

Development of Home Economics and Technologies Education

**for Life
Quality
in Latvia**



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Abstract

The research “Development of Home Economics and Technologies Education for Life Quality in Latvia” is based on authors’ experience gained in long-term activities. The study is a scientific monograph, the materials is approbated in authors’ doctoral thesis and in scientific publications. The Home Economics education in Latvia has significantly changed from the acquisition of a simple, practical, narrow specification profession to the conscious, all-around development of a pupil’s individuality aimed at awareness of the quality of life and purposeful action to improve its quality. The aim of the book is to introduce the public to different aspects of the development of Home Economics and Technologies (Design and Technology) education for life quality in Latvia at schools and at University level. This book describes the research done by authors within Home Economics and Technologies sphere during 2000-2020 years in Latvia University of Life Sciences and Technologies (LLU), Institute of Education and Home Economics. Here are described the historical development of the Home Economics from 19th century until nowadays in Latvia, the change of paradigm of Home Economics studies, relationship between various aspects of the education in Home Economics and Technologies in the context of sustainable development, methodology structure for training teachers of Home Economics and Technologies at University level, understanding of life quality criteria of Home Economics and Technologies education in elementary school, research of pupils nutrition habits; the Information and Communication Technology Integration Skills Development Model in Home Economics and Technologies education for prospective teachers based on transformative digital learning, integration and student-centred approach implementation in the study process. The book is intended for researchers, University lecturers, teachers, master students, students, and other interested parties.

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Introduction

Home Economics and Technologies (HET) is a field of study and a profession, classified in the Educational sciences that draws from a range of disciplines to achieve optimal and sustainable living for individuals, families and communities. Its historical origins place Home Economics in the context of the home and household, and this is extended in the 21st century to include the wider living environments as we better understand that the capacities, choices and priorities of individuals and families impact at all levels, ranging from the household, to the local and the global community.

Today's Home Economics and Technologies subject content is very many-sided. It is developed in accordance with today's education and life requirements. Its content has expanded and specified. However, the main focus of which runs through all the time training programs is aimed to promote the quality of life. One of the most important changes in the Home Economics study subject content is to further intensify the practical skills in elementary education including shift of training goals and motivation accent from subject' relatively limited pragmatic area (from household self-service area) towards social (attitudes and psychological - personality suitable creative and applied) area.

Assistant professor Dr. paed. Iveta Lice-Zikmane has studied relationship between various aspects of the education in Home Economics and Technologies as well as the historical development of the HET from 19th century until nowadays and the change of paradigm of HET studies and conducted research on education for sustainable development at Home Economics and Technologies.

Associate professor Dr. paed. Vija Dislere has studied Institutions providing Home Economics education in Latvia historically, worked out Methodology Structure for Training Teachers of Home Economics and Technologies, what include subject and tasks of methodology, components of study subject, basic principles of methodology, elements of pedagogical techniques, and it is the part of established study course *Methodology of Home Economics and Technologies* which is accepted in e-studies environment as complementary aid for training teachers of Home Economics and Technologies in Latvia University of Life Sciences and Technologies (LLU). Students attitude were very positive and full-time students were more satisfied than part time students using it. To be successful in four dimensions of practice (academic discipline, everyday living, curricula, and development policy) means that the profession is constantly evolving, and there will always be new ways of performing the Home Economics and Technologies profession. This is an important characteristic of the profession, linking with the twenty-first century requirement for all people to be "expert novices", that is, to be good at learning new things, considering that society is constantly and rapidly changing and emergent issues and challenges arises very often. Research on different didactic aspects of Home Economics and Technologies training includes description of the development of consumer education in Latvia step by step, how to develop pupils thinking skills during the lessons of Home Economics and Technologies at basic school, importance of using information and communication technologies (ICT) as a didactic tool during teacher training, and about good success using learning video as a didactic tool for training handicrafts.

Understanding of life quality criteria (economic, social, spiritual) of Home Economics and Technologies education in elementary school was studied by assistant professor Dr. paed. Aija Pridane. UNO, Council of Europe Framework Convention on the Value of

Cultural Heritage for Society (Par Eiropas Padomes..., 2006), Latvian National Development Plan for 2014-2020 (National Development Plan..., 2012) emphasize that the quality of a human life is a significant factor for the country's development overall. The basic objectives for the strategy of sustainable development of Latvia till 2030 are: happy people in the prosperous country, sustainable and healthy way of life, creative and tolerant society (Sustainable Development Strategy ..., 2010). International Federation for Home Economics emphasized the insight into the optimal and sustainable life in all fields: political, social, cultural, ecological, economical and technological fields, at the global and local levels (Arcus, 2008). It is common to the priority set in the Latvian National Development Plan (Latvian National Development..., 2006) - the quality of life. But sustainability, alongside with the welfare and safety, has been pointed out as the third part in the guidelines of the strategically developmental goal of Latvia: to have a better life. The topicality of life quality and the having insight into it is significant in the field of Home Economics education, which lasts all life-long. It begins in the family and is related to both spiritual and material values. In knowledge-based society, individuals themselves plan and arrange their life- they are able to use the resources they have at their disposal for the benefit of themselves and the society; they are competitive; they can successfully live in the ethnic and language diversity existing in the cultural environment. Linking the quality-of-life criteria (economic, social, and spiritual) with needs "to be", "to belong", "to become" and including them in the Home Economics and Technologies curriculum in elementary education in schools can contribute to the understanding of quality of life. A. Pridane described Curriculum Implementation in the Subject Home Economics and Technologies and carried out research on students' nutrition habits.

There are an increasing need of development of information and communication technology (ICT) integration skills for teachers in Home Economics and Technologies education. For teachers, using their creativity and professional capacity, it is necessary to ensure the effectiveness of working with information and training in HET. Assistant professor Dr. paed. Natalja Vronska studied ICT literacy opportunities for Home Economics and Technologies teachers, worked out The Information and Communication Technology Integration Skills Development Model in Home Economics and Technologies education.

This monograph is an original work, which summarizes the authors' scientific research in a single thematic system for the development of Home Economics and Technology (Design and Technology) education to improve the quality of life in society, following the guidelines of the International Federation for Home Economics (IFHE).

1. Historical development of the Home Economics education in Latvia

Home Economics is one of the study subjects included in the general education school program. Analysing the Home Economics programmes in the perspective of time, changes can be observed not only in the title of the study subject, but also in the structure, content and used methods (Lice, 2003a; Lice, 2003b). We can see that the title of the subject has also changed varying from – from Handicraft, Practical Work, Home Economics, Household, Work Training, Home Economics and Technologies to Design and Technologies.

The beginning of development of education and establishing of schools in Latvia were closely related to the church and clergy. In the Baltics fast changes in schools happened in 1804 when the New Law of Schools was adapted. As it was shown the task of the parish school was to prepare children for district school and for the life. In these schools' children were taught to read; to write; to calculate; theology; short teaching of *Home Economics*, natural phenomena, human body and health (Vičs, 1994).

In 1805 Terbata University teaching district parish school statutes were signed. Handicraft or Home Economics are not mentioned. Nevertheless, in item 25 it was said: "School children should be taught also *handicraft* that is necessary for their future life so there was sought for teachers who could teach these subjects" (Vičs, 1994, 11).

In 1891 temporary curriculum was determined for schools where 2 hours per week handicraft were envisaged for girls (from grade 1-3) (Ruberts, 1973).

In 1925 a new elementary school curriculum was issued. The new elementary school curriculum stresses more close relation of the school life, to practical activities (Latvijas tautskolu programma, 1925, 21). The program includes a new subject Home Economics for girls, but Handicraft is divided in-groups for boys and girls.

In 1935 in the curriculum of Latvian elementary schools there is an indication Practical Work. It includes separate subjects: Handicraft of boys and girls; Practical work in agriculture; Household for girls (Latvijas pamatskolu programmas, 1935, 120).

During the Soviet time the development of pedagogical thought was related to pedagogical experiences of Russian schools. The curriculum was rearranged according to the example of Soviet Russian Federation schools (Miķelsons, 1969).

Analysing the further Practical Work curricula (from 1958-1966) there are observed changes in the content and organisation of studies to compare with previous curriculum. Options or two trends are offered at schools: work for boys and work for girls differentiating between the interests of boys and girls (Praktisko darbu programma..., 1958).

A study subject Work Training is included in curriculum 1970/71. It is similar to Practical Work according to the description of the curriculum (Darbmācības programma..., 1970, 3).

The author I. Lice-Zikmane has elaborated a comparative table regarding the content of programmes, accenting topics related to textiles (Table 1).

Table 1

Historical view of the content of programmes of the subject Home Economics and Technologies (Lice, 2012)

Years	Subject	Textile related topics	Other topics
During the times of independence of Latvia			
1921	Handicraft	Textile technologies: knitting, crochet, embroidery, sewing. Mending and darning.	
1925	Handicraft	Textile technologies: knitting, crochet, embroidery, sewing. Mending and darning.	
	Home economics	Treatment of kitchen closing and under-closing. Choice of closing and underwear. Treatment of closing.	Arrangement of kitchen. Diet. Cooking. Cleaning of living premises. Soap boiling. Accounting.
1928, 1930	Handicraft	Textile technologies: knitting, crochet, embroidery, sewing. Mending. Composition (in notes).	
	Home economics	Choice of closing and underwear. Treatment of closing. Treatment of clothing.	Arrangement of kitchen, tidiness. Diet. Cooking. Table laying and etiquette. Cleaning of living premises. Accounting.
1935, 1938	Handicraft	Textile technologies: knitting, crochet, embroidery, sewing. Mending. Ribbon weaving. Composition (in notes). Ethnography (in notes).	
	Household	Treatment of closing. Choice and purchase of clothing. Treatment of clothing. Apartment decoration.	Arrangement of kitchen, tidiness. Diet. Cooking. Laying table. Cleaning apartments. Accounting.
1941	Handicraft	Textile technologies: knitting, crochet, embroidery, sewing. Mending. Composition (in notes).	
	Household	Treatment of closing. Choice of clothing. Treatment of clothing.	Arrangement of kitchen, tidiness. Diet. Cooking. Laying table. Cleaning apartment. Accounting.
During Soviet times			
1955, 1957	Practical classes in workshops		
60-70ties	Practical classes. Classes for girls.	Textile technologies: knitting, embroidery, sewing. Composition. Ethnography. Treatment of closing and underwear. Textiles for premises.	Arrangement of kitchen, tidiness. Diet. Cooking. Table laying, etiquette, serving of food. Decorating of living premises, tidiness. Electric heating devices.
70-80ties	Work training. Home economics	Textile technologies: Knotting, crochet, embroidery, sewing. Material science. National applied arts. Ethnography, composition (in notes). Treatment and cleaning of outdoor closing. Treatment of closing and underwear. Textiles in apartment.	Kitchen and kitchen furniture. Diet. Cooking. Preparation of menu. Table laying, etiquette. Decorative plants, treatment. Apartment decorating, neighbourhood. Engineering elements. Electronic works.

The Standard of Home Economics for Elementary education was improved and approved in 1992, then in 1998 (Mājturība..., 1998), in 2010 (Mājturība un tehnoloģijas..., 2010a; Mājturība un tehnoloģijas..., 2010b), and in 2014 (Regulations Regarding..., 2014; Mājturība un tehnoloģijas..., 2014). According to the standards the programmes for study subjects Home Economics were worked out separately considering the students' interest in textile work or wood and metal-working. The above-mentioned directive document divides the study content into two parts: A and B. Part A is acquired equally for boys and girls. The themes are the following – nutrition, clothing, household, consumer science, protection of the human and the environment, safety. Part B are divided according to the interest and choice of the pupils: textile or wood and metal work (Lice, 2012). Home Economics and Technologies is the only subject at an elementary school, where, while implementing the standard, at least 75 % of the time, allocated for the study process, should be spent for the acquisition of skills and the obtaining of experience, how to perform practical activities.

Example of the Programme of Home Economics and Technologies with Choices in Textile Technologies - Annual Thematic Plan for Grades 5-9 can be viewed in Annex 1 and example of the Programme of Home Economics and Technologies with a Choice in Wood and Metal Technologies Annual Thematic Plan for Grades 5-9 during the period 2006-2020 can be viewed in Annex 2 (Dislere, 2012a).

The history is similar in our neighbour country Lithuania. Scientists from Lithuania Z. Sederevičiūte-Pačiauskienė, I. Valantinaite and V. Žilinskaitė-Vytienė (2020) mentioned that the content of the textbooks on handicraft, handwork and domestic culture, technologies, which were published from 1928 to 2017 in Lithuania, changed insignificantly, the essential parts of the content remaining unchanged: nutrition (cooking, foodstuff), textiles (crochet, knitting, sewing), electrotechnics (later electronics) and construction materials (woodworking, metalworking). The content of the textbooks of handicraft/technologies has always been differentiated by gender. Although the development of the subject is slightly different in different countries, the subject's objectives are very similar in Latvia, Lithuania, Estonia and Finland (Dislere, 2012b; Lice-Zikmane, 2018; Lind, Parlin, 2017; Lips, Kikkull, 2017; Ļubkina, 2007; Pöllänen, Urdžiņa-Deruma, 2017; Pridane, 2017; Taar, 2015; Taar, Vant, 2017; Volane, 2014; 2015; Turkki, 2007; 2012; Žygaitienė, Miškinienė, 2012). The subject nowadays is one of the main subjects to where STEAM topics are implemented.

1.1. Change of paradigm of Home Economics study subject

The 21st century can be characterised by rapid changes in politics, economics, national economy, as well as education in Latvia. Within the different social systems education has always been, is and will remain the most important, essential, persistent and relevant development factor and value that does not provide the result or profit directly, but ensures appearance of it in a certain period of time through new ideas, tasks, new attitudes and competences of every next generation. Common paradigm of the 21st century is learning to think systematically, find one's own role in the society both as a consumer and a new product leader, to be a partner that is open and interested in the society as well as responsible and appropriate (Matisāne, 2010).

To increase our human capital and fully make use of other – cultural, natural or economic – resources, a change in education paradigm is necessary (Sustainable Development Strategy..., 2010). In the Latvian National Development Plan human is proposed to be the one who ensure the growth of the state: Our main resources are the people's knowledge and wisdom as well as their ability to use them efficiently and purposefully that can benefit the whole society and each individual to reach the standard of living what developed countries have attained (Latvian

National Development..., 2006, 8). Latvian scientists B. Rivža and M. Kruzmetra emphasize that the 21st century requires a human who has not only acquired knowledge, but also is able to think and act creatively and be able to adapt to the rapid changes in economics, politics, culture and at the same time who is able to create such changes (Rivža, Krūzmētra, 2007, 7).

One of the manifestations of the education paradigm is transition from the traditional society to the knowledge society. It rises different discussions, justifications, and arguments. Analysing the understanding of the traditional and knowledge society, the scientist T. Kože stresses that the difference in the comprehension of freedom in the context of education and upbringing is especially topical (Kože, Muraškovska, 2007). In the traditional society it relates to getting rid of limitations while in the knowledge society freedom is guaranteed by the human ability to be able to act on the basis of different competences. The material basis of the knowledge society, in turn, is the knowledge-based economic development that expands the possibilities to protect and strengthen the level of welfare of the society.

Qualitative and creativity-oriented education is a typical need of the 21st century what is available throughout the whole life– it allows to respond to the global competition and demographic challenges, as well as it is one of the preconditions for the change of the economics model (Sustainable Development Strategy..., 2010,10).

The changing education paradigms have determined the need for new education programmes. Analysing the improvement of education programmes, D. Prets indicates that usually an education programme is considered propulsion which helps people to find the meaning of their life. The most important task of education programmes, in turn, is liberation, thus ensuring pupils with as many as possible options to choose (Prets, 2000, 20). A. Broks mentions that today is the necessity for new education content, new methods, new education employees and appropriate financial and materially technical resources (Broks, 2000a).

Home Economics and Technology Education is undergoing a paradigm shift: the focus on memorizing knowledge is being replaced by a focus on using it. The applied arts scenario involves the study of artifacts of the historical cultural environment and development of archetypes of the folk art. The applied arts scenario has emerged from the use of sources of the historical environment (archaeology and ethnography) in the creative process of education. Acquisition and inheriting of elements of the traditional culture reflexively continue the historical tradition in creation of the modern cultural environment. The scenario of the home environment economics has resulted from the influence of the liberally rational pedagogical paradigm. This scenario directs the education of home economics towards improvement of the quality of society's life (Kūle-Braža, 2013).

The Home Economics and Technologies study subject is one of those that are included in compulsory content of elementary education. The changes in education paradigms have affected also to the study subject of Home Economics and Technologies.

Elementary Education Compulsory content consists of several educational areas. Home Economics is included in area *man and society*. All learning areas include educational aspects. Educational aspects reflect to the general skills development experience the pupil's personality (Regulations Regarding..., 2014.)

In Home Economics the pupil's most important general skills and abilities are recommended to develop purposefully in three aspects: self-expression and creativity, social (cooperative), learning and practical activity aspect. Development of learner's overall skills and capacity should be promoted also in critical analytic, evaluative (moral - aesthetic) and mathematic

aspects. While to the communication aspect it is not necessary to pay so much attention, because it is not the main task of the subject.

Based on relationship between the aspects during learning process, the author I. Lice has set up a scheme *Relationship between the learning aspects in Home Economics studies* (Figure 1).

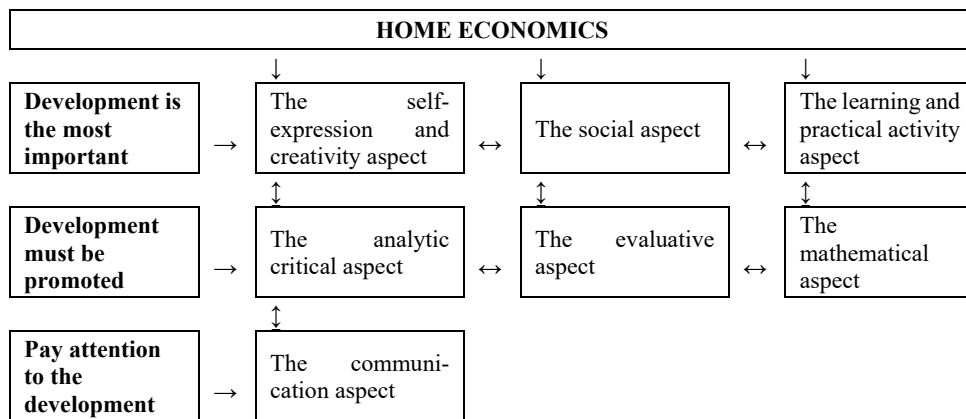


Figure 1. Relationship between the learning aspects in Home Economics studies (Lice, 2005)

Exactly in the framework of *the self-expression and creative aspect* the students will gain diverse experience of creative activity and of self-expression, which promotes the development of creativity, artistic creativity, self-expression opportunities, emotional attitude in Home Economics lessons. Designing the new creative and interesting compositions, individual clothing critical evaluation, improvement of their own environment, creative analysis of independent work promotes pupils' creative action skills and accumulation of specific experience.

During Home Economics and Technologies lessons *the social (cooperation) aspect* includes social experience skill by finding their own and other countries' history, culture and ethnic characteristics. Acquiring own ethnographic culture and preserving cultural heritage, respecting decency and aesthetic norms, inter-communicating in household activities – during holidays, meals, choosing the purchases, what contributes to the pupil's personality and general communicative skills.

The learning and practical activity aspect includes diverse work experience both organizing and implementing learning and taking responsibility for their education. Nowadays it is important to acquire the various information technologies (IT) that contributes to the quality of Home Economics lessons. Preparing a variety of items training practitioners gain work experience what contributes to her/his further development of life skills.

The evaluative aspect includes the learner's evaluating experience - learn to see, to feel and to enhance the beauty around themselves.

The analytic critical and mathematical aspect includes students' experience gained in intellectual activity. Pupils learn to use mathematical concepts in their practical life within the Home economics lessons, for example, costume design skills and modelling, calculations and understanding of graphs.

During Home Economics lessons there are discussions, watching a variety of teaching aids, pupils defend and argue their views. Negotiations occur in Latvian language, but a lot of materials are used also in foreign language, mostly Russian, English, German, Lithuanian, Estonian languages. It's all included in *the communication aspect*.

Based on the theoretical analysis of educational aspects and data analysis of questionnaire of 70 experts, who were Home Economics teachers, the ranking of aspects was established considering its importance in Home Economics studies (Lice, 2005):

1. The self-expression and creative aspect.
2. The evaluative (moral and aesthetic) aspect.
3. The learning and practical activity aspect.
4. The social aspect.
5. The analytic critical aspect.
6. The mathematical aspect.
7. The communication aspect.

All aspects are interlinked and are necessary for development of pupil's personal general skills and their creative action skills. Nowadays pupils acquire knowledge and skills typically of creativity-oriented education. However, each individual determines her or his own ability and wish to act, using the acquired and improved competences in Home Economics.

A pedagogical research was carried out to investigate the changes in the content of the Home Economics subject in practice. The research was done in LLU, Institute of Education and Home Economics in 2011-2012 (Lice, 2012). The research respondents were split in three groups acquiring Home Economics at different time periods: group 1 – pupils acquiring Home Economics now, group 2 – the youth acquiring Home Economics in about 2000, group 3 – adults acquiring Home Economics until 1970. Totally, there were 130 respondents. The following research methods were used: investigation of Home Economics and Technologies programme, questionnaires, observation and discussions. The results have been summarized and the relevant ones are presented graphically using calculations of percentage. The materiality level is determined using Yetes' p-value (Preacher, 2001).

The pedagogical research focused on the personal viewpoints of the respondents about Home Economics during their school years and reflection after several years, practical life-based conclusions and relation to Home Economics at school, observation of changes in Home Economics content.

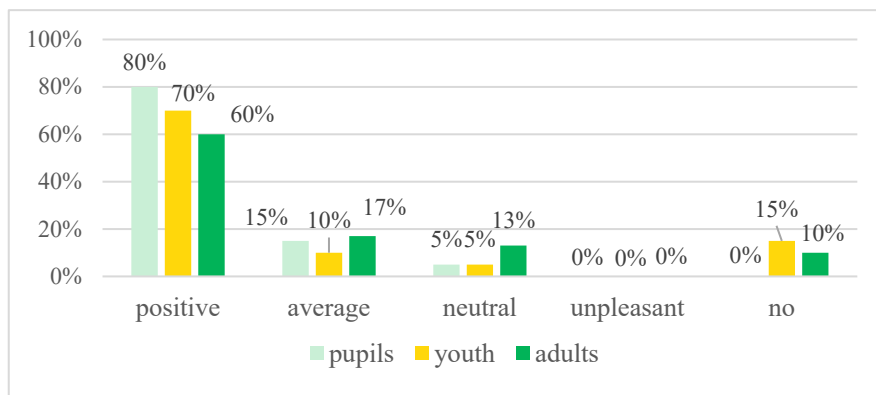


Figure 2. Respondents have memories as regards Home Economics (Lice, 2012)

The research data shows that respondents of all groups have positive memories as regards Home Economics (80 % pupils; 70 % youth; 60 % adults). Neutral memories are typical of 5 % respondents from group 2 and 13 % from group 3 that have acquired Home Economics some time ago. Option of answer - *unpleasant* has been chosen by none of the respondents.

Comparing the responses of the three groups of respondents, it can be concluded that respondents from group 1 and group 3 have provided similar positive answers, but those from group 2 – reserved (Figure 2).

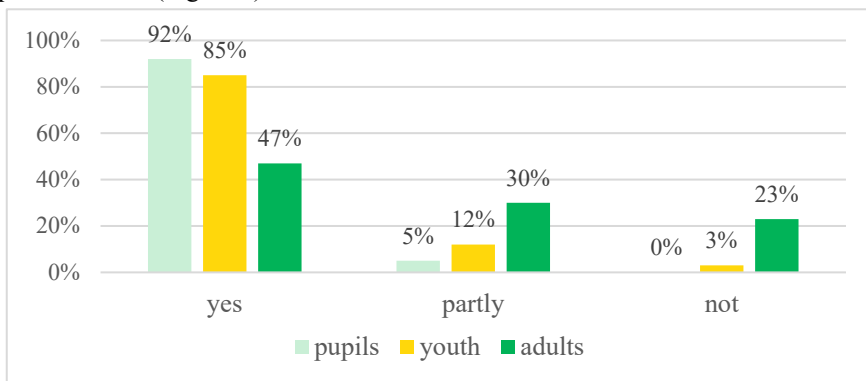


Figure 3. The usefulness of knowledge and skills for life (Lice, 2012)

A certainly positive statement was gained by respondents of all groups as regards the question, whether the knowledge and skills acquired in Home Economics classes are useful in life (92 % group 1, 85 % group 2, 47 % group 3). Option of answer - *Partly* was indicated by 12 % of group 2 and 30 % of group 3 (Figure 3). Checking with criterion with Yates correction there are essential differences between the groups in the usefulness of knowledge and skills for live (Yates' p-value = 0.046).

1.2. Research on education for sustainable development at Home Economics

The last decades in the world development are characteristic not only with high scientific achievements, the development of information technology, the growth of economics and the high level of culture. Alongside with the rapid growth of well-being and the development of the national economy it is possible to observe some threatening problems in the context of the environment. The complications with the power supply, the rapid climate changes, the globalization of economics, the decrease of the natural resources, the pollution of air and other environmental and development problems cause threats to the future of the mankind (Lice, Reihmane, 2015). The development is necessary to satisfy the peoples' needs and improve the quality of their life but on the other hand – it must be done in the way that would preserve the similar opportunities of the nature and environment availability now and in the future (Zaļoksnis, 2009).

The Sustainable Development Strategy of Latvia until 2030 (Sustainable Development Strategy..., 2010) invites to satisfy the needs of the present generation, balancing public welfare and environmental and economic development interests, and call to preserve the natural diversity in order to avoid the reduction of possibilities to satisfy the needs of the future generations.

Home Economics and Technologies is one of the subjects at school what deals with various topics related to sustainable development. The aim of the subject is to improve the learner's understanding of habitat environment safety and quality conditions and possibilities for its improvement, to promote the learner's practical action and social cooperation skill development, for anyone to be able to plan and organize personal household, to comply with safety conditions, to handle extreme situations adequately and with understanding and to creatively involve in the implementation of technological processes. It is firmly connected with environmental education guidelines. One of the Standard of Primary Education

objectives is to promote a responsible attitude towards oneself, family, society, environment and the state (Regulations Regarding..., 2014). Throughout the century's home economics has provided its significance in increasing the quality of human life. From the beginning of the creation of the subject there is a close bond with the idea /beliefs of sustainable development. It is due mainly to their personal household management, providing daily living needs, self-provision, taking care/thinking about tomorrow (Lice, 2003).

Younger classes students learn to use economically a variety of materials – paper, cardboard, fabric, yarn and thread. When preparing the items using different technologies, students gain a concept of the extraction, processing of the material and its compliance with the requirements. When purchasing the necessary materials and products in the store, students get to know consumer philosophy, such concepts as price, packaging, label, warranty, quality etc. get more relevant. Students see the development of different aspects of life through practical work and obtain comprehension about the essence of the sustainable development.

Today acquisition of education for sustainable development is emphasised together with the human free willingness, choice and understanding. In home economics, the understanding of the student about the safety and quality conditions of the human living environment, the ability to creatively involve and solve problems related to that, the ability to gain experience in creative activity is emphasized (Lice, 2012).

The scientific research done by I. Lice-Zikmane and S. Reihmane (Lice, Reihmane, 2015) focused on the aspects of education for sustainable development, sustainable consumptions, social innovation and sustainable lifestyles was carried out in Jelgava Elementary School No 4 (Latvia) during autumn time 2014, where 140 students aged 11-12 were invited to participate in this research. The aim of the research - to clarify students' understanding and preparedness for sustainable development. The research was done within Home Economics and Technologies lessons. Different research methods such as: questionnaire, discussion and observations were used in the current investigation. Summarising the results, the students showed an interest in the chosen discussions topics. The main discussion topics were preservation of nature, municipal waste, household chemicals, natural disasters, climate changes. During the discussions the students were open, impulsive, sometimes did not listen to what their fellows said. Students had their own comprehension in sustainable development. The research data show that 80 % of the students understand the main directions of sustainable development, 35 % of the students feel safety and 43 % feel partially. All students support or partially support material recycling, accordingly 84 % and 16 % of the students; 46 % like and 35 % partially like to write on the paper, what is made from recycling materials. All students named concrete objects as presents made from recycling materials. 67 % of students have thought about personal action for sustainable development.

Basic education is a key to a nation's ability to develop and achieve sustainability targets. Education directly affects sustainability in the following three areas (McKeown, 2002):

- *implementation* - an educated citizenry is vital to implementing informed and sustainable development;
- *decision making* - good community-based decisions - which will affect social, economic, and environmental well-being - also depend on educated citizen;
- *quality of life* - education is also central to improving quality of life. Education raises the economic status of families; it improves life conditions, lowers infant mortality, and improves the educational attainment of the next generation, thereby raising the next generation's chances for economic and social well-being. Improved education holds both individual and national implications.

Approaches to education (Jutvika, Liepiņa, 2015):

- *children centred approach* - students must be responsible for their learning and the learning is determined by students' experience and questions;
- *process oriented approach* - paying *attention* to relationships and systems;
- *society and nature directed approach* - it means *involving* students in the processes of real life and everyday situations;
- *integrated approach – holistic approach* - it *includes* subjects and perspectives.

Analysing the role of education researcher V.W. Thoresen indicates that education is a prerequisite for stimulating students' involvement. This emphasizes to a solid foundation in social and natural sciences including aspects of sustainable development, for all students. It demands interdisciplinary and transdisciplinary teaching which focus on modern dilemma on micro as well as macro levels. It requires education dealing with the problems' individuals encounter in their daily lives. This is often referred to as "holistic" education (Thoresen, 2007; 2015).

The scientific research done by I. Lice-Zikmane and S. Reihmane (Lice, Reihmane, 2016) with the aim to determine students' attitude and preparedness for sustainable development was carried out in Jelgava Elementary School No 4 during 2014-2015 within education for sustainable development; 62 students aged 11-12 were invited to participate in this research. The research was done within lessons of Home Economics and Technologies and during students' free time. Different research methods such as: discussions, questionnaires, observations and an experiment were used in the current investigation.

V. Muster emphasizes some of the varied strengths of Home Economics that deserve appropriate scientific and social recognition and further elaboration in order to promote sustainable development:

- focus on a responsible use of resources;
- focus on practical knowledge;
- focus on productive household functions;
- focus on an alternative economics paradigm (Muster, 2013).

The research develops the main aspects of the Project Looking for Likely Alternatives (LOLA) (Jegou, Thoresen, Manzini, 2009). LOLA Project is a pedagogical tool for teachers and students which assist them in the process of identifying, evaluating and documenting cases of social innovation towards sustainable lifestyles. It was established in 2005 within project Consumer Citizenship Network (CCN). The LOLA project, what was part of CCN, allows teachers and their class to discover approach and give visibility to new sustainable lifestyles in their surroundings. The experiment-project 'Household waste' was carried out following the didactic approaches offered by LOLA Project. The research stages were specified taking into consideration terms of carrying out scientific research:

- choice of the aim and objectives of the research based on local characteristics;
- possible variants of managing the research; methodology;
- questionnaire before experiment;
- experiment (project "Household waste") in process;
- questionnaire after experiment;
- analysis, conclusion.

The steps of project 'Household waste' were worked out according to the main didactic materials of the LOLA Project and the professional pedagogic experience of the authors (Lice, Dislere, 2009; Dislere, Lice, 2008):

1. Introduction (explanation, agreement, topicality).
2. Review Methodology of Step-by-Step Cards (every step is briefly analysed, methodology).
3. Step-by-Step in process (activities).
4. Prepare the presentation of project 'Household waste' (show investigation).
5. The presentation of project 'Household waste' (presentations, observations, overview, conclusion).

The following teaching forms were used in the project process: frontal, group and individual. The teaching methods vary depending on the activity structures of the current project. The main ones are: discussions, interviews, brainstorm, role play, table of ideas, the use of information and communication technologies, drawing, photographs, design, presentation, imitation etc. "Household waste" project work is based on students' creative action, critical thinking and experience. The questionnaire was carried out before and after the project activities. Five of seven questions included in the questionnaire are the same. Its aim is to compare the students' attitude and preparedness for sustainable development before and after the implementation of the project. There are questions where students choose from the given answers: yes, partially, little, no, or give free answer.

The research data show that after taking part in project "Household waste" the students can better characterize the essence of sustainable development (before 24 % of the respondents can characterize fully, after 69 %), they more thing about the human actions unprotected and unpolluted environment (before 35 %, after 84 % of the respondents). Students do not name lots of activities how to protect the environment before the project. After the project students named more and real activities such as: buy their country products, go more on foot, switch off the light in the day, paper is used economically etc. The students would like to take part in such activities at school. The best they like opposite view discussions and take photo from your surroundings. 69 % of the respondents indicate that people must sort the household waste. But only 35 % of respondent do it really. It shows that they have theoretical perception about household waste, but not every day practice (Lice, Reihmane, 2016).

Change of paradigm in education, providing for closer link of educational system with economic and public processes, also change the nature of work of teachers. A teacher should be not only the teacher of his or her study subject, but also a diverse, talented personality who helps, inspires, joins different fields, co-operates, gives advices and organises (Sustainable Development Strategy..., 2010). To acquire competences, learners need, from an early age, to 'learn to learn' by reflecting critically on their learning aims, managing their learning with self-discipline, working autonomously and collaboratively, seeking information and support when necessary, and using all the opportunities of new Technologies (Schools..., 2016).

Based on the above-mentioned documents, the development of an up-to-date educational content and approach takes place in Latvia too. The public consultation on the new curriculum took place from 2017-2019. It is necessary to improve the basic skill acquisition of children and adolescents in significant spheres of human activity. „Nowadays children need to learn to live in the world that is continuously changing, and they must be ready to create a so far unknown economic, politic, social and cultural environment”, pointed out in „Education for modern competence: the description of approach for education content” (Izglītība mūsdienīgai lietpratībai..., 2017). Considering the change of education paradigm

and new visions for education nowadays, deeper research of education content, its compliance with today's life, and the new person's career promotion is done. The scientific research done by I. Lice-Zikmane (2018) was carried out in Jelgava during 2017, where participants were involved from 4 schools: Elementary School No.3, Elementary School No.4; Jelgava State Gymnasium and Jelgava Spidola Gymnasium. The aim of the research was to determine the students' attitude towards handicraft. Two hundred and fifty-five (255) respondents from classes 5 to 12 (aged 11-18) were invited to participate in this research. Three groups were formed according to the participant age. The first group A – respondents from classes 5 to 6 (105 participants); the second group B – classes 7 to 9 (90 participants); the third group C – classes 10 to 12 (60 participants). The research was carried out within lessons of Home Economics and Technologies (textile part). The research methods such as questionnaires and discussions were used in the current investigation. Each respondent group was analysed separately. Five questions connected with handicraft were included in the questionnaire revealing the students' attitude towards handicraft. Students chose one of the four given scales: yes; rather yes than no; rather no than yes; no. The question of the research – are there any differences in the attitude towards handicraft in different age groups.

Summarising the results of the research it could be concluded - there are differences in the attitude towards handicraft in different age groups. The respondents from all the groups rather like than not like using handicraft items. Sixty four percent (64 %) of the respondents from group A, 73 % from group C and 85 % from group B have positive answers. It indicates that pupils like using handicraft.

The respondents from all the groups rather like than not like doing handicraft. 83 % of the respondents from group A, 45 % from group B and 60 % from group C have positive answers. It indicates that pupils like doing handicraft. The respondents from group B like doing handicraft the least – 22 % have answered definitely no. The respondents from group A like doing handicrafts the most – only 6 % do not like it.

It was pointed out by 100 % of respondents from group A, eighty two percent (35 %+47 %) from group B and 90 % from group C that Handicraft is highly respected and respected in families. Only 18 % of the respondents from group B and 10 % from group C are indifferent minds and are not interested at all in handicraft.

The results of the questionnaire convincingly show that the theme Handicraft must be included in the curriculum. It is shown by the majority of the respondents from all the groups. Overall, it is mostly accentuated by the respondents from groups A and C (80 %).

Discussions with the students show their wish to learn the techniques of handicrafts, but they like to do simple works, not complicated. The students could also see generation traditions and values through handicraft. They also evaluated the moral aspect obtained from handicraft.

The change of paradigm in education also involves change of values. The changes in education paradigms have affected also the study subject Home Economics and Technologies. One of those topics is „Handicraft”. The teaching and learning process in Handicraft lessons is being looked through the point of view of education for sustainable development.

2. Methodology Structure for Training Teachers of Home Economics and Technologies

2.1. Institutions providing Home Economics education in Latvia

The guidelines of the Latvia Ministry of Culture “Creative Latvia” continue the approach of the Sustainable Development Strategy of Latvia until 2030 (Sustainable Development Strategy..., 2010) emphasizing that the main capital of the country is people. Cultural and educated, value-oriented and creative people are a wealth of every society and country, regardless of the field in which they operate. Involvement of people in the cultural activities also promotes their civic activity, has a positive impact on the quality of life, health and influences a friendly attitude towards the environment (Kultūrpolitikas pamatnostādnes..., 2014). Therefore, Home Economics and technologies training is considered to be a part of cultural education and its task is to promote everyone's personal growth, education and unleashing their creative potential which contributes to the improvement of the quality of life. The following describes the historical aspects of Institutions providing Home Economics education in Latvia.

Several stages can be distinguished for the development of Home Economics education in Latvia (Ozolīna-Kenge, Auzina-Smith, 1989) (Figure 4):

- the first Household school was in the **Kaucminde** manor in 1923, it was offered only to female;
- in 1936, the Latvian Chamber of Agriculture took over the Kaucminde Household Seminar;
- in 1938, the Household Seminary was reorganized into a higher education institution the Latvian Home Economics Institute, and Kaucminde was renamed as Saulaine;
- from 1944 to 1948, the Latvian Academy of Agriculture (in Riga in temporary premises), specifically the Faculty of Agricultural Technology and Home Economics, operates in the premises of the Institute;
- from 1948 to 1983, Home Economics teachers was not taught as a profession most of the time of the Soviet period, at that time, polytechnic education was relevant;
- in 1983, Home Economics specialty is opened at Latvia University and Daugavpils University,
- in 1989, at the Faculty of Food Technology of the Latvia University of Agriculture (from 06.03.2018 called Latvia University of Life Sciences and Technologies), the Department of Nutrition and Home Economics renewed the specialty of Home Economics teachers, which admits representatives of both genders;
- in 1994, the implementation of the study program in the specialty of Applied Home Economics teacher education was started at the Faculty of Food Technology of the Latvia University of Agriculture, Department of Nutrition and Home Economics;
- 1996 home economics specialty is opened at Rezekne Higher Education Institution (from 2016 it is called Rezekne Academy of Technology);
- Home Economics and Technology teachers for grade 1-4 were taught at Liepāja Pedagogical Academy, which since 2008 has been renamed as Liepāja University;
- since 2000, the training of Home Economics teachers at the Latvia University of Agriculture has been carried out at the Institute of Education and Home Economics of the Faculty of Engineering, which was established by merging the Department of Nutrition and Home Economics with the Department of Pedagogy. Our institute positions itself as a continuation of the Kaucminde tradition in Home Economics and Technologies education.

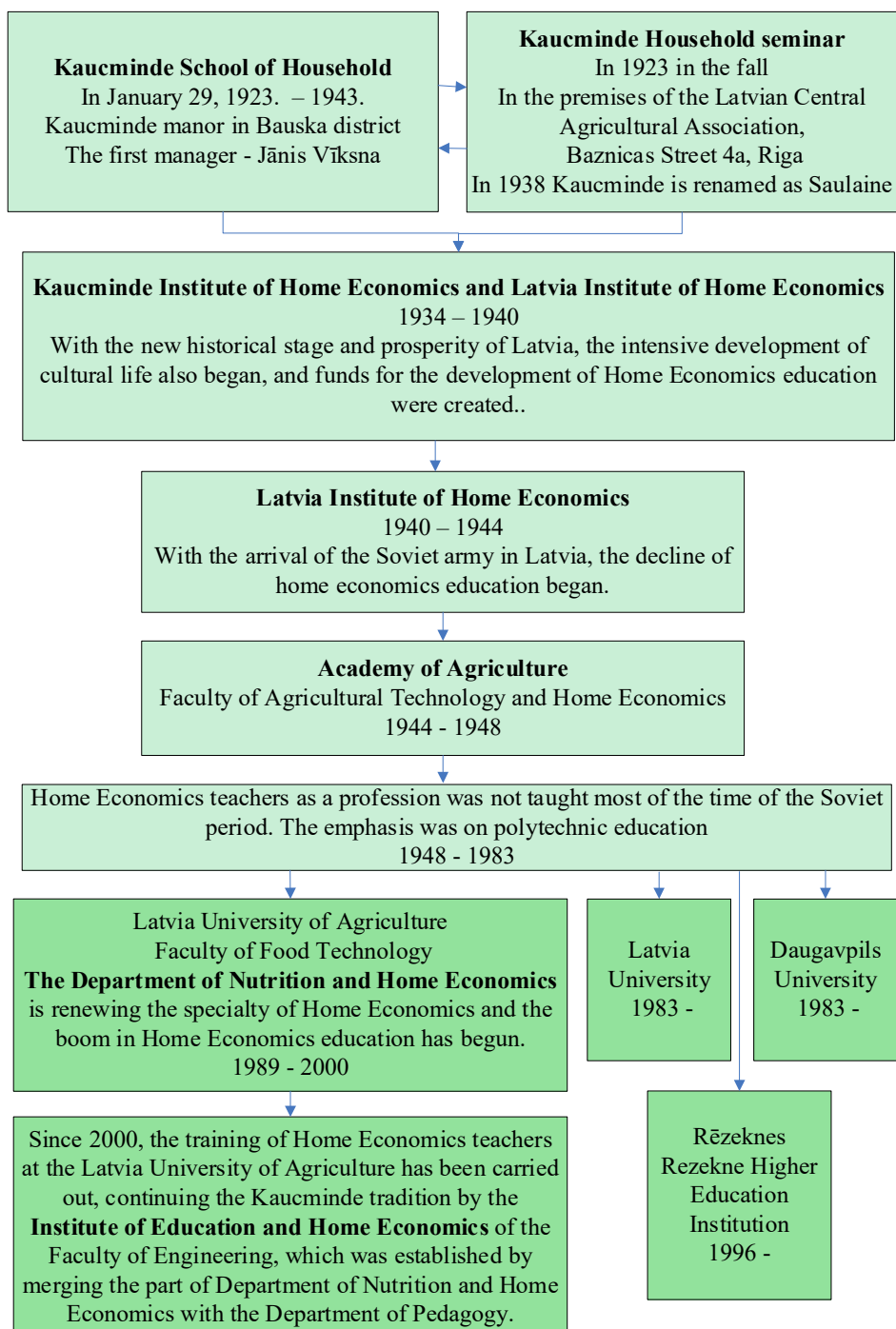


Figure 4. The stages of development of institutions providing Home Economics education in Latvia (Dislere, 2012a)

In the Kaucminde manor and Kaucminde Household Seminar, the following themes were taught in practical work: household organization; common table management; home care and decoration; in horticulture; poultry farming; in dairy farming; other summer work in the household; handicrafts; learned to cook for common tables; baking bread; storage and canning of products. Kaucminde Household Seminar graduates mostly worked on their parents' farms, only a few were looking for paid work as housewives in country houses, companies or schools and in urban families, although the real aim was to train teachers for schools, for "Latvijas mazpulki", households' instructors or simply give women the education they need in home-holding. Association "Latvijas mazpulki" (Latvijas mazpulki, 2020), founded in 1929, is an out-of-school youth organization modelled on the US rural youth-like organization (4-H), with the aim of creating youth interest in farming on a farm.

In the 60th - 70th years, the knowledge and skills necessary for household were acquired in variously named teaching subjects. It was believed that at the end of school a person should be polytechnically educated, focusing on engineering techniques. The subjects taught in secondary school was: basics of production, astronomy, drawing, radio engineering and electrical engineering, training in car science, woodworking and metalworking.

The themes taught in Home Economics and Technologies are changed with time and the habits of human life, the themes since 1989 are: home maintenance, nutrition training, cooking, clothing, handicrafts - crochet, knitting, embroidery, sewing, weaving, batik, woodworking, metalworking, also a little consumer education as a cross-curriculum theme (Annex 1, 2). In the new competence education, which is introduced in Latvian schools from 2020, there is no longer so much emphasis on specific topics, less emphasis is placed on the diversity of handicraft technologies, but the emphasis is on the development of design processes and entrepreneurship.

Renovators of Home Economics teachers' study program in 1989 at the Department of Nutrition and Home Economics, Faculty of Food Technology, Latvia University of Agriculture was:

- Ināra Melgale - Dean of the Faculty of Food Technology (1974 – 1993),
- Daina Kārklina - Dean of the Faculty of Food Technology (1993 -2006),
- Imants Skrupskis - Head of the Department of Nutrition and Home economics (1990-2006),
- Silvija Pūpola - Head of *Home Economics* study programme (1990-1995).

Continuers of Kaucminde Home Economics traditions at Institute of Education and Home Economics (Izglītības un mājsaimniecības institūts, 2020), Faculty of Engineering (Faculty of Engineering, 2020), Latvia University of Life Sciences and Technologies (Latvia University of..., 2020) since 2000:

- Baiba Briede - Head of the Institute of Education and Home Economics (2000-2018),
- Natalja Vronska - Head of the Institute of Education and Home Economics (since 2018),
- Vija Dislere - Head of the study program *Home Economics-Pedagogy* (1998 -2010),
- Silvija Reihmane – Head of study programmes: *Home Economics - Pedagogy* (1995-1998); *Home Environment and Visual Arts in Education* (since 2006); *Home Environment and Informatics in Education* (since 2009),
- Ilze Apsīte – Head of study programme *Home Environment and Informatics in Education* (2004-2009).

Erudite teachers and professors have made a significant contribution to Home Economics and Technologies teacher training in different study courses: Inga Andersone-Penčuka,

Anita Aizsila, Regīna Baltušiņa, Ivars Bite, Anita Blija, Baiba Briede, Māra Dūma, Zane Beitere-Šeļegovska, Pēteris Čerņajevs, Ligita Danenberga, Andris Donis, Andris Dekšnis, Aija Eglīte, Guna Gaiķe, Ruta Galoburda, Irēna Katane, Vilnis Kazāks, Valda Kozule, Ilze Liepiņa-Naula, Linda Medne, Ingrida Millere, Iveta Lice-Zikmane, Ligita Ozolniece, Inta Paulsone, Ludis Pēks, Aija Pridane, Viesturs Rozenbergs, Guntis Rudzītis, Imants Skrupskis, Inita Soika, Ivanda Spulle-Meiere, Anita Vecgrāve, Ingvila Zeibote, Anda Zvīgule.

In other Latvian higher education institutions, the following lecturers and professors have made a great contribution to Home Economics education: Nora Akmene (Minsistry of Education), Imants Amanis (Ministry of Education), Agra Kampuse (Minsistry of Education), Velta Ļubkina (Rezekne Academy of Technology), Jānis Pokulis (Daugavpils University); Lolita Šelvaha (Latvia University), Māra Urdziņa-Deruma (Latvia University), Elita Volāne (Latvia University), Pēteris Vucenlīdzāns (Rezekne Academy of Technology). List of Doctoral Theses Defended in Latvia in the field of Home Economics and Technologies are seen in Annex 3.

Enthusiasts of Home Economics in cooperation with the Ministry of Education started to organize the first activities in the promotion and evaluation of Home Economics in 1993. The first pupils' competitions in this field were organized. As it developed, there was a need for a leading supporting organization, a coordinating force and a capacity to act. Thus, arose the need for a new non-governmental organization. Thereby the Latvian Association of the Teachers of Practical Subject (PMPMA) was the first association to start organizing and running the State Olympiads in Home Economics. PMPMA is an important contributor to promote the prestige of the study subjects: Home Economics and Technology, Household, Consumer Science, Technical Drawing, Tourism and Hospitality Management and Entrepreneurship. PMPMA has been founded on 13.06.1995. The leaders of PMPMA were Anzelms Buls (1995- 1997), prof. Imants Skrupskis (1998-2000), assoc.prof. Vija Dislere (2001-2006), assoc. prof. Anita Blija (2007- 2013), Vija Dislere (2014- until today). The PMPMA association works closely with the International Federation of Home Economics (IFHE) (Arcus, 2008) supporting sustainable development and quality of life for all. The Department of Nutrition and Home Economics in close collaboration with Ministry of Education and association PMPMA were the organizers of the Latvia State Home Economics and Technologies/ Household Olympiads for school pupils from all regions of Latvia. After the reorganization of the LLU structural units, it was organized by the Institute of Education and Home Economics. Every year, more than 100 pupils came to Jelgava for two days, when the Olympic competitions in Home Economics and Technologies and cultural events took place. The First International Olympiad Baltic States Olympiad of Home Economics for school pupils were organized in 2000 in Jelgava, coordinated by V. Dislere. It was attended by pupils with their teachers from Estonia, Lithuania and Latvia.

Active participants of PMPMA contributed to the innovative development of PMPMA and also were involved in organizing Olympiads of HET: Vija Dislere, Imants Skrupskis, Iveta Lice-Zikmane, Anita Blija, Anzelms Buls, Guna Gaiķe, Daina Ģibiete, Dainis Grasmanis, Oļģerts Gilis, Ilmārs Žanis Klegeris, Maija Kulakova, Arvīds Matušēvics, Ligita Ozolniece, Helga Pokule, Jānis Pokulis, Aija Pridane, Silvija Reihmane, Viesturs Rozenbergs, Natalja Vronska, Pēteris Vucenlīdzāns, Liene Zarembo. The Olympiads of HET took place in Jelgava for 10 years during 1993 till 2003, after that it was taken over by the University of Latvia and Māra Urdziņa-Deruma and Lolita Šelvaha continue to do it.

The first International Scientific Conference Pedagogical Issues of Home Economics took place in 1998, it was organized by the Department of Nutrition and Home Economics, its organization was coordinated by V. Dislere (1998), description and photos are available in S. Timsans (1998) article. It is followed by a long-term continuation of the conference organized by the

Institute of Education and Home Economics, the articles of the International Scientific Conference "Rural Environment, Education, Personality" edited by V. Dislere and B. Briede are available on the conference website (International Scientific Conference..., 2020).

Since 1998, with the advent of the *European Erasmus program*, opportunities for international cooperation have emerged. There was a desire to see other European countries, gain their experience and develop Home Economics and Technology education in Latvia (Dislere, Grasmann, 1999). V. Dislere was invited to participate in conferences and international projects where she popularized Latvian Home Economics and Technology education, for example, in Germany (Dislere, Biedris, 2000d; Dislere, 2002b); in conference devoted "Home Economics in 100 years" in Copenhagen (Dislere, 2000a; Dislere, 2000b); in Cyprus (Dislere, Liepina, 2001). V. Dislere became the international relations coordinator of the Institute of Education and Home Economics and teachers and students had the opportunity to go on Erasmus mobilities to Tallin, Helsinki, Vilnius, Siauliai, and as international cooperation contacts gradually developed, it was possible to go to exchange experience with colleagues to further countries such as London, Ljubljana, Dublin, Prague, Rzeszow, Jyväskylä, Tartu, Kaunas. Both teachers and students greatly appreciate this opportunity.

2.2. Methodology structure

Education occupies an important place for future education, which covers the development of main skills, for example, analytical thinking, ability to work as a team, self-reliance, initiative combined with professional competence, methodological competence, and personal competence. Home Economics and Technology (HET) teacher is an ongoing student work organizer at school activities and in out of school activities, that is why the very important role is given to the teacher's methodical training in theoretical, practical, and organizational aspects. The aim of the University training is to raise awareness and to pay special attention to the methodology of the Home Economics and Technology study subject training, about the regularities of the learning process, specific components of the technical and pedagogical elements to be used for Home Economics and Technology training.

Home Economists are concerned with the empowerment and well-being of individuals, families, and communities, and of facilitating the development of attributes for lifelong learning for paid, unpaid and voluntary work; and living situations. Home Economics professionals are advocates for individuals, families, and communities (McGregor, 2010). Home economics is described as an 'interdisciplinary' and a 'multi-disciplinary' profession, with the importance of families at the core of everything undertaken by professionals in the field. "Although it is multi-disciplinary, it does not teach a skill for the sake of that skill, it teaches for application, it teaches for informed decision making, it teaches evaluative and critical thinking skills, it empowers individuals no matter what their context" (Pendergast, 2006).

IFHE (International Federation..., 2020) advocates the need for home economists to teach vital and culturally integrated theory for human capacity building, and identifies the present challenges for home economists as sustaining a better quality of life and conveying life competencies. In addition, Home Economics must be seen in the context of 'family studies', and in a holistic context. The description is further expanded as improvement of the quality of everyday life for individuals, families, and households through the management of their resources, highlighting the impact of the social, economic and environmental impact on the management of everyday life of individuals, families and households, and expanding the understanding of the ecological view of the individuals, families and households in the larger environment (McGregor, Dislere, 2012).

The traditional culture is still survived in Latvia as typical national feature and part of study content of Home Economics and Technologies. Our task is to promote and maintain the traditional culture in nowadays school curricula and take care of the national traditional cultural wealth transfer to the future generations. Teacher's work success is largely determined by her/his good background and readiness of theoretical and practical training and organizational skills. The education establishments should encourage students' interest to learn through student-centred approach in education, there should be wider use the information technologies in training several study subjects by organizing virtual environment. Also, practical tasks should be integrated into students' education and regular practice should be organized in the labour market in close cooperation with employers (Dislere, 2012b).

We have been using the term "didactics" to describe the "science or art of teaching". It covers the whole range of activities - instructional design, teaching models, assessment practices, human development, and curriculum development (Fraser, 2000).

Concerning with the text above it is obvious why the very important role is given to the teacher's methodical readiness in training in theoretical, practical, and organizational aspects.

Methodology Structure for Training Teachers of *Home Economics and Technologies* developed by author V. Dislere (2012b) sees in Figure 5. The terms used: *methodology* - is a set of principles, methods and methodological techniques for targeted training and educational activities; *method* - is a set of systematic methodological techniques for fulfilling the tasks of training and education; *methodological technique* – is a way for specific solving the problem of training and education.

Subject of Methodology is one or another scientific or artistic basis of targeting organized cognitive process (learning process). Misconception is the belief that it is enough to be a good specialist in some science field for being good to teach others. There are three interrelated concepts in the study process: a study subject; teacher activities – teaching and student activities - learning.

Tasks of Methodology is to find regularities for link of teaching and learning within a concrete study subject area, which includes:

- to determine the place of concrete study subject in all education system;
- historical research of teaching concrete study subject;
- to set up content of concrete study subject; to work out teaching programs and teaching books and teaching aids;
- to choose teaching methods and organizing forms;
- to substantiate necessary teaching equipment according to the study subject;
- to work out criteria for estimation both of pupil's work and teacher's work.

The main task of Methodology is to find effective methods for managing the study process, including analysis of daily teaching and historical experience and generalization, analysis of school and other educational institutions' documentation. Methodology develops methods for how to use various technical teaching aids: photography, films, video, audio and multimedia equipment.

Components of study subject are: aim; tasks; content; methods; teaching aids; organization; results. The aim of training is knowledge. The aim of education is wisdom. The aim of education is a virtue. Training course is the path chosen to provide a curriculum for substance. It must be such as to enable the student to supplement their own knowledge after graduation without the teacher's assistance, it must always return to the student's self-learning. Teaching

methods must be such as they combine a set of teaching techniques using which students reach their targets by the most direct way (Dislere, 2012a).

The content of study course worked out by author V. Dislere (2012a; 2012b) 'Teaching Methodology' of study subject Home Economics and Technologies covers the history of HET education; Topicality of HET; Teachers of HET personality; The curriculum guidelines in HET and technologies form Ministry of Education; Teaching methods, planning and preparation the lessons for HET; the evaluation of student's learning results in HET, evaluation of HET textbooks; the technical resources of HE studies, the teaching aids, general safety rules in HET training workshops.

Learning outcomes of the Methodology are the following: knowledge acquisition and understanding of the theories of HET and usage them in practice - learning regularities of HET and technology, of the subject of methodology and it's tasks, of the challenges of learning components, of the general principles of methodology, of elements of teaching techniques, of history of HET education, about development trends of HET, of HET training workshop facilities provided; skills to analyze and assess theories of methodology of HET and to choose the most appropriate for HET training process, the most appropriate teaching methods, textbooks, teaching classes, students study works of HET; competence - able to navigate the HET program development and assessment, able to draw up the thematic schedule, use of appropriate teaching methods, able to plan the lesson.

Basic principles of Methodology are the following: formulation of study aims and tasks; approachability of study tasks; to take into consideration steps of planning and organizing study work; to take into consideration general didactic principles; to take into consideration teaching strategy and strategy of choosing teaching aids; understanding of study matter; to make sense of understanding levels of pupils.

Pedagogical technique is the set of knowledge, ability and skills which are needed for teacher to effectively put into practice the selected method both with individual students, with groups. Usability of pedagogical techniques is a key component of pedagogical master ship.

The elements of pedagogical techniques are: teacher's skills to lead own and student's attention; sense of speed; control emotionality; culture of speech; psychological adaptation; exactingness; goodness; persuading skills; equitable evaluation skills and deference. HET teacher's pedagogical activities relate to development of youth physical, mental, moral and creative abilities. Teaching profession is characterized by the need for continuous improvement, enthusiasm, and work of the creative nature, which is based on the art of forecasting of pedagogical communication and personal development. Special place in the education of HET teachers holds interest education, knowledge and skills in new technologies and the use of technical equipment, while maintaining the traditions and national culture.

To ensure the professional competence what is necessary for quality of work, Home Economics and Technology Teachers should manage the pedagogical techniques elements; to know the history of Home Economics Education, to be competent in Home Economics and Technology curricular and in training all themes: consumer science, housing, food, cooking, clothing, security, family finances, advertising, shopping, the correct relationship between family members; to be familiar with modern household equipment and technology; to be able to arrange training workshops and organize training standards appropriate safe work and one of the elective subjects – textile (clothes processing, material handling, including textile, composition, arts) or wood and metal works (technical drawing, woodworking and metalworking, electrical equipment and motor vehicle service) (Dislere, 1997; 2012a; 2012b).

Home Economics content draws from multiple disciplines, synthesis these through interdisciplinary and transdisciplinary inquiry. This coalescing of disciplinary knowledge is essential because the phenomena and challenges of everyday life are not typically one-dimensional. The content (disciplinary bases) from which studies of Home Economics draw is dependent upon the context, but might include: food, nutrition, and health; textiles and clothing; shelter and housing; consumerism and consumer science; household management; design and technology; food science and hospitality; human development and family studies; education and community services and much more (McGregor, 2011b; Dislere, 2012a).

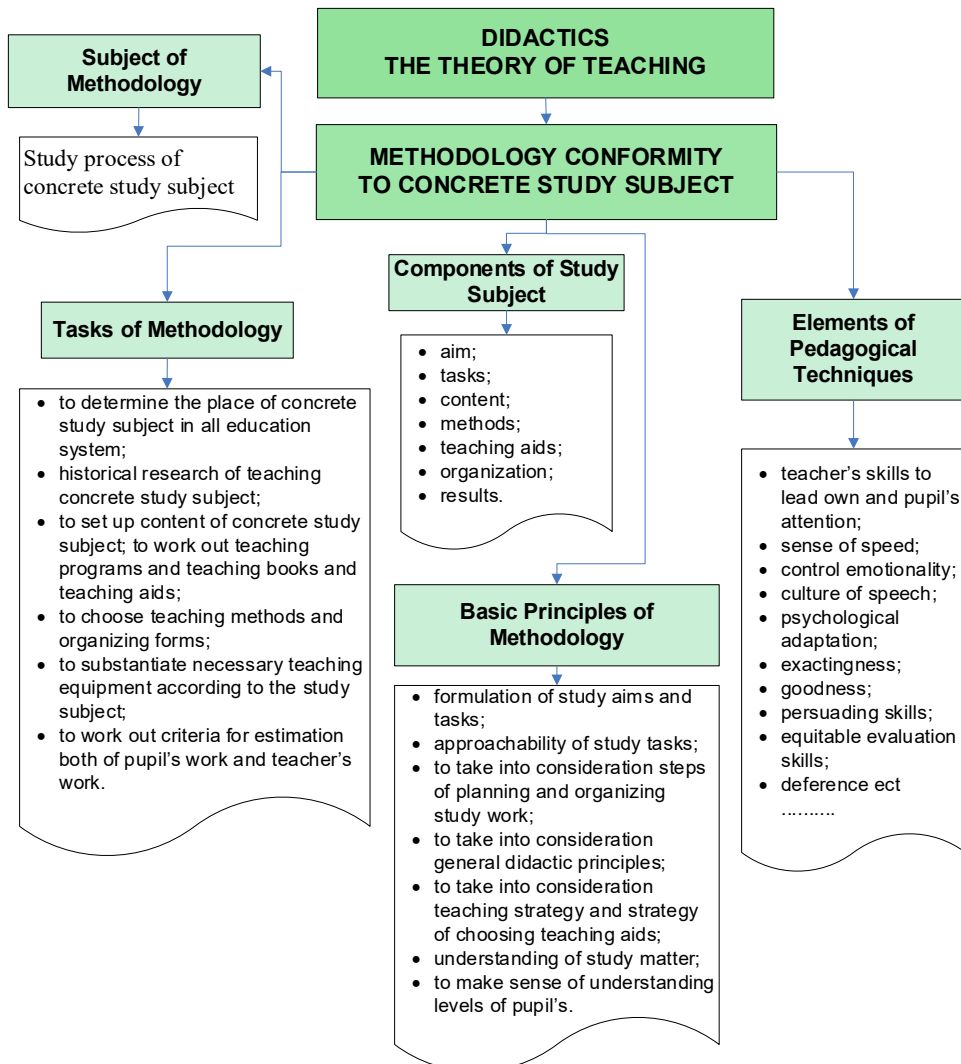


Figure 5. Methodology Structure for Training Teachers of Home Economics and Technologies (Dislere, 2012a)

A review of the roots of transdisciplinary (TD) methodology in home economics will be followed by an explanation of methodology (especial empirical, interpretive, and critical).

The profession's readiness to embrace the TD approach is very important. All members of the profession have an abiding obligation to generate new knowledge to enhance family well-being and quality of life; TD methodology is the most recent innovation for that task. When a tipping point is achieved within the profession, the TD methodology can spread widely and profoundly. We are not on isolated islands. We belong to the worldwide profession of home economics, with members practicing in almost 200 countries. This contextual professional mosaic is forming our philosophical mosaic for Home Economics as well (McGregor, 2011a; 2011b; McGregor, Dislere, 2012).

Home Economics can be clarified by four dimensions or areas of practice (Arcus, 2008; McGregor, 2011b): *as an academic discipline* to educate new scholars, to conduct research and to create new knowledge and ways of thinking for professionals and for society; *as a place for everyday living* in households, families, and communities for developing human growth potential and human necessities or basic needs to be met; *as a curriculum area* that facilitates students to discover and further develop their own resources and capabilities to be used in their personal life, by directing their professional decisions and actions or preparing them for life; *as a professional associations what could influence and develop policy* to advocate for individuals, families, and communities to achieve empowerment and well-being, to utilize transformative practices, and to facilitate sustainable futures.

Critical science is the process used to examine a situation and develop strategies for improvement. This concept is evident in the mission statement for Home Economics. Today, HET professionals use critical science to improve practice in a variety of ways. Critical science is used to think beyond the immediate effects of a solution to question underlying beliefs, values, and assumptions. Engaging in intellectual discussions on various topics is valuable to recognize another point of view or unintended consequences, develop logical reasoning skills, and improve presentation skills. The following purpose statement still shows elements of critical science and ecosystems theory, "an integrative approach to the relationships among individuals, families, and communities and the environments in which they function" (Vincenti, Smith, 2004).

M.M. Bubolz and M.S. Sontag (2007) calls for our profession to focus on human betterment by striving to achieve four great values:

- economic security (wherewithal to live: food, clothing, shelter, basic essentials);
- justice (equity, fairness in life chances, in resources and possibilities),
- freedom (freedom from drudgery, unnecessary work, illness – freedom of action and thought); and, peace.

Working as HET teacher in school, educators should realize and implement all components of the learning process respecting the basic principles of the methodology, using of all pedagogical techniques and to indicate the links with other study subjects for students understanding.

2.3. Research on different didactic aspects of Home Economics and Technology training

The beginning of consumer education in Latvia was not shining. Since the renovation of independence in Latvia in 1990, many urgent tasks have been done: a democratic state system has been established, the liberal and open market economy is functioning, and Latvia has successfully achieved the integration process within international structures. Higher education, which has experienced a quantitative jump with the increase in number of students, is not able to provide respective qualitative indicators. The people feel helpless and

they are not able to change their life, adapt to new circumstances so quickly. Sustainable development is oriented to the people and its aim is to develop living conditions, preserving nature and environment. A question arises about the life quality, not only the existence level. During the fifty years long occupation regime in Latvia, it was forbidden to speak about civil society. It is necessary to consider these circumstances when analysing and estimating the processes in Latvia. The aims for sustainable development within Latvia households are: enough quality nutrition; healthy, environmentally friendly life style; good education; and paid employment. Sustainable development, which is the basis of our country's politics, is possible based on the development of consumers' habits and the quality of production. There is a lack of teaching aids and materials and guidelines for teaching consumer education at school. A better situation exists on the university level; there consumer education is integrated in economics and household economics and nutrition, food quality study subjects can be found in several higher educational establishments in Latvia. Study possibilities for further education of students within consumer science are not available at all (Dislere, 2004a).

Thanks to the support of the Scandinavian countries, *the development of consumer education in the Baltic countries experienced a boom* under the leadership of V.W. Thoresen from Norway. Different ideas of healthy life – style is integrated in study subject Home Economics/Household. The Standard of Household education are prescribed by Centre for Curriculum Development and Examinations, Ministry of Education and Science. The basic settings of study content in the new version are the following (Dislere, 2000c).

For comprehensive school: nutrition, clothing, household, consumer science, human protection and environment safety, ethnography, textile works.

For secondary school (optional): household work' planning and consumer science, interaction within household, living together, house maintenance, how to make up own household, nutrients, food valuable, food quality, clothing, individual style and one of the themes:

- food processing, textile works, textile in interior, dressmaking;
- carpenter, wood-pulp materials, it's processing, employment, management;
- vehicle maintenance, hygiene of work and environment, security and safety.

The behaviour of citizens of ex soviet block countries has changed rapidly in the last fifteen years, calling for responsibility in activities in personal life and on the social level. Fortunately, the idea of sustainable development has been introduced. L. Borbás (Hungary), V. Dislere, J. Kostecka (Poland), I. Liepiņa-Naula (Latvia) (2007) within Socrates/Erasmus 3 project Consumer Citizenship network 2003–2006 working group Consumer Rights and Responsibilities conducted an international study, 269 respondents were asked to answer to 29 questions about consumer behaviour, and concluded that half of respondents are passive. Full results can be seen in the article (Borbás at al., 2007). Everyone should remember about the environment in everyday life - at work, at home and on holidays. In order to educate the citizen of the future we have to invest in the education of children and youth, not forgetting about teaching the adults.

The concept of European consumer science and consumer citizenship and its connection with the quality of life is successfully integrated into the Latvian education system of Home Economics and Technology (Dislere, Liepina-Naula, 2006). Citizens need information and education, as well as an understanding of the differences between real and imagined needs and how to act selectively to truly meet their needs, thus contributing to a better quality of life. Consumer sciences are integrated into the content of Home Economics and Technologies education as a cross-thematic topic. V.W. Thoresen from Norway, V. Dislere, S. Falka, M. Jēgere from Latvia, S. Valdmaa from Estonia and I. Zaleskiene from Lithuania worked out

the Guidelines for Consumer Education - life skills for sustainable consumption (Thoresen, 2004; Dislere, 2004b) during the Nordic-Baltic project Development of Consumer Education 2000-2004. This book was translated in all Baltic countries and introduced in all Latvian schools.

V. Dislere, M. Jēgere, I.Ž. Klegeris, M. Sirvide from Latvia, M. Schuh (Austria), M. Kitson (UK), S. Valdmaa (Estonia) and Ž. Sederevičiūte (Lithuania) during the Socrates/Grundtvig-1 project Consumer Education for Adults 2001-2003, worked out training materials for consumer education for adults, they are prepared in easy language and are suitable for use in the teaching process at school as supplementary materials (Kitson, 2003; Kitson, Dislere, Harrison, 2003; Dislere, 2005).

Since 2003 Latvia is coordinating Socrates Grundtvig 2 learning partnership project - Empowering Rural Consumer (EmRuCo). The project EmRuCo consists of 8 organizations with 11 participants from 4 countries – Austria, Latvia, Estonia and Lithuania. The project purpose is to provide opportunity for consumer educators from different countries and organizations to learn from each other. As a result of the research, it became clear that more than half of 187 respondents don't know their rights. This indicates that consumer science is very actual issue in Latvia. Final results of the project were: created learning partnership, designed and implemented research about best case practices of "empowering consumer" from participating countries, didactic material - 7 teaching modules of Consumer Education for Adults (Schuh, 2003) was translated in Latvian (Dislere, 2007), Estonian and Lithuanian and adapted for local needs. The focus of our common effort is to facilitate adult educators work in the area of consumer sciences (Dislere, Sirvide, 2008).

L. Danilāne and V. Lubkina (2009) ensure the introduction of consumer education in schools of Latgale region (Latvia), clarifying the factors influencing the development of personality, which, living in today's dynamic society, would ensure an effective teaching-learning process, promote more effective progress towards goal and self-affirmation, awareness of moral and ethical norms, develop a system of human values, and thus promote the development of the pupil's personality and readiness for life through consumer education.

Within the framework of an international project I. Valantinaitė, Ž. Sederevičiūte Pačiauskienė and V. Dislere (2016) concluded that the development of consumer culture is part of Technological Education curriculum in all Baltic countries, analysing the issues of responsible consumption which are becoming more and more complex. In the context of organizing the implementation of Technological Education programmes special emphasis is placed on creativity, both from the perspective of a creator and consumer. The project method merges theory and practice, research and empirical knowledge, orientates at self-recognition and creating culture, whose inseparable part is consumer culture.

Sometimes the problem is related to developing pupils' *thinking skills during the lessons of Home Economics and Technologies* at elementary school. The key task of thinking involves finding solutions to problems and making decisions. The process of thinking develops and improves in line with the development of an individual. Pupils of school grade 5 and 6 are in a period of transition towards puberty; at this age, they actively seek for their position in the world and wish to build up various skills and abilities. At this age, the key changes in terms of cognitive development are associated with the formation of stable thinking in them; their thinking becomes flexible and logical, while in general their thinking is based on their memory for what they learnt during the previous age periods.

The research done by G. Marcenko and V. Dislere (2017) present analyse of the thinking qualities of primary school pupils. The aim of the research was to determine whether pupils have

the qualities of thinking individual and what kinds of thinking are appropriate for pupils during the lessons of Home Economics and Technologies. The criteria for assessment of school pupils' thinking skills and abilities were developed, distinguishing 3 types of thinking criteria- critical, logical and creative (Marcenko, Dislere, 2017, 372). Creative thinking allows viewing a problem from a new perspective, finding creative and innovative solutions to problems and sometimes making mistakes. However, critical thinking allows critically assessing a problem and solutions to the problem; it is a kind of thinking that focuses on comprehending the nature of the issues. Logical thinking is a process based on comprehending a problem and solving the problem in a sequential and logical way. The research was carried out at the Institute of Education and Home Economics, LLU and the survey was carried out at Jelgava Primary School No. 4 with the participation of 54 respondents – pupils of grade 5 and 6.

The data acquired in the empirical study on the thinking of pupils and its specifics showed that the pupils had well-developed thinking skills and they had a behaviour of a thinking individual. According to the pupils' self-evaluation, critical thinking of the pupils was developed the best, their creative thinking was quite well-developed, while their logical thinking gets the least in the lessons of Home Economics and Technologies. By the authors opinion the creative thinking is most essential for doing practical creative works in lessons of Home Economics and Technologies (Marcenko, Dislere, 2017).

The authors stress the necessity to develop thinking of pupils in their research because teachers often forget that it is not enough for pupils to learn some concrete theme what is needed; but also, the methodology of teaching has to be multifaceted, creative assignments have to be given to the pupils, so that they can develop comprehensively at school. The promotion of pupils' thinking is one of the most important tasks of the study process that develops new thinkers, then the action is followed after the idea, which is significant for training in Home Economics and Technologies.

Using information and communication technologies (ICT) as a didactic tool during lessons of Home Economics and Technologies gives an opportunity to use all the technological advantages. If the computer at school recently was associated only with the teaching of informatics, then today is used nearly in all study subjects. Usage of ICT can serve as a tool for preparing Home Economics and Technologies lessons, for frontal visualization of data, as well as for organization and evaluation of students' practical work. The aim of the study done by L. Dauvarte and V. Dislere (2015) was to explore and justify the didactic usability of ICT in the study subject Home Economics and Technologies in elementary schools; design and approbation of the developed evaluation tests in textile technologies using the software package "Tests". The study was conducted in LLU in the Institute of Education and Home Economics and in ten different regional schools of Latvia. The school teachers of the study subject HET and the university lecturers were involved. Practical tests were developed and tested in the study subject HET with a choice of textile technologies in: knitting, clothing, weaving and sewing. Working with authors' developed tests using the P. Caune' (2002) software package "Tests", what is foreseen for preparation tests, filling and knowledge assessment, it is possible to offer more wider opportunities than usual through the tasks on paper, because it is possible to use interactive exercises on computer, which are supplemented with multimedia capabilities (pictures/illustrations) and save time, thus allowing more time for practical pupils' work in lessons.

Specialist of ICT S. Spröge (2007) has described how the basic didactic principles of learning theories can be realized in training:

- *scientificity* – determine the content of teaching, which needs to include not only traditional knowledge but also the basic directions of modern science and its future perspective; wide use of ICT provide scientificity of learning content;
- *systemic approach* to curriculum outline is providing with their structuring, dividing the basic concepts and their interrelations. The curriculum which is structured and divided into different levels of difficulty allows the pupil to include in training not only the themes that provide the required minimum level of knowledge, but also to look at the subject in question in wider terms, increasing the pupil's horizons, build his knowledge much more fundamental, to link the knowledge of the content to other subjects, learning their interrelationships and effects;
- *the principle of availability* of computer-based training moves from the general accessibility to the individual and it is seen as a chance of reaching of learning target;
- *the principle of visibility* – the computerized training could also be called as interactive visibility. The advantage is that pupil can perform various manipulations with either of objects, thus acquiring material not only in static but also dynamic way and under different conditions;
- *systemic and sequencing principle* is related to the creation of training material and operating pupil's learning system while acquiring the material.

Didactic usability of the ICT in Home Economics and Technologies lessons for preparing theory explanation includes: preparing video material and creation of presentations; for implementation of practical workshops: creation of different compositions, use of picture or photo, drawing, designing patterns for clothing, preparing examination papers, test-building in e-environment; making crossword puzzles. The most important thing in any learning process about didactic usability of ICT is to prepare teachers to understand their teacher's role and learn to respect the learners' autonomy, authenticity, learning styles and motivation (Dislere, 2003a). Didactic use of ICT provides a modern Home Economics and Technologies teaching and learning, increase learning effectiveness, develops students' ability to learn, as well as prepares pupils for life in modern information society. As the result of research, the authors recommend to use software package "Tests for evaluation and strengthening of students skills" starting from the grade 7, when pupils have acquired basic knowledge of information and communication technologies (Dauvarte, Dislere, 2015; Dislere, Malinovska, 2003b).

The use of *learning video as a didactic tool for training handicrafts* is relevant for both students and adults.

Adult education provides life-long development of personality and competitiveness in the labour market. Therefore, it is important to develop the offer for adult interests' education, including offerings of various courses. M. Boldisevica (Boldisevica, Dislere, 2015) offers course in the fine handicraft technology from Deco Clay polymer in the flower formation studio 'Madeira Flowerland' in Jelgava for adults, in which learning video are used. V. Dislere offers study course in the fine handicraft technology in Decorative embroidery for University students of study programme *Design and Craft*, where learning video are used. Both courses show positive results in the use of video materials (Dišlere, 2000e; 2020; Dislere, 2002a).

One of the guidelines of strategic continuous education aim encourages to enrich the human personality so that she/he would be enterprising, open for continuous personal development, to find her(his) place in a changing world and to control the quality of their lives.

Self-realization is necessary not only in the labor market but also in personal life for individual to survive and adapt to the age (Kalēja- Gasparoviča, 2006). Human learning is based on the experience and skills to gain new experiences.

Learning videos provide a self-regulating learning. This means that adults independently set their own objectives and plans. Self-regulated learning is a process in which individuals personally activates and keep its own emotions, motivations and actions that are systematically oriented towards personal targets (Briede, 2019). Video attachments can be added in addition to the textbooks or methodological means creating thematically related training tools, thus providing an opportunity to diversify the curriculum learning. Using IT, it is possible to ensure effective teaching and learning.

Multimedia learning postulates that an optimal learning occurs only when verbal and visual material is presented synchronously. It is based on Allan Paiva 8 dual coding theory. Multimedia learning theory is developed by teacher-psychologist R.E. Mayer (2009). He performed a variety of studies that confirmed the effectiveness of the theory. During the learning process with the help of media, human brain has to code two types of information: visual and audio. It can be assumed that these competing sources of information tend to burden the learners. However psychological studies have shown that verbal information is easier to remember when it is presented together with the visual image.

Working with adults with different learning rate and different previously acquired knowledge, the use of learning videos, that include visible handicraft technology demonstration step-by-step, provides improvement of adult education. The aim of the study done by M. Boldisevica and V. Dislere (2015) was to explore and justify the need of the use of learning video for adult interests' education, learning the fine handicraft technology from Deco Clay polymer.

Pedagogical experiment was carried out in LLU in Institute of Education and Home Economics and in the flower formation studio 'Madeira Flowerland' in Jelgava, interviewing 20 studio participants, which were involved in the research. The average age of respondents were 37.7 years. It was studied how the use of learning video promotes learning of the exact flower-making technology. Detailed criteria for assessing the use of learning video were set up (Boldisevica, Dislere, 2015, 182), which include four parts: adult learning principles, favoured didactic elements for adult education, criteria for development of creative skills, and criteria for development of personality. The learning videos for handicraft technology from Japan Deco Clay polymer for adult interests' education were developed and tested in practice.

During discussions respondents positively assessed that each step they can watch, pause, and to repeat it themselves, and only then continue with work. Third part of respondents (35 %) indicated that the use of learning video provides a link with previous experience. Overall authors conclude that the above-mentioned basic principles of adult learning and adult education favoured didactic elements are provided using offered training videos. On the result, 90 % of respondents said the training video promotes flower shaping according to the technology, 85 % agreed it contribute to broadening horizons. Respondents expressed the view that the training videos are a good source of information about different processes.

Different skills such as: to perceive the common image (75 %), to see the proportions (65 %), to perceive space (50 %), to see the contours (40 %) are developed using a training video (Figure 6). Only 5 % of respondents did not receive the desired result of using learning video, does not develop the skills to perceive space, does not help to see the proportions and contours. Overall, the training video also does not help to improve the skills of computer use (70 %), because the video is intended only for watching.

The authors clarified that the majority of respondents think that particularly complex computing skills are not necessary just for watching such videos, it is enough with average knowledge of the computer. Thus, the use of video training could not improve the existing computer skills. Respondents (65 %) said that during practical work self-improvement occurred. All 100 % of the participants expressed the view that the success motivates further development and rises the desire to work again and again. All respondents agreed that a good learning outcome motivates further development.

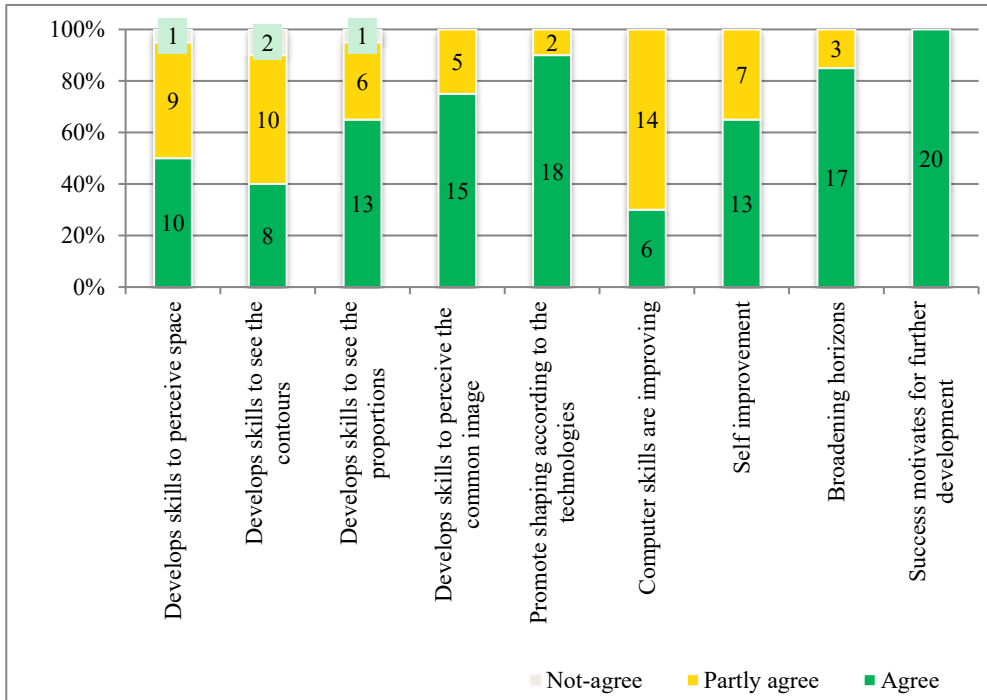


Figure 6. Respondents' views on development opportunities of adult' skills and personality, working with the authors' created learning video on flower development methodology from Japan Deco Clay polymer (number and %)

Basic principles of adult education were applied through the process of using the learning videos (continuing education accessibility, connectivity with the own' experience, "learning by doing"); as well as adult education favourable didactic elements (learning in their own home and at the individual rate); individual develops skills to see the proportions, to perceive space, to create flower compositions and improves information technology skills. As a result, individual's horizons expanded and personal development took place. Usage of learning video creates the conditions that supports relation between individual's autonomy and competence with her/his own experience, encourages creativity, motivation and personal development during learning process, thus improving learning outcomes (Boldisevica, Dislere, 2015).

3. Understanding of life quality criteria of Home Economics and Technologies education in elementary school

3.1. Criteria of life quality within Home Economics education

In Latvia, unlike in other countries, *Home Economics and Technologies* is an integrated subject, consisting of two parts: Home Economics and Technologies. Similarly, the acquisition of Home Economics education at elementary school is organized also in Lithuania and Estonia. The part of Home Economics covers issues regarding the environment of a human life, way of life, financial provision, food, clothing, traditions and culture. In the part of technologies, the pupils acquire various technologies- needlework and handicraft, and get acquainted with the possibilities to use resources, materials and special equipment related to the technologies. Both parts have a common goal: to improve the environment of one's life, by making things, useful in the household (including clothes), and at the same time - by finding an opportunity for the individual's creative self-expression. Such content of the subject is developed on the basis of old Latvian traditions, as well as on the economical situation in the country, when the manual and handicraft skills in the fields of crafts might be useful for pupils in the future, for the creative self-expression, stabilization of one's own material situation, for the individual business activities.

The leading specialists M.B. Piorkowsky (2003), I. Richarz (2003), R. Schweitzer (2006), M. Thiele-Witting (2003) characterize Home Economics as an interdisciplinary, system of economic, social and cultural disciplines, which influences the development of all society, emphasizing the life quality. International Federation for Home Economics (International Federation..., 2020) has emphasized the practical application of technologies for the achievement of the higher welfare level of an individual, a family and all the society, as well as the necessity to develop the personal Home Economics, substantiating its role in the life of every individual, for the improvement of her/his life quality, in solving the urgent social and family developmental problems at all levels, in the projects and innovative programmes.

Then there appeared a need to update the concept of "quality of life" in Home Economics education. Therefore, the problems to be solved in the Home Economics education at all levels are related to the development of an individual's strategy for actions in order he/she could live today and tomorrow the life he/she deserves. When the principle of life quality is implemented at basic school level in the study subject *Home Economics and Technologies*, the acquired knowledge and skills ensure an opportunity to become aware of one's needs and goals, to achieve them according to the developed strategy and an individual's interests. Besides, the pupil can perfect her/his knowledge and skills at a secondary school level at the subject "Household" and further- according to the chosen career of a Home Economics teacher.

In the sense of life quality, in relation to the philosophy of life art and from the philosophical, social and biological, there had been emphasized the concepts of happiness, meaning of life and welfare. The meaning of life, as well as happiness are aggregating values (the highest criterion of the art to live), which could be achieved, if an individual has found an answer to her/his existence problems and efficiently realizes (meets) her/his needs. The meaning of life is related to an individual's ability to ensure qualitative, good, happy, meaningful life: V.E. Frankl (1976), Platon (Platon..., 1968), Å. Ness, I.P. Heikelands (2004), S. Lasmane (2006), M. Kūle (2006), I. Šuvajevs (2007), To acknowledge the meaning of life means to strive towards the harmony, to be free, while facilitating the free development of others Platon (Platon..., 1968), N.M. Bradburn (1969), P. Hills, M. Argyle (2002), A. Konstam

(2006), I. Šuvajevs (2007), R. Inglehart, R. Foa, P. Peterson and C. Welzel (2008), D. Knowles (2002), G.W.F. Hegel (2009), S. Klein (2014), R. Johnson, A. Cureton (2016).

As a result, an individual's active, purposeful and creative activity for the development of an appropriate life quality model creates satisfaction with one's life. In Home Economics education it is promoted by the insight into the life quality and criteria characterizing it.

The concept "life quality" is analysed on the basis of viewpoints, expressed by the scientists in the fields of sociology and economics.

The sociological research and survey, performed in Latvia in 2005- 2006 (Bela-Krūmiņa, Tisenkopfs, 2006) show significant aspects of the population's assessment concerning the life quality and the fact that lack of knowledge and/or skills become the factors, decreasing the life quality of a part of Latvia's population. The facts show that the Home Economics education is related to issues, important for the population.

In the context of improving the quality of life of people, a new term has been introduced in Latvian state documents, which includes the content of both human life skills and quality of life concepts – "*human securitability (a form of resilience)*". It says that it is possible to predict, but it is not possible to know for sure, what conditions will affect the development of Latvia and its population, which are increasingly exposed to the effects of globalization. By strengthening the security of the population or the ability to adapt to changing conditions, there are hopes that people will be able to find solutions to development and problems not only for themselves and their loved ones, but also to participate fully in society. In turn, insufficient reliability prevents us from seeing growth opportunities, the connection with the state. Also, a person may feel threatened, feel afraid of life and others (National Development Plan..., 2012).

Happiness, satisfaction with life, well-being, self-realization, freedom of choice, objective functioning, physical condition, state of health, mental health, well-being, fulfilment, low unemployment rate, psychological well-being, meaningful existence. These and many other terms are used to describe quality of life (Skestere, 2012). Although students do not earn themselves, they are able to influence many of life quality criteria through learning and active participation in home economics lessons.

In every four years, a survey is conducted in all European countries on the quality of life of European citizens. Several aspects are studied, such as employment, income, education, housing, family, health, and work-life balance, as well as subjective issues such as people's sense of happiness, life satisfaction, and estimation of the quality of society. The study concludes that although financial conditions have deteriorated due to the economic crisis, people are still most satisfied with family life and personal relationships (Pētījumi par dzīves..., 2017). These are areas that are also important for pupils and they have the opportunity to play an active role in improving their own quality of life.

Scientists I. Kepaliene, B. Žygaitiene, K. Petruškevičiene (2013) mentioned that nowadays the entrepreneurship is considered to be one of the core competencies necessary for successful self-realization and development in the modern rapidly changing world. On the basis of the analysis of data it was established that the attitude of Home Economics and Technology teachers towards the entrepreneurship education corresponds to the modern conception of the entrepreneurship education, and the HET subject is suitable for youth entrepreneurship education. The modern conception of entrepreneurship, beside the general knowledge of the business, focusing on the importance of personal qualities, such as, self-confidence, the desire and opportunities for autonomy and self-study, motivation, decision making, communication,

planning, preparation to take responsibility, critical thinking, individual initiative, activity and creativity and risk taking. Most of these qualities can be developed in HET training classes.

The goal of quality of life is for people to achieve their individual goals as much as possible and to choose their ideal lifestyle. In this respect, the concept of quality of life goes beyond a living conditions approach that focuses on available material resources for individuals (Kristapsone, 2020).

The situation nowadays, as a result of the above studies, actualize the necessity to consider the content, the aim and the objectives of the school subject *Home Economics and Technologies* within context of life quality, paying particular attention to the pupils' ability to plan and organize personal household independently, the development of their capacity and to their ability to take upon themselves management, planning and improvement of their lives.

The research shows that the quality is determined by an individual's needs A. Steigens (1999), M.Dž. Kinslejs (2001), A.N. Suhov (2004), A.N. Suhov (2004). B.W. Roberts, D. Wood, J.L. Smith (2005), M.B. Donnellan, R.W. Robins (2009), K.L. Marsh, L. Johnston, M.J. Richardson, R.C. Schmidt (2009), O. Elstrup (2009). They can be expressed by the following criteria (Table 2):

- 1) **economical** - characterizes living standard and ensures meeting of an individual's needs;
- 2) **social** - oriented towards an individual's development, integration into the society and safety;
- 3) **mental** - forms the individual's goal (meaning) of life.

Table 2

The Criteria and Indicators of Life Quality (Pridane, 2009)

Economical	Social	Mental
Oriented towards the ensuring of human existence	Oriented towards the individual's development, integration into society and safety	Oriented towards the individual's goal in life (meaning of individual's life)
availability of resources, goods and services	living standard	ideals
	living conditions	values
correlation of working hours and leisure time	life style	insight into the beautiful
living and working conditions	arranged life	moral awareness
employment	conduct	mental health
income	education	way of life
(including, wages)	systems of social group values	meaning of life
environment	social activity	freedom
sustainability	experience	self-confidence
safety, comfort	safety, affiliation	self-expression, creativity
physical health	physical and mental health	sense of happiness

The life quality depends on an individual's creative approach to life, capacity and practical activities (Bela-Krūmiņa, Tisenkopfs, 2006). When characterizing it, we should consider the entirety of both factors creating objective and subjective welfare: W. Glatzer (1992), S.L.T. McGregor, E.B. Goldsmith (1998), S.L.T. McGregor (2010).

Subjective sense on the life quality is related to the system of mental values and cannot be separated from the goals an individual set for himself/ herself. It means not only the satisfaction with one's personal life, but also with one's status in the society, country, world.

Research shows that the criteria of life quality: economical, social and mental, viewed from the philosophical, economical and psychological aspects, reflect an individual's awareness of needs, the attempts to achieve the set goals.

The economical criterion is oriented towards the ensuring of an individual's existence, but the social- towards the individual's development, integration into the society and safety. Both criteria and their characteristic indicators are closely interrelated.

In the Home Economics education they manifest as a skill to manage successfully the performance of tasks to be fulfilled in the personal household, conditions, resources and their amount, the harmonization of one's knowledge, skills and possibilities with the values and norms, goals of life, creating motivation, being ready to implement one's plans, which allow to maintain the health and to improve one's living conditions, to make more easy to live, solve the problems related to the finance and time management, the skill to adjust to different everyday situation.

The Home Economics education addresses also such specific issues as a way of life, forms of co-habiting, which in reality depend from the cultural, material and intangible values of a particular society. At the same time the Home Economics education is a precondition for the choice of a profession. The changing situation in the labour market, limitations of social guarantees, safety of living conditions at home demand more flexibility, when searching for the employment, mobility and the ability to undergo retraining process, the harmonization and management of paid (professional) employment and household duties.

After the specification of the criteria and indicators of life quality (Table 2), they were related to the themes, included into the elementary education standard *Home Economics and Technologies*, and to the requirements concerning their acquisition as a result (knowledge, skills), and there was developed the summarizing Table 3.

Table 3

The Correspondence of Results to be Acquired in the Study Subject *Home Economics and Technologies* to the Themes, the Criteria and Indicators of Life Quality
(Pridane, 2009)

Indicators of life quality	Results (knowledge, skills)	Themes
Economical criteria of life quality – <i>oriented towards the material, the ensuring of an individual's existence</i>		
working and living conditions, correlation of working hours and leisure time, comfort	rational arrangement of a workplace, regime of working hours and rest periods, qualitative arrangement of home, the level of improvement, ecological home, technical sanitary situation at home, engineering communications at home, home maintenance, costs	Home, acquisition of technologies, material studies, management
environmental safety, sustainability	quality indicators of the environment, ecological environment, role of Home Economics in the maintaining of environment, processing of household waste,	Home, material studies safety
physical health	components of physical health (way of life, daily regimen, time management, food, ecological materials)	Home, food material studies

Indicators of life quality	Results (knowledge, skills)	Themes
availability of goods and services	resources to be used for household, possibilities to purchase, use and economize, quality and costs	Shopping, home, food
Social criteria of life quality – <i>oriented towards the individual's development, integration into the society and safety</i>		
living standard, living conditions, arranged life, experience	the provision and evaluation of the personal household, insight into the criteria and indicators of life quality, life quality as an individual's important needs and improvement opportunities, awareness of one's possibilities regarding the improvement of the quality of home environment, adequate evaluation of one's performance	Finance, material studies, home, safety
systems of social group values, safety	the place and role of Home Economics in the country's economical circulation, reproduction of human resources, insight into the social processes, their influence on the household, conscientious consumer, consumer protection	Home, shopping, finance
social activity, affiliation	co-operation with different institutions, interrelations of household members, co-operation skills, the significance of the harmonization of family and one's desires, needs	All themes
physical and mental health	care and responsibility for one's health, interconnection between health and career, life of full value	Food, home
Mental criteria of life quality – <i>oriented towards the individual's goal (meaning) of life</i>		
ideals, values, moral awareness, happiness, meaning of life, way of life	family's values orientation, respect towards the values created by others, cultural heritage (folk art, craft), the traditions of the Latvians and the people of their nationalities, Home Economics education and the career, qualitative spending of leisure time	All themes, deeper-technologies, composition, applied art traditions and culture
freedom	decision-making, evaluation of information, acquisition of technologies	Table manners, home, clothes
conduct	conduct norms, etiquette concerning clothes, food, arrangement of home, observing of traditions	
insight into the beautiful	aesthetical arrangement of home and the environment, unity of individuality and appearance, insight into the conditions of composition development (form, color, style)	Home, clothes, composition
self-expression, creativity, self-confidence	acquisition of different technologies for the individual's creative self-expression, creative application of knowledge and skills in one's independent life, adequate assessment of one's possibilities and performance	All themes

Psychologists, philosophers and pedagogues: R. Johnson, A. Cureton (2016). E. Allardt (1993), A. Vorobjovs (2002), D. Knowles (2002), G.W.F. Hegel (2009), A.V. Petrovskij (1982), H. Arendt (2000), R. Schweitzer (2006), A. Broks (2000b), Z. Huajin (2005), V. Šmids (2001), M. Kūle (2006) and I. Šuvajevs (2007) point out that within the context of life quality three groups of needs are significant for an individual's development: "to be", "to belong" and "to become". Each group of needs is characterized by the criteria (economical, social and mental) and indicators of life quality (Table 2). Group 1- "to be" - indicates the

physical and mental existence of an individual- an individual's need and ability to exist. Group 2- "to belong"- indicates an individual's need and ability to become a part of a community. Group 3- "to become"- indicates an individual's need and ability to develop, the awareness of her/his possibilities, the achievement of her/his set goals in the context of life quality, the formation of an individual's needs for self-realization. When gaining the insight into the meeting of the needs "to be", "to belong" and "to become" in the Home Economics education, the pupil also gains comprehension of life quality.

By relating the criteria of life quality (economical, social and mental) to the needs "to be", "to belong", "to become" and introducing them into the content of the Home Economics education at elementary school, it is possible to develop the comprehension of life quality (Table 4). In its turn, the comprehension of life quality may be used as the basis for the determination of knowledge and skills to be acquired as a result of Home Economics education.

Table 4

Insight into the Criteria of Life Quality and Meeting of the Needs "to be", "to belong", "to become" in the Home Economics Education at Elementary School as a Result to be Achieved (Pridane, 2009)

Insight into the criteria of life quality and the needs	Knowledge and skills in the Home Economics and Technologies education
Need – To be	
basic skills "who are you": 1) physical existence- maintaining of an individual's physical health, hygiene, food, care, appearance, and clothes; 2) psychological existence- arrangement of physical health, the self-control and evaluation of the cognition and feelings about oneself; 3) mental existence- personal values, conduct standards, ethics.	1) components of physical health- healthy way of life (food, environment at home, materials and resources for use), evaluation of the way of life, safety (environmental, safety of home and an individual); 2) the significance of home environment for the renewal of human resources, microclimate, co-operation, communication, self-control; 3) values orientation, cultural environment and the individual, manifestation of behaviour, possibilities of an individual's expression.
Need – To become	
an individual's belonging to the environment: 1) physical belonging-the interconnectedness of an individual and the physical environments, where he/ she finds himself/ herself (home, school, place of work, community); 2) social belonging-the feeling of belonging, the link between the social environment (a family, friends, neighbours, colleagues) and the individual; 3) belonging to the society-access to the resources used by all the members of society, adequate income, social status, health care, service, the rest, employment, availability, social activities.	1) knowledge and understanding about the individual's life environment and the necessity for its qualitative improvement, relationships in a family, society, economical, careful use of resources; 2) knowledge and understanding about the essence, structure and variety of a personal household, the awareness of the possibilities to improve one's life environment, the skills to solve the problems to that, importance of cultural heritage in the multicultural society, traditions, the Latvian identity, traditions; 3) the opportunities to apply the experience acquired, while studying the school subject, in everyday life, for the professional purposes, the result of an individual's work as a value, material provision as an opportunity to meet the physical and mental needs of an individual.

Insight into the criteria of life quality and the needs	Knowledge and skills in the Home Economics and Technologies education
Need - To belong	
<p>related to the purposeful activities, performed in order to achieve one's goals, desires, plans</p> <p>1) the practical "to become"- actions performed every day (domestic work, economical activities, school, volunteer organizations, meeting of social needs, providing of oneself;</p> <p>2) the leisure time "to become"- activities, related to the rest, lessening of stress;</p> <p>3) the developmental "to become"- activities, facilitating the preservation and perfection of knowledge and skills.</p>	<p>1) ability to plan and perform every day and domestic work, to attract different resources, to use services, the skill to use creatively different materials, resources, technologies;</p> <p>2) insight into the creative and qualitative organization of leisure time and rest, an individual's self-expression and creative activities, insight into the cultural values and positive attitude towards them;</p> <p>3) formation and development of and individuality and self-confidence, responsible actions, rational evaluation of information, decision-making, one's personal contribution to the maintaining and alteration of life environment.</p>

The hypothesis was proved (Pridane, 2009; Pridāne, 2014) - the implementation of quality of life as a principle of Home Economics education in primary school is successful if:

- the aim, tasks, content, and results of Home Economics education meet the criteria of quality of life (economic, social, and mental) and indicators in the context of Home Economics;
- students develop an understanding of the quality of life and the needs – "to be", "to belong", "to become", which is assessed by quality-of-life criteria and indicators;
- pupils develop a need for self-realization, which is indicated by using knowledge and skills of Home Economics in learning and in everyday life; and pupils develop an understanding of quality of life, because it expresses the meaning of a person's life, purpose, outcome, and balance of moral and mental needs.

The experts positively assessed the inclusion of quality-of-life criteria and indicators in Home Economics Education, and acknowledge that they describe the quality of life broadly enough. The topics to be learned are relevant to the student in creating a personal living environment in the future. The consensus of experts was high (concordance coefficient $W = 0.81$; $\alpha = 0.01$) (Pridane, 2009).

The results of pupils' survey and the statistical methods of data processing — variance analysis, when determining Fischer's criterion, and comparing of the distribution of two selected samples with U criterion — allowed to draw a conclusion that in the experimental group, while acquiring the author's programme, the development of self-realization need is more explicit than in the control groups.

The formation of self-realization need significantly influences the development of an individual. When implementing the programme of the subject "Home Economics and Technologies" at basic school, the insight into the meeting of the needs "to be", "to belong", "to become", the content, aim, objectives and result of the programme should facilitate the formation of the need for self-realization, which is indicated by a pupil's ability to: progress towards the set goal, starting from the planning and until the achievement of the aim; sense the self-esteem, positive feeling, satisfaction with his/her life; have an active attitude; search for his/her "I"; free choice; creativity.

3.2. Curriculum Implementation in the Subject Home Economics and Technologies

In order to ensure innovative learning process teacher must be: knowing, creative, able to generate and create new ideas, design and model situations and practical actions that is directed to students' personality development and needs. Design thinking is revealed as critical, creative and analytical way of thinking oriented towards reaching better results and improves one's life. Design thinking is a way how to think and act (Briede et al., 2020). Design thinking encompasses sustainable and responsible behaviour contributing positively to an innovative society and improved quality of life (Thomson, Koskinen, 2012).

This is the collected part of the theoretical knowledge of modern and innovative content of the necessity to implement compared Ministry of Education developed subject programs and the author's programs parts of A. Pridane (2012) (Table 5) "Technological creativity and practical application of human habitats to improve" and "Product ideas, idea generation, design".

The changes in education are directed to young people needs, stimulating their natural thirst of knowledge, promotion of successful action in future. The content of subject must be turned to the student rouse the interest and motivate student to participate more actively in learning process, to distinguish the sense of life action. It must be competitive internationally open, interdisciplinary.

Table 5

The Curriculum "Home Economics and Technology" with a selection of textile technology and the author's program included handicraft forms of learning technology comparison 5th - 9. form (Pridane, 2009)

The ways of technologies	The sample of programme	Possible variations in authors' program
Traditional technologies		
Embroidering	colourful works, white works, embroidery in Satin - Stitch	embroidery using laces, beads and sequins and other decorative threads
Crochet	form crochet, lace crochet	crochet with fork, Irish technique, crochet from untraditional materials (rope, pearls, fabric ribbon, metal wire)
Knitting	lace knitting, round knitting (socks, mittens, hats)	Knitting from untraditional materials (laces, pearls, texture, loom knitting)
Weaving	weaving (book marks, ribbons)	Gobelin tapestry, using untraditional materials (pearls, nature materials)
Sewing	clothe production of interior things appliqué work, textile mosaic	embroidering with sewing machine (clothe, decoration of interior objects)
Batik Fabric printing	adornment of things or fabric treatment, using traditional cold, hot batik, printing	adornment of interior objects and cloth or fabric treatment using cold, hot batik, wax batik, marble batik

The ways of technologies	The sample of programme	Possible variations in authors' program
Untraditional technologies		
Painting on a glass, on a silk		adornment of crockery; crocheted interior objects; silk painting
Jewellery		making of décor and decorations
Macramé		making laces, book plates, telephone purse
Felting		making decors and decorations and other objects
Decoupage		adornment and decoration of objects, furniture, renovating of interior components

European countries have already made a significant progress in implementing reforms, developing guidelines and including them in the curricula documents and the syllabus (European Commission..., 2012; Developing Key Competences..., 2012).

The research how the key competences, defined by European Council, can be developed in the curriculum of the subject Home Economics and Technologies done by A. Pridane (2017) was performed in two directions. At first, key competencies characteristics defined by European Parliament are given in the Table 6 (knowledge, skills, attitudes) (Recommendation..., 2006) and examples, how they are developed in Home Economics and Technologies lessons.

Table 6

Key Competences to be Developed and Examples of their Implementation in the School Subject “Home Economics and Technologies”
(Recommendation..., 2006; Pridane, 2017)

Key competences	Knowledge	Skills	Attitudes	Examples of development of the competences in HET lessons
Communication in foreign languages	Social knowledge, cultural aspects, knowledge about the use of language.	Ability to understand the text, communicate, read, understand, build texts according to the individual's needs. Ability to use the necessary additional materials.	Interest and curiosity in languages and intercultural communication.	Information extraction and selection for working out project works on topics: food, housing, clothing. Handicraft technology acquisition through Internet programs YouTube and other videos.
Mathematical competence	Knowledge of the units of measurement and shape. Understanding of the basic tasks, terms and the concept of their use in Mathematics. Understanding of the questions to which answers can be offered in Mathematics.	Ability to apply mathematical principles and techniques in calculating both in real life and work. The ability to substantiate mathematically, provide evidence.	A positive attitude towards mathematics-based truths. The desire to look for reasons and to assess their validity.	Dress patterns design. Nutritional norms, product costs, housing costs, the quantity of materials and other calculations. Housing plan drawing, scale fixation.

Key competences	Knowledge	Skills	Attitudes	Examples of development of the competences in HET lessons
Core competences in science and technologies	Knowledge of the basic principles of the natural world, technological products and processes, their impact on the world. Risk awareness in society at large (in relation to decision-making, values, moral cultural issues)	The ability to use and manage technology tools and devices that use scientific data to prove or achieve objectives and to draw evidence-based conclusions, to be able to discuss, justify conclusions.	Respect for security and sustainable development in the context of scientific and technological progress. Curiosity, critical attitude towards personal life, family, community and global issues. Respecting and observing of ethical norms.	Impact of household activities on the environment, household waste. Effective and wise use of residential resources. Use of household chemicals and electrical devices. Devices in learning handicraft technologies.
Digital competence	The use of the main computer programmes. Knowledge about the information storage and management. Understanding of Internet opportunities and potential risks of the information available, the validity and veracity of it, legal and ethical principles. Understanding how ICT can support creativity and innovation.	The ability to search for, to collect, process and to apply the information critically and systematically. To evaluate the role of information, to distinguish the real from the virtual and be aware of the links. Ability to use tools to create, present and understand complex information access, search and apply online services. Ability to use ICT tools for critical thinking, creativity and innovation.	Respect for security and sustainable development in the context of scientific and technological progress. Curiosity, critical attitude towards personal life, family, community and global issues. Respecting and observing of ethical norms.	Use of “Excel” for technical patterns, diagrams, mathematical calculations. Use of computer programmes “PowerPoint”, “Prezi” for making presentations. “Smart Draw” and similar programs for drawing housing plans. Use of different programmes for obtaining information.
Social competences	Understanding the social and personal well-being, optimal physical and mental health provision, including own resources and their own family and their direct social environment. Knowledge of a healthy lifestyle and its promotion. Understanding the	The ability to communicate constructively in different environments, to be tolerant, express and understand different viewpoints, to feel empathy. Skills to cope with stress and frustration, to distinguish between	Critical, weighed attitude towards the available information. Responsible use of the interactive media. Interest in contributing to communities and networks for cultural, social and / or	Healthy diet and lifestyle. Organization of work and security in the dwelling. Personal image development (clothing and behaviour rules). Table cultural issues. Household disposable financial and other resources, the prudent and efficient use. Healthy diet, lifestyle. Organization and

Key competences	Knowledge	Skills	Attitudes	Examples of development of the competences in HET lessons
	behaviour and generally accepted code of behaviour in different societies and environments. Understanding of individuals, groups, work organizations, gender equality.	personal and professional spheres.	professional purposes.	security in the dwelling. Personal image development (clothing and behaviour rules). Table culture issues. Household financial and other resources, reasonable and efficient use of them.
Sense of initiative and entrepreneurship	Awareness of students' own personal, professional and / or business activity opportunities. Understanding the economy and fair-trade principles.	Ability to plan, organize, delegate, analyse, communicate, manage, take up the leadership. The ability to obtain and evaluate information. Ability to work both individually and in a team. The ability to judge and identify students' own strengths and weaknesses, assess and take risks when necessary.	Initiative, activity, independence and innovation in personal and community life activities. Motivation and determination to achieve goals (personal, collective, work).	Learning handicraft, cooking technology as a resource for the individual business. Home economics profession to be acquired in the context of diversity (career opportunities). Consumer education issues, shopping.
Cultural awareness and expression	Understanding the importance of local, national and European cultural heritage, their place in the world, the necessity to keep it. Understanding the importance of aesthetic factors in daily life. Understanding European public, multi-cultural and socio-economic dimensions of the national cultural identity and interaction.	Individual's innate capacities. Self-expression and evaluation. The ability to relate one's own creative and expressive points of views to the opinions of others, to identify and realize social and economic opportunities in cultural activity. The ability to develop creative skills for application of them in individual and professional context.	Students' own cultural awareness and sense of identity. Respect for the diversity of cultural expressions. Participation in cultural life. Creativity and willingness to cultivate aesthetic capacity. Awareness of the meaning of artistic expression.	Handicraft technology acquisition and use (from the idea to the realization of the object, the manufactured product quality evaluation). Housing interior. Positive personal image creation capabilities and role in society. Latvians and other nations', living in Latvia traditions, national meals - common and different. Positive personal image creation capabilities and role in society. Latvians and other nations' living in Latvia, traditions, national meals - common and different.

By author's opinion the most developed key competences are: social competences, IT and other technology competences, but less used are: business, mathematics and science competences in education of Home Economics.

A survey was organized in the second part of the study. Twenty-five (25) girls who were the 9th grade students at Jelgava Secondary School N 4 and had acquired the content of the Home Economics and Technologies syllabus were involved in the research using the programme elaborated by A. Pridane (2017). The results confirmed that in Home Economics education the key competences are the most developed:

- 1) in technology and digital competences (different sources of information must be used in the learning tasks), a variety of handicraft technology competences (pupils can try different techniques of handicraft technologies);
- 2) social and cultural awareness and expression competences: learning content related to real life, knowledge and skills acquired in other subjects are used in lessons, schoolgirls know where they will be able to use the acquired knowledge and skills in lessons after graduation, teaching the content of the notion of Latvian folk culture, traditions; different handicraft technology skills are acquired.

Learning content developed in the competence approach will focus on ensuring that the knowledge learned by students in class, can be used in different situations: both in learning situations and in other subjects, as well as in real life. This setting is one of the main conditions for Home Economics education, where the learning content is aimed at building students' own quality of life awareness, as well as in gaining practical experience in handicraft, cooking and other technologies.

3.3. Research on students nutrition habits

The real-life required competencies can improve in the theme Food, because 21st century education is focused on sustainable development, where everybody can to act and choose the lifestyle that provides the sustainable future and positive transformation of the society (Jutvika, Liepiņa, 2015).

There is a close connection between sustainable development and nutrition (food acquisition, consumption and people's eating habits, their compliance with Latvian traditional cuisine).

The attitude to food and eating habits developed with human lifestyle change. If before people had to work hard it was necessary also nourishing food. Nowadays young people's sedentary life and weight gain trend makes also requires choosing food with reduced number of calories.

The eating habits develops in the family. They are mostly influenced by parents' views, material abilities, and lifestyle. They not always correspond to healthy eating conditions. As a result, young people lose the understanding about importance of a meal, increases unhealthy food consumption. Globalization has dramatically reduced presence of native and traditional cuisine in everyday meals. Sometimes the choice of products is ordered by fashion items. Those facts also correspond to young generation. Food is mostly purchased in supermarkets, rather than grow by themselves. It can cause difficulties to determine the origin and the quality of food. These problems points to the need to pay particular attention to the issue of the healthy eating habits and the importance of quality food in nutritional education.

Theoretical research (Pridane, 2013) allowed to define many principles of sustainable development and at the same time quality of life, which should be included in the content of the subject Home Economics and Technology:

- to choose flora products in everyday meal, to reduce the consumption of meat and industrially processed food that contain much carbohydrates and saturated fat (Regulation..., 2011), (Seven principles..., 2012);

- to develop the skills to choose safe food and combine the food stuffs in menu (Ködelpeter, Fichtner, 2012);
- to think about the usefulness of food stuffs - ecological sustainability (considering the criteria of biological farming), as much as possible use native and self-grown products, to grow spice in front garden and in pots as well as to freeze the grown vegetables and fruits on winter;
- to choose minimally packed and food stuff without packing (Mācības patērētājzinībās..., 2007, 74);
- to remember that the quality of food is influenced by everything beginning from growing till serving, therefore it is necessary to prepare food at home, take home made food to school in boxes;
- the healthiest products are those that are produced from ingredients acquired close to their living place (Graudiņš, 2012) and seasonal products;
- do not accumulate the rubbish but if they have appeared then compost them or to make other eco recycling (Eat well..., 2012).

Food scientists and specialists on the discussion about popularizing healthy eating habits besides the questions about choice of qualitative food and healthy food suggest to follow regional eating habits and cultural traditions, because national food is usually prepared from native seasonal products (Regulation..., 2011). These questions are included in State guidelines of cultural policy 2006–2015 (Valsts kultūrpolitikas vadlīnijas..., 2006). Between the numbers of significant cultural heritage saving areas traditional preparation of food and meal is mentioned. It means not only to research and to re-explore the national dishes, family recipes but also evaluate the viability of traditions nowadays (Anspoka, Siliņa-Jasjukeviča, 2010).

Catering specialists have focused on actuality- traditional cuisine nowadays has become a fashion and tourism product. It must be considered that it is difficult to talk about real traditional Latvian cuisine because it was influenced by traditions of cuisines of other countries. This tendency continues to develop. As a result, in order to use traditional products and Latvian foods there are used early unknown products and food instead, unknown food preparation traditions are taken over, forgetting about Latvian once.

Nowadays Latvian traditional meals are served rarely, mostly in special festival occasions, when presenting our national traditions. In order to do that special knowledge and skills are needed. It must be related specially to young generation. Indisputably family plays significant role in developing social life culture (Von Schweitzer, 2000), but nowadays knowledge and skills acquired at school plays determinate meaning. V. Kozule has written textbooks on nutrition for schools (Kozule, 1998; 2000; 2001; 2002) as well she has written about the organization of catering work in schools and pre-school institutions (Kozule, 2007; Kozule, Kulakova, Ķeruze, 2010).

The general notion about the eating habits of students and their families and its correspondence to Latvian traditional menu and contemporary features in traditional kitchen was acquired with the help of empirical research done by A. Pridane (2013). The questionnaire method was used for the research. The girls were involved in research from Jelgava secondary school No 4, grade No 8 and No 9. The questions about Latvian traditional food included in the survey was: “Which of traditional food girls have tried?”, “Which of food the girls have heard for the first time?”, “Which of the food was prepared in family?”

The conclusions after analysing the answers acquired in questionnaire are:

- students have understanding about Latvian traditional food, because most part of the food students recognize and have tried;
- the part of Latvian traditional dishes such as: mousse, dumpling soup, bread soup and milk vegetable soup, as well as pees with ham and fried vegetables, is the part of contemporary menu as well;
- approximately one fifth part of mentioned meals: sour porridge, pig snout, rye bread pies, floating islands and honey pie are prepared seldom or not prepared at all, that makes think that these dishes are disappearing from contemporary menu.

The obtained empirical research gives a general idea to the teacher about the eating habits of students and their families, its compliance with the Latvian traditional menu and modern features of traditional cuisine. It is also the basis for the improvement and diversification of the content of nutrition education in the new *Design and Technologies program*.

4. The Model of Information and Communication Technology Integration Skills Development in Home Economics and Technologies education

Information technologies are helping improve quality of life, because are powerful and with it is possible to be more efficient and connected than ever before. Information technologies have a transformational ability to unite people across generations and walks of life around the world, with the potential to help them to live more fulfilling lives (Technology is Helping..., 2019).

Author N. Vronska (2014) explored that can improved student learning in both traditional and distance learning environments, to gain an understanding their experiences about information skills.

Information technologies change human quality of life in all aspects, starting from digital economy, health and education services, traveling, working life, personal and group communication. On this way, ICT has impact on happiness and well-being on individual and macro level, sustainable development and mutual impact of all previous entities on quality of life (Figure 7) (Arsovski, Lula, Dordevic, 2016).

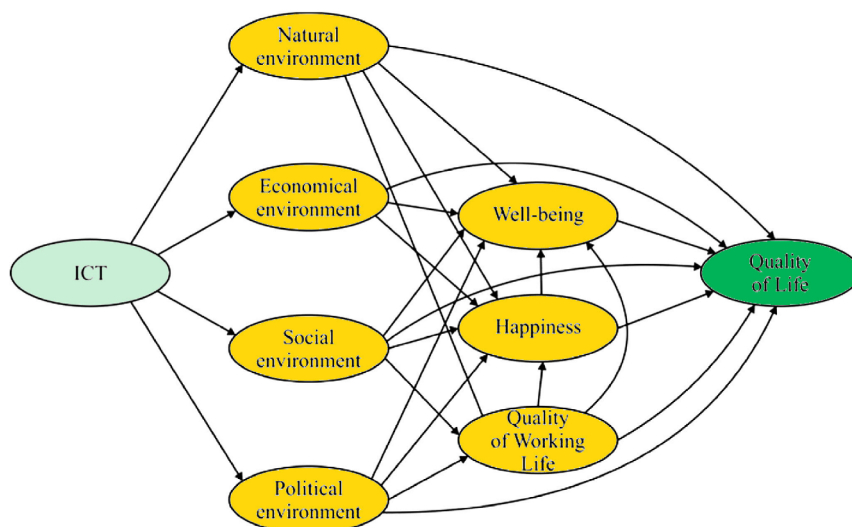


Figure 7. Model of ICT impact on quality of life (Arsovski, Lula, Dordevic, 2016)

Author N. Vronska (2016) concluded that students make a productive use of the various applications that are offered, value ICT as an instrument of permanent learning ($p= 0.000 < 0.05$) and value ICT as a medium of collaboration and social communication ($p= 0.009 < 0.05$). These results suggest the need for developing strategies promoting the effective use of technology resources for both students and teachers.

P. Van den Dool and P. Kirschner (2003) made an overview of the professional competences of a teacher. With respect to Information and Communication Technologies (ICT) they formulated:

- personal ICT competences: teachers in training should have basic skills in Office applications and applying these skills in communication;

- ICT as a mind tool: teachers should be able to use applications to support meaningful thinking and working;
- ICT as a pedagogical tool: teachers should enhance their knowledge, skills and experience in resource-based learning and collaboration in digital environments;
- ICT as a teaching tool: teachers should know the educational possibilities and impossibilities of ICT;
- social aspects of the use of ICT: teachers should not only be aware of ICT, but also to use ICT knowingly.

ICT skills are forming in variable repeated exercises and can be improved indefinitely in self-education. The author N. Vronska (2012) has defined the conception of ITC integration skills the following way: *teachers' ICT integration skills* are usage of the gained knowledge and ICT skills which are based on self-esteem, self-reflection and students active involving in the study process as well as pedagogical experience, forming a holistic approach and to integrate ICT in the study process of Home Economics and Technologies.

In the result of analysis of different stages of ICT acquisition and ICT skills development, as well as on the base of definitions of ICT skills and ICT integration skills, there are defined four main levels of ICT integration skills development: ICT basic skills are *ICT standard skills integration level*, ICT extended skills are *ICT competent integration level*, on the study subject Home Economics and Technologies oriented integration level and *Integration level in pedagogical creative action* (Figure 8).

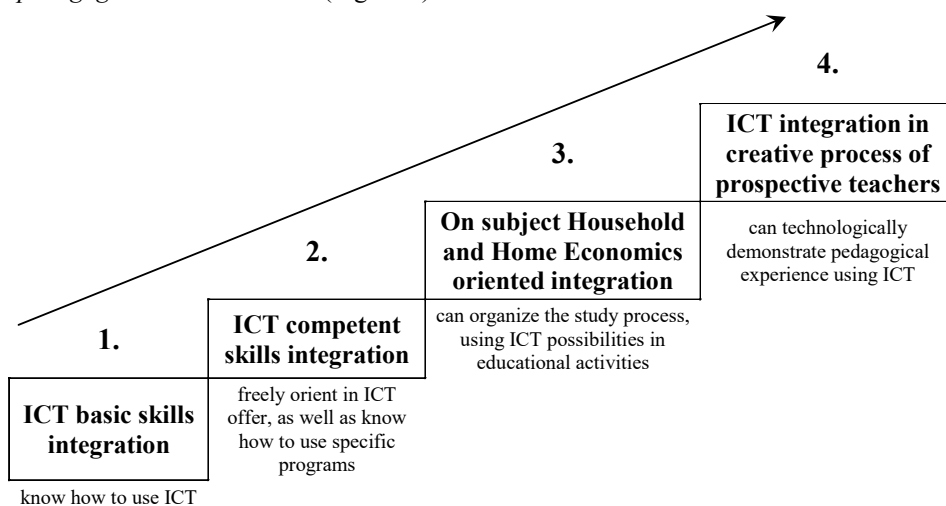


Figure 8. Levels of teachers' ICT integration skills development (Vronska, 2012)

Based on V. Bizuka's statement (Bizuk, 2003) – the choice of didactic and methodological aids and link between ICT, the Home Economics and Technology study courses are required to integrate, a model of ICT integration skills development was created for the prospective teachers (Figure 9).

The model of ICT integration skills development is scientifically proved and experimentally verified for the first time in 2009 and repeatedly in 2011 with the aim to clarify the dynamics of ICT integration skills development in dependence on the study course. In the result of the contingent analysis, it is possible to conclude that the value of $p = 0.000 < 0.05$, therefore,

is possible to declare with the probability of 99.9 % that the study course and evaluation of ICT integration skills (high, medium, low) are interdependent indications. It is possible to declare that positive dynamics of ICT integration skills development can be observed for the prospective teachers of Home Economics and Technologies by using the model of ICT integration skills development in their education process.

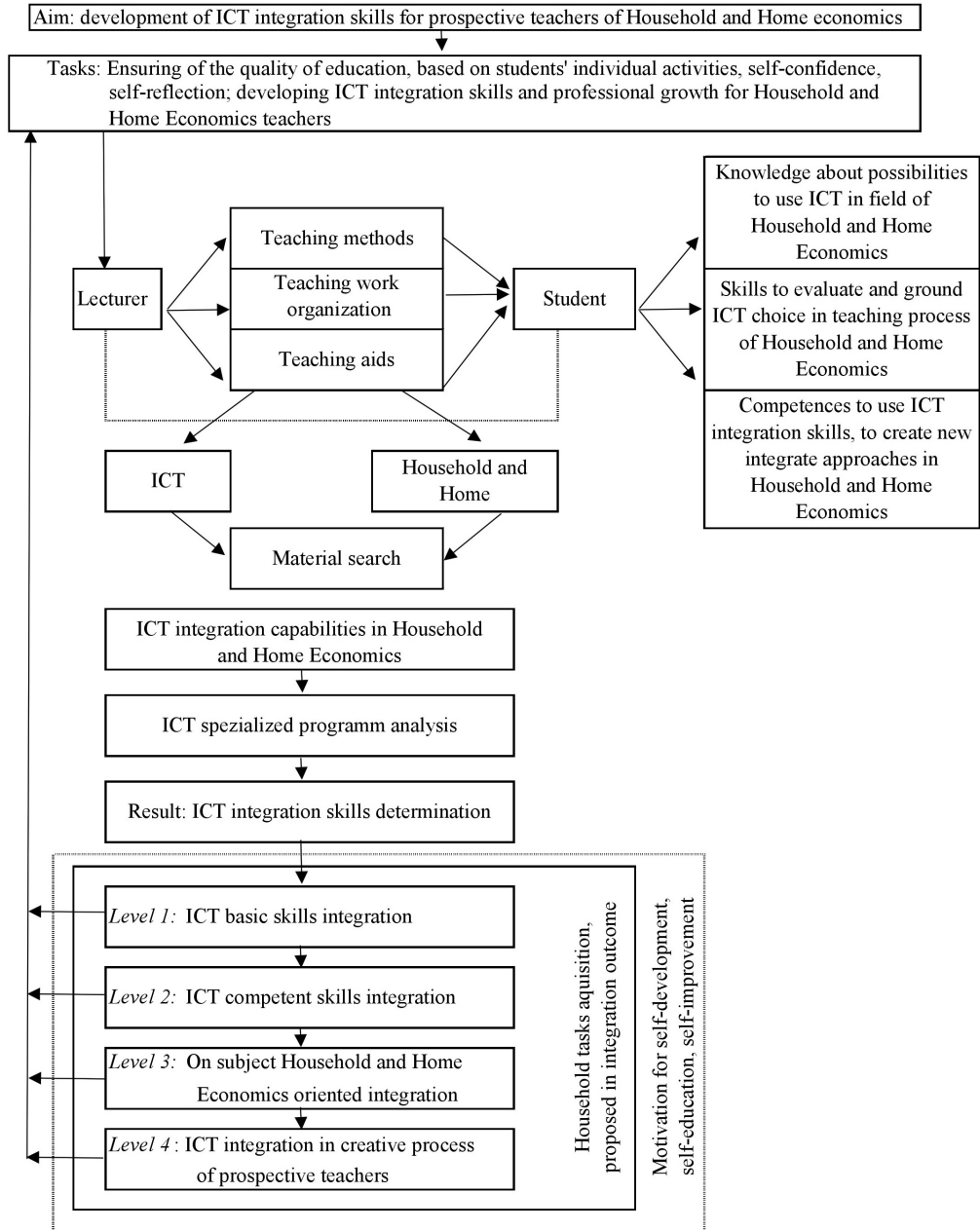


Figure 9. Model of ICT integration skills development for prospective teachers of Home Economics and Technologies (Vronska, 2012).

Scientists O. Vindaca and V. Lubkina (2020) explain the concepts of *transformative digital learning* in all three dimensions using digital technologies (digital learning), strategy (digital transformation) and personalized experience or new perspectives (transformative learning). With digital applications, tools, instruments and resources, students can create content, interact with experts, collaborate with peers and participate in simulation activities and work. Personalized and individualized experiences put students in the centre of learning and empowers students to take control of their own learning through flexibility and choice, thus ensuring transformative digital learning.

Effective Web-based materials, often called *learning-ware*, go far beyond simply transferring traditional material to the Web, since a simple transfer cannot improve learning. Rather than replacing textbooks, these materials supplement them with activities: interactive simulations that can be actively manipulated, that provide engaging and challenging tasks, and that supply instant feedback on performance. Usage of ICT gives an opportunity to transform from the teacher’s guided approach to transformative digital learning including self-learning style and student-centered approach.

ICT can form environment which provides individual approach to learning and is more suitable for the individual needs of everybody (Twigg, 2001), thereby, using video in lectures it is possible to help students improve knowledge, skills and competence which are necessary for successful study process (Vronska, 2017).

Author N. Vronska (2012) has defined the conception of ICT skills: *ICT skills* are purposeful, qualitative and conscious usage of ICT, finding and evaluating information according to the stated tasks, aims and requirements, as well as purposeful, qualitative and conscious use of ICT standard skills and extended skills (Figure 10).

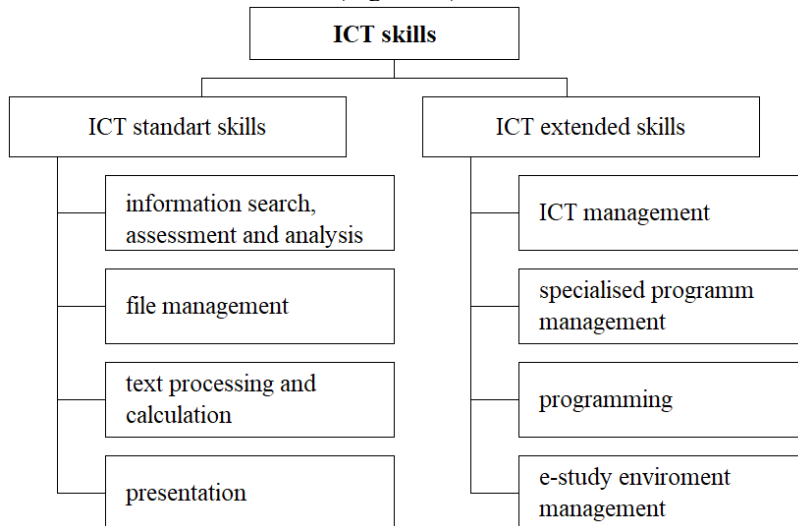


Figure 10. Structure of ICT skills (Vronska, 2012)

Figure 11 summarizes the possibilities to improve methods of teaching Home Economics teachers in using ICT opportunities for both preparing lectures, implementation in practical lessons, preparing evaluation tests.

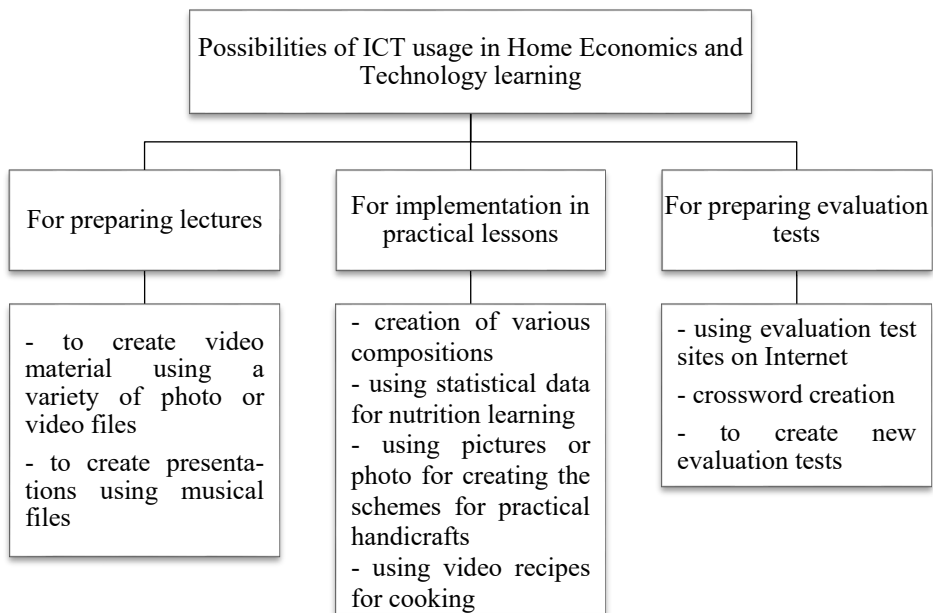
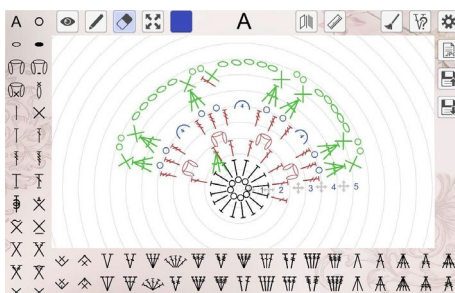


Figure 11. Possibilities of ICT usage in Home Economics and Technology teaching (Vronska, 2012)

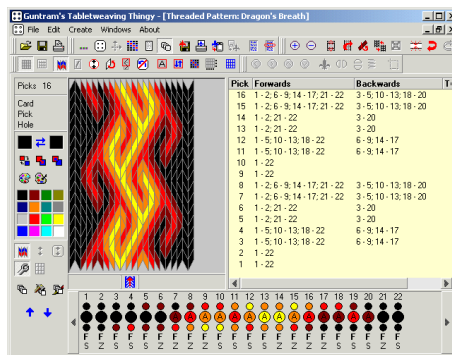
During practical classes, prospective teachers of Home Economics and Technologies acquire various computer programs: the creation and execution of tests, the capabilities of using MS PowerPoint software with sound recorders, Adobe Photoshop, Hitfilm Express, Hot Potatoes, CorelDraw or Adobe Illustrator computer programs. Using ICT, it is possible to improve Home Economics teaching methodology, using computerized student aptitude tests, preparing lessons combining 3D graphics, moving images, video and audio materials.

For teaching practical handicraft teachers could use the specialized computer programs, for example, knitting by Calling Knitting, Aran Paint, Prima Vision Knit, sewing by Pattern CAD, Grafis, embroidery by Stitch Art Easy, weaving by Guntram's Tabletweaving Thingy, virtual room equipping by Astron Design, crocheting by My Crochet, composition and interior design by Adobe Photoshop, Gimp, CorelDraw or Adobe Illustrator (Figure 12).

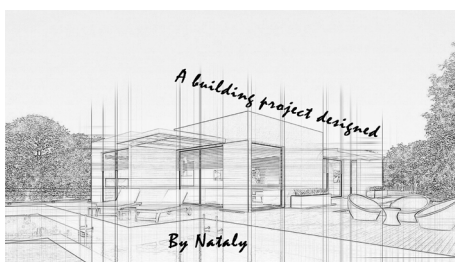
Usage of these will improve the student's learning motivation and improve the education process by cutting down the spent time for work.



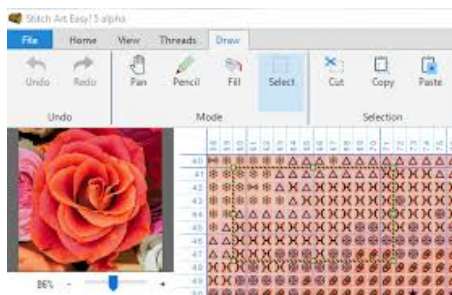
MyCrochet



Guntram's Tabletweaving



Adobe Photoshop



Stitch Art Easy

Figure 12. Some specialized computer programs

For improving the study program N. Vronska offers implementation of well-known methods in a new way, the possibilities to improve the study program Home Environment and Informatics in Education are described in Table 7.

Table 7
Development of the study program Home Environment and Informatics in education with ICT integration in the study process (Vronska, 2012)

Study course		Where to use	What software can be used
GENERAL EDUCATION STUDY COURSES	History of Pedagogy	Presentation at seminars, presentation of report, taking tests, conducting group work	MS PowerPoint, Hot Potatoes, Web Quest, online discussions, e- learning environment
	Didactics		
	Special Pedagogy		
	General Psychology		
	Developmental Psychology		
	Social Psychology		
	Theory and Methodology of Upbringing		
	Adult Education		
	Environmental Pedagogy		

	Study course	Where to use	What software can be used
	General Pedagogy	In form teachers' work: forming of document catalogue, evaluating knowledge and skills, e-journal	MS Excel, the Internet and database, e-learning environment
FIELD OF THEORETICAL STUDY COURSES	Methodology of Home Economics	Passing theory, defending practical works, control and assessment of results	Hot Potatoes, MS Power Point, MS Excel, e-learning environment
	Methodology of Information Technologies	Forming tests, defending course papers, making handouts	Hot Potatoes, MS PowerPoint, raster and vector software, e-learning environment
	School Management	Educational establishment work planning, teachers tariffication	gp-Untis or aSc Timetables, TietoEnator Alise
	Research in Education	Taking tests, data processing, presentation of research	Hot Potatoes, e-learning environment, MS Excel, SPSS, MS PowerPoint
	Pedagogy of Art and Music	Home work on CD, forming tests	MS PowerPoint, MS Excel, Hot Potatoes and e-learning environment
FIELD OF PROFESSIONAL STUDY COURSES	Drawing	Drawing objects	Vector software
	Technical Drawing	Making plane-tables, technical drafts	DeltaCAD, AutoCAD
	Composition and Colour Studies	Make compositions, draft drawings, usage of different textures and effects	Raster and vector software
	Interior Design		
	Home Economics	Planning family's budget, drawing house or kitchen drafts	MS Excel, SEB budget planner
	Food Technology	Calculating nutritional values, creating video food recipes in cookery	MS Excel, Movie Maker.
	Table Etiquette	Interior design, menu, invitations, table cards, modelling food serving, making scripts for parties and calculating of expenses	Astron Design, vector and raster software, Movie Maker and MS Excel
FIELD OF PROFESSIONAL STUDY COURSES	Embroidery (Needlework)	Creating embroidery compositions and schemes for embroidering	Photo-XPro, Pattern Maker, Stitch Art Easy, PCStitch
	Knitting (Needlework)	Creating knitting schemes, on-line calculating of yarn use, calculating of stitch amount, product visualizing	Calling Knitting, PrimaVision Knit, WinKnit
	Crochet (Needlework)	Creating crocheting schemes	MyCrochet
	Wood Processing	Household product drawing and composition creation	DeltaCAD or AutoCAD, raster and vector software
	Weaving	Weaving, making patterns	DB Weave, Guntram's Tablet-weaving Thingy, Beads Wicker
	Metal Processing	Household product drawing and composition creation	DeltaCAD or AutoCAD, raster and vector software
	Modelling	Cut-out designing and modelling	Grafis, EVA, Pattern CAD, CorelDraw
	Sewing		

On 1st September 2020, the new improved basic education standard "Regulations Regarding the State Basic Education Standard and Model Basic Education Programmes" enters into

force. It determines changes in curricula and approaches to basic education, as well as the development of transversal skills, succession at all levels (Regulations Regarding..., 2020). The aim is to integrate the transversal skills or so called 21st century skills in the curriculum - to promote learning by delving into processes, to offer students general skills that permeate or are essential in all areas of learning. Students will learn the study subject better, they will learn to act in new and unfamiliar situations created by a diverse subject matter (Oliņa, 2019).

"Design and Technology" and "Computer Science" are study subjects placed in one area (Area of Technology) in the improved curriculum for basic education, because the digital skills are defined as main transversal skills. "Computer Science" replaced the study subject "Informatics", and "Design and Technology" replaced the subject "Home Economics and Technologies".

Digital skills are the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately using digital technologies for employment, for decent jobs and for entrepreneurship. It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy (UNESCO, 2018).

Today, most students use the digital environment - social media (WhatsApp, SnapChat), social networks (Facebook, Twitter, Instagram, Tumblr), applications that are constantly available on mobile phone. Students prefer fast information retrieval and exchange, using IT, often works with many tasks at the same time, prefers active rather than passive activity (Dudareva, 2018).

Nowadays, there are many opportunities to use IT tools and digital resources in a meaningful way. Using online tools, students can model situations, solve problems, collaborate and communicate with peers, as well as create their own portfolio.

Shared documents (Google Doc) are very popular among students. MS PowerPoint presentations can be replaced with free online tools, e.g., Sway, Prezi or Canva (creation of visual materials).

Raster and vector software Adobe Photoshop, CorelDraw, Adobe Illustrator can be replaced with free Gimp, Canva, Pixlr, Inkscape, Sketch.

In turn, 3D modelling programs DeltaCAD or AutoCAD intended for a wide range of drawing applications can be replaced with Sketch Up (free online), SketchUp Pro is a full-featured desktop modeler (not free), or Tinkercad (free online), which is an easy-to-use 3D CAD design tool. After the creation students can print this object with a 3D printer.

Data processing and presentation of research with MS Excel or SPSS can be replaced with free R software.

Creation of video materials with Movie Maker program successfully replaced Hitfilm Express or Filmora or InShot, some of these programs are available on both on own computer and own phone.

The use of IT tools and free online tools helps to make the lesson more unusual by learning the topic and taking a different approach to developing cognitive skills.

Conclusions

In the historical development the study subject of Home Economics and Technologies has changed in its contents, definition of its aims and main tasks, organisation of lessons and its title. The aims of the subject are determined by the pedagogical thought, politics and economics through time – from simple practical activities, acquirement of narrow handicraft trade to conscious universal development of personality. Changes of the title of the study subject – Handicraft – Practical Work - Home Economics – Household – Work Training - Home Economics and Technologies, today the title Design and Technologies is being used.

The changing education paradigms have determined the need for new education programmes. Home Economics and Technology Education is undergoing a paradigm shift: the focus on memorizing knowledge is being replaced by a focus on using it. The changes in education paradigms have affected also to the study subject of Home Economics and Technologies.

The task of the sustainable education development is not only to give the knowledge about the sustainable development but also to develop skills, form the values and increase the motivation for active cooperation in carrying out the sustainable development. According to the author' I. Lice-Zikmane research Home Economics and Technologies training operates as education for sustainable development and it is carried out as an interrelated subject link, and it is integrated in the content corresponding to the level of education.

Home economics teaches the importance of critical and reflective thinking about social issues towards enabling optimum health, focusing on how students can be empowered both individually and collectively. *Methodology Structure for Training Teachers of Home Economics and Technologies* developed by the author V. Dislere encouraged students' interest to learn through student-centred approach in education and using e-studies environment as complementary aid for training teachers. Methodology as the theory that implements the proper selection of training material, encourage effective teaching organization (methods, teaching aids, teacher's personality) helping to choose the most appropriate content (curriculum) and taking into account learning objectives, contribute to the development of students' knowledge and skills. To be successful in four dimensions of practice (academic discipline, everyday living, curricula and development policy) means that the profession is constantly evolving, and there will always be new ways of performing the HET profession.

Consumer education developed similarly in all Baltic countries; common teaching materials were developed based on the experience of the European countries. Different ideas of healthy life – style is integrated in study subject Home Economics and Technologies.

During research on the different didactic aspects of Home Economics and Technologies training the authors conclude that students' thinking skills are sufficiently well developed and they are ready to think independently - critically, logically, and creatively in HET lessons. Following students' self-esteem, creative thinking is the best developed thinking skill in HET lessons, then critical and logical thinking is not good enough. Creative thinking is most relevant in Home Economics lessons, it creates opportunities to look at things from a different point of view and act creatively in creating new products.

Using of didactic principles of learning theories in training of HET- scientificity of the content of teaching, systemic approach to curriculum outline, the principle of availability of computer-based training, the principle of interactive visibility, using systemic and sequencing principle during the creation of training material, creases learning efficiency, develops students' ability to learn, as well as prepares students for life in today's information society.

Learning video as didactic tool is a recognized and highly valued method of teaching handicrafts, it promotes a self-regulating learning, access to further education, the opportunity to study at a time and place convenient for oneself, creates opportunities to re-watch material if necessary, supports individual autonomy, promotes creativity and personal development, thus contributing to the improvement of quality of life.

Modern Home Economics and Technologies education should emphasize the development of insight into the mental, social and cultural values, the responsible, purposeful and creative use of material resources for the organization of personal household, for the achievement of the higher welfare level, for life quality of an individual and for families and all the society. The life quality in the context of Home Economics is evaluated according to three criteria, which are worked out by the author A. Pridane and characterized by the following indicators:

- 1) *economical*- characterizes living standard and ensures meeting of an individual's needs;
- 2) *social*- oriented towards an individual's development, integration into the society and safety;
- 3) *mental*- forms the individual's goal (meaning) of life.

The keyword of Home Economics and Technologies education is *life quality*, which with its criteria (economical, social and mental) and indicators is a instrument for the designing of the content of the school subject at an elementary school level. An individual's needs within the context of life quality, in conformity with the requirements for the acquisition of the content of Home Economics education at an elementary school, are met by meeting the needs:

- *"to be"*, encompasses the basic skills, which ensure the physical, psychological and mental existence of an individual;
- *"to belong"*, indicates the fitness of an individual and the physical, social environments, an individual's belonging to the society;
- *"to become"*, is related to the purposeful activities, performed by an individual in order to achieve her/his goals, and desires, to implement her/his plans.

By relating the criteria (economical, social and mental) and indicators of life quality to the needs "to be", "to belong", "to become" studied by A. Pridane and introducing them into the content of the Home Economics and Technologies education at an elementary school, it is possible to facilitate the insight into the life quality.

In the context of quality of life and sustainability, a healthy lifestyle is important. One of the most important indicators of a healthy lifestyle is nutrition. Therefore, in Home Economics and Technology lessons, students learn to develop healthy eating habits started from product selection and cooking to understanding of Latvian eating traditions, and their importance as a national cultural heritage, as well as to be aware that healthy eating is the basis for quality of life.

To discover the possibilities of use of ICT in the Home Economics and Technologies (Design and Technology) study process, the authors conclude that the model of ICT integration skills development worked out (and supplemented with a free online tools or free software) by the author N. Vronska is based on transformative digital learning, integration and student-centred approach implementation in the study process. The usage of ICT promotes individualization of the study process that depends on the qualification level, skills, individual peculiarities of acquiring the learning material, students' interests and needs; as well as it promotes the change of the students' cognitive activity character to higher self-dependency, investigative activity and aspiration to independent self- improvement and self-education, in this way the student-cantered approach is realized in acquiring of the study content.

Bibliography

1. Allardt E. (1993). Having, Loving, Being: An Alternative to Swedish Model of Welfare Research. In M Nussbaum, A. Sen (Eds.), *The Quality of Life*. Oxford Scholarship Online. doi: [10.1093/0198287976.001.0001](https://doi.org/10.1093/0198287976.001.0001)
2. Anspoka Z., Siliņa-Jasjukeviča G. (2010). Novada tradicionālā kultūra izglītībā: situācijas izpētes rezultāti [Region's traditional culture in education: The results of research of situation]. In Starptautiskā zinātniskā konference Teorija praksei mūsdienu sabiedrības izglītībā. Rīga: LU, 17- 24. (in Latvian)
3. Arcus M. (2008). 100 years of the International Federation for Home Economics 1908-2008. (Supported by the IFHE History Committee). Bonn, Germany: International Federation for Home Economics.
4. Arendt H. (2000). Vita activa ili o dejateljnoi ziznji [Vita activa or about active life]. Sankt Peterburg: Aleteija. (in Russian)
5. Arsovski Z., Lula P., Dordevic A. (2016). Impact of ICT on Quality of Life. In S. Arsovski, D. Tadić, M. Stefanović (Eds.) *The International conference on Quality of Life, I*. Kragujevac: University of Kragujevac, 225-232.
6. Bela-Krūmiņa B., Tisenkopfs T. (2006a). Dzīves kvalitāte Latvijā [Quality of life in Latvia]. Rīga: Apgāds Zinātne.
7. Bela-Krūmiņa B., Tisenkopfs T. (2006b). Dzīves kvalitāte Latvijā: Sociālā pētījuma rezultāti [Quality of life in Latvia Results of social research]. Rīga: Apgāds Zinātne.
8. Bizuk V. (2003). Some aspects of professional preparation of future teachers of informatics. In the Proceedings of the International Conference *The use of new technologies in education, 14*. Troitsk, 254-255.
9. Boldisevica M., Dislere V. (2015). The Use of Learning Video in Handicraft Technologies for Adults. In V. Dislere (Ed.), *Proceedings of the International Scientific Conference Rural Environment. Education. Personality*, 8. Jelgava: LLU, 179-187. Retrieved from <https://llufb.llu.lv/conference/REEP/2015/Latvia-Univ-Agricult-REEP-2015proceedings-179-187.pdf>
10. Borbás L., Dislere V., Kostecka J., Liepiņa-Naula I. (2007). Some content of consumer rights and responsibilities as catalysts for changes in behaviour. In the Proceedings of the International Scientific Conference *Catalyzing changes*. Hamar: Hedmark University College., 202-213 Retrieved from https://brage.inn.no/inn-xmlui/bitstream/handle/11250/133615/opprapp04_2007.pdf
11. Bradburn N.M. (1969). *The structure of psychological well-being*. Chicago: Aldine Publishing Company Retrieved from https://www.norc.org/PDFs/publications/BradburnN_Struc_Psych_Well_Being.pdf
12. Briede B. (2019). Students' Self-directed Learning in the Context of Industrial Challenges: Latvia University of Life Sciences and Technologies Case. In J. Domenech, P. Merello, E. de la Poza, D. Blazquez, R. Peña-Ortiz (Eds.), *Proceedings of the International Conference on Higher Education Advances (HEAD'19)*, 5, 685-694. doi: [10.4995/HEAD19.2019.9292](https://doi.org/10.4995/HEAD19.2019.9292)
13. Briede B., Beitere-Selegovska Z., Pridane A., Boldisevica L. (2020). Development of Design Thinking in the Field of Design and Crafts. *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP-2020)*, 13. Jelgava: Latvia University of Life Sciences and Technologies, 359-365. doi: [10.22616/REEP.2020.043](https://doi.org/10.22616/REEP.2020.043)
14. Broks A. (2000a). *Izglītības sistemoloģija* [Educational systemology]. Rīga: RaKa. (in Latvian)

15. Broks A. (2000b). Sistēmteorija pedagogijā. [System Theory in Pedagogy]. Starptautiskas zinātniskas konferences *Sadarbība un kompetence izglītībā* raksti. Jelgava LLU, 22- 26. (in Latvian)
16. Bubolz M.M., Sontag M.S. (2007). Integration in Home Economics and Human Ecology. *International Journal of Consumer Studies & Home Economics*, 12(1), 1-14. doi: [10.1111/j.1470-6431.1988.tb00462.x](https://doi.org/10.1111/j.1470-6431.1988.tb00462.x)
17. Caune P. (2002). Mācību materiāli. Cilvēks. Daba. Sabiedrība. Programmpakete „Tests” [Training materials. Human. Nature. Society. Software package Tests]. Retrieved from https://www.mykoob.lv/?index/liis_macibu_materiali/post/1 (in Latvian)
18. Danilāne L., Ļubkina V. (2009). Patērētājizglītības pedagoģiskie un sociāli ekonomiskie aspekti. Rēzekne: Rēzeknes augstskola. (in Latvian)
19. Darbmācības programma 5.-8. klasei [Work training programme for grade 5-8]. (1970). Latvijas PSR Izglītības ministrija. Rīga: Zvaigzne. (in Latvian)
20. Dauvarte L., Dislere V. (2015). Didactic usability of the information communication technologies in Home economics and technology lessons. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 8. Jelgava: LLU, 188-197. Retrieved from <https://llufb.llu.lv/conference/REEP/2015/Latvia-Univ-Agricult-REEP-2015proceedings-188-197.pdf>
21. Developing Key Competences at School in Europe: Challenges and Opportunities for Policy. Eurydice Report. (2012). European Commission/EACEA/Eurydice. Luxembourg: Publications Office of the European Union. doi: [10.2797/93204](https://doi.org/10.2797/93204)
22. Dislere V. (1997). *Increasing the Efficiency of Training Decorative Machine Embroidery*. Synopsis of the Doctoral Thesis in Education. Supervisor Ludis Peks. Jelgava: LLU.
23. Dislere V. (1998). Amatu prasme – mājturības skolotāja dominante [The Craft Skills – the Dominant of a Home Economics Teacher]. Proceedings of the Scientific International conference dedicated to the 60th anniversary of the founding of the Latvian Institute of Home Economics *Pedagogical Issues of Home Economics*. Jelgava: LLU, 22-24. (in Latvian)
24. Dislere V. (2000a). Development of Home Economics in Latvia, Home Economics in 100 years. In J. Benn (Ed.), the Proceedings of the International Conference *Home Economics in the 21st Century. History- Perspectives - Challenges*. Copenhagen: The Royal Danish School of Educational Studies, 206-209.
25. Dislere V. (2000b). Description of Teacher education in Home economics in Latvia. In J. Benn (Ed.), the Proceedings of the International Conference *Home Economics in the 21st Century. History- Perspectives - Challenges*. Copenhagen: The Royal Danish School of Educational Studies, 74-75.
26. Dislere V. (2000c). Education and Healthy Lifestyle in Latvia. In the Proceedings of the International European Conference *Home Economics in the new Millennium from a cultural, consumer and health perspective*. Oslo, Norway: The royal Ministry of Children and Family Affairs, 41-45.
27. Dislere V., Biedris A. (2000d). Die Ausbildung für das Fach Haushaltslehre in Lettland [Education for the subject of household studies in Latvia]. In I. Kettschau, B. Methfessel, M.B. Piorkowsky (Eds), *Familie 2000: Bildung für Familien und Haushalte zwischen Alltagskompetenz und Professionalität. Europäische Perspektiven. Dokumentation der Dritten Europäischen Fachtagung 26.-28.9.1999 in Bonn. Hohengehren, Germany: Schneider Hohengehren, 326-330.*
28. Dislere V., Liepina I. (2001). Professional development within home economics teacher training. In the Proceedings of the International Conference *Science and*

- Technology Education: Preparing Future Citizens*. Nicosia, Cyprus: University of Cyprus, 95- 99.
29. Dislere V. (2002a). Development of creative Action in Further Education. In the Proceedings of the of the International Scientific and Practical conference *The Spaces of Creation*. Siauliai: Siauliai university 27-30.
 30. Dislere V. (2002b). Modularization and international cooperation possibilities within Home Economics education in Latvia. *Eva Brinkmann Berufsbildung in der Hauswirtschaft – MODULARISIERUNG UND Zertifizierung im gestuften Qualifizierungssystem: Genesis- Stand – Vision – Provokation*, Hochschultage 2002 bbw., Deutschland, 113-118.
 31. Dislere V. (2003a). The Motivation of Home Economics/Household Teachers for Further Education. In B. Briede (Ed.), *The Proceedings of the International Conference Rural Environment. Education. Personality (REEP)*, 2. Jelgava: LLU.
 32. Dislere V., Malinovska L. (2003b). Nowadays Information Technologies Within Adult Education. *Journal of Science Education* 4(1), 42-43.
 33. Dislere V. (2004a). Consumer Citizenship for Life Quality in Latvia. In V.W. Thoresen (Ed.), *The Proceedings of the International Scientific Conference of the Consumer Citizenship Network Using, Choosing or Creating the Future, I*. Paris, France, 70-78. Retrieved from https://brage.inn.no/inn-xmloi/bitstream/handle/11250/133639/opprapp04_2004.pdf#page=76
 34. Dislere V. (Ed.). (2004b). *Vadlīnijas patērētājizglītībai Baltijas valstīs. Dzīves prasmes ilgtspējīgai attīstībai* [Guidelines for consumer education in the Baltic. Life skills for sustainable development]. Jelgava: PMPMA. (in Latvian)
 35. Dislere V. (Ed.). (2005). *Mācības patērētājinībās: gudra izvēle. Rokasgrāmata patērētājizglītībā pieaugušajiem* [Consumer education: a smart choice. A guide to consumer education for adults]. Jelgava: PMPMA. (in Latvian)
 36. Dislere V., Liepina-Naula I. (2006). Patērētājizglītība personības dzīves kvalitātes pilnveidei [Consumer education to improve the quality of personal life]. In Proceedings of the international scientific conference *New dimensions in the development of society*. Jelgava: LLU, 277-287. (in Latvian)
 37. Dislere V. (Ed.). (2007). *Mācības patērētājinībās: gudra izvēle. 7 mācību modeļi patērētājizglītībā pieaugušajiem* [Consumer education: a smart choice. 7 training modules in consumer education for adults]. Jelgava: PMPMA. (in Latvian)
 38. Dislere V., Sirvide M. (2008). Development of Consumer Education in Latvia. Ref.48. E-Book – *Global Sustainable Development: A Challