encourage the improvement of other normative documents.

3.2. Graduate evaluation on the acquisition of necessary knowledge and skills, while studying at universities

The ability of our present-day teachers to realise the educational processes being directed towards the development of key competences among the youth will largely determine the preparation of the new generation for life and work in our ever-changing modern conditions. Because of this, it is clearly very important, first of all, to educate and instruct the front-line teachers themselves. To find out at which level, while studying in university, the then student-teachers were provided with the possibility to acquire the knowledge and skills needed, a question was addressed to the respondents “To what extent, while engaged in the study process at university, did you acquire such knowledge and skills?”

The assessment of respondents is summarised in the Table 3.

Table 3. Thematic groupings “teacher education and educational sciences”: An assessment of respondents on and to what extent they had an opportunity to acquire the knowledge and skills (mentioned below*) (%; n=478) while studying at university**

| Knowledge and Skills                              | Not learned | Very low level | Low level | Medium level | High level | Very high level |
|---------------------------------------------------|-------------|----------------|-----------|--------------|------------|-----------------|
| Theoretical knowledge in the chosen level          | x           | 0.8            | 1.0       | 25.5         | 62.8       | 9.6             |
| To gain research skills                           | 0.6         | 1.7            | 7.5       | 44.6         | 38.1       | 6.9             |
| To apply theoretical knowledge to practical work  | 0.4         | 1.7            | 5.0       | 36.0         | 47.7       | 9.0             |
| The ability to work with information, to evaluate, analyse and systematise it | x           | 0.8            | 4.0       | 30.8         | 52.5       | 11.3            |
| To provide innovative solutions for problems of different difficulty level | 0.4         | 1.3            | 6.5       | 38.7         | 41.8       | 10.5            |
| The skill to make decisions, based on previous information analysis | 0.4         | 0.6            | 4.6       | 39.1         | 46.9       | 7.1             |
| To develop skills in preparing documents and reports | 3.8         | 3.8            | 13.2      | 43.9         | 30.8       | 3.8             |
| The ability to present information to the public   | 0.6         | 1.9            | 4.0       | 27.8         | 49.8       | 15.7            |
| To address the public and support an opinion/position | 1.3         | 1.0            | 5.0       | 31.6         | 46.0       | 14.4            |
| Skills gained for working in team                 | 1.5         | 0.6            | 2.3       | 26.2         | 51.5       | 17.4            |
| To learn branch/topic/technical terms in foreign languages | 14.2        | 4.6            | 17.6      | 34.9         | 21.5       | 6.7             |
| To work with specific computer programmes of the branch/topic | 17.4        | 6.7            | 19.7      | 34.9         | 17.6       | 3.6             |
| Skills to plan, organise and manage own work      | 1.9         | 1.3            | 4.0       | 29.3         | 51.5       | 11.5            |
| Entrepreneurial skills                            | 33.9        | 8.6            | 19.9      | 25.5         | 9.2        | 1.9             |

* Just one response is given in each row. The total response of 100% does not apply because some of respondents did not provide an answer to this question.

**Source: Author’s table, according to the research (Project on Universities Investments in Latvian Economy – UILE, 2011)
3.2.1. The following possibilities were evaluated at a high to very high level
1. Possibility to gain theoretical knowledge in the chosen level (72.4%),
2. Skills/ability to present information to the public (65.5%),
3. Ability to work with information, to evaluate, to analyse and to systematise it (63.8%),
4. Skills/ability to plan, to organise and to manage one’s own work (63.0%),
5. Skills/ability to present information to the publisher (60.4%),
6. Skills gained for working in a team (58.9%),
7. To apply theoretical knowledge to practical work (56.7%),
8. Skills/ability to make decisions, based on previous information analysis (54%),
9. To provide innovative solutions for problems of different difficulty level (52.3%).

3.2.2. The following possibilities were evaluated at a medium level
1. To gain/acquire research skills (44.6%),
2. To gain/acquire skills in the preparing of documents and reports (43.9%),
3. Skills/ability to make decisions, based on previous information analysis (39.1%),
4. To provide innovative solutions for problems of different difficulty level (38.7%),
5. To apply theoretical knowledge to practical work (36.0%).

3.2.3. The following skills were evaluated at a low and very low level
1. To gain/acquire skills for starting entrepreneurship (28.5%),
2. To work with specific computer programmes in the branch area (25.4%),
3. To learn branch area terms in foreign languages (22.2%),
4. To gain/acquire skills in the preparing of documents and reports (17%).

3.2.4. Had no opportunity to acquire
1. Entrepreneurial skills (33.9%),
2. To work with specific computer programmes of the branch area (17.4%),
3. To learn branch area terms in foreign languages (14.2%).

On the basis of the combined universities graduate student evaluations concerning the level of knowledge gaining and skills development acquired while students at the various universities, we may conclude that the possibilities for gaining theoretical knowledge have been evaluated at the highest level, as are the ability to present information and to evaluate, analyse and systematise it. The core base of theoretical knowledge is very important, since theory provides the analytical instruments that are necessary for understanding the meaning of concrete facts and the analysing of these serves to help make purposeful decisions on personal and socio-economic questions. Thus, it is clear that the necessity to gain theoretical knowledge should not be denied. At the same time, knowledge gained should be applied into practice.

This study has revealed that many of the skills necessary in the present-day work environment, are being acquired at university level but at a medium or even low level. These abilities include: research skills, the acquisition of specialised terms/terminology in foreign languages, the ability to work with specialised computer programmes in the various fields, the skill/ability to launch entrepreneurship/enterprise. We can also observe that the classical lecture giving principle is much more dominant throughout universities in Latvia. Less attention is being paid towards the practical side of the study process: on the possibility for students to work on projects, to undertake research in order for them to ‘discover’ solutions, to utilise the latest information technologies, and to develop the necessary skills that better correspond to present-day labour market requirements.

One shouldn’t exclude the possibility that entrepreneurship education, as it is presently being realised at universities, is being very poorly evaluated. Based on the graduate student answers in the various frames of the questionnaire, entrepreneurial skills have been evaluated at the lowest level. According to the data, some 33.9% of the respondents have not learned or acquired any entrepreneurial skills at all whereas 28.5% have learned or acquired some skills at a low or very low level but 25.5% have learned these skills to medium level. Only 11.1% of the respondents claimed to have learned or acquired these skills at a high and/or very high level.

Thus, it appears that studies at university do not presently provide opportunities for our future educators to acquire those skills and knowledge to a full extent ... skills, which are increasingly necessary for the integration of the issues for the promotion and development of entrepreneurial competences among pupils in all subject
areas. This means that after graduating from a university, our present-day teacher’s skills and the ability to ensure a new type of learning environment are limited.

4. Conclusions

There presently already exists a set of methodological and support materials for science and maths subjects, elaborated and teacher-prepared, that assure the realisation of educational processes directed to the acquisition of key competences for students.

The results of this research paper indicate that in utilising contemporary methodological materials in the teaching/learning process, it is possible to develop entrepreneurial attitudes for better student acquisition of mathematics and the sciences, so that they may apply their knowledge practically, be able to select and summarise information, to present it and to become more creative. However, the necessary skills/conditions required taking on direct personal initiative and responsibility are still insufficiently developed.

The findings of this study allow for the overall conclusion that, in general, the new generation of teachers in Latvian universities is well prepared in accord with present-day labour market challenges. The research undertaken has conclusively revealed that our future educators, while studying at university level, did obtain quite good theoretical knowledge and the necessary skills to further present this learned information to the public, to evaluate, analyse and systemise it, etc. At the same time, many of the skills necessary nowadays are being acquired at university at a moderate or even low level. Some drawbacks have also been identified concerning entrepreneurship education.

5. Suggestions

It is necessary to elaborate a corresponding methodology of education and to educate all teachers in the field of education entrepreneurship, in order to encourage elements of student entrepreneurship development integration in their subjects as well as the need to educate/inform educational administrators in schools and methodologists so that they might be capable of leading and co-ordinating teacher teamwork.

In order to provide the opportunities for educators to acquire such skills and knowledge to the fullest extent, which is necessary for the development of entrepreneurial competences among people, it is important to raise the competitiveness and quality of university education. Study course content should be changed substantially, by involving a greater unification of theory and practice in the study component, and, by providing greater possibilities/opportunities for students to study by doing, in order to confirm their skills in concrete activities, and by searching for innovative approaches for the solving of economics related problems.

Latvian politicians must promote entrepreneurship education by adopting/developing a strategy similar to that already being realised in other EU states.

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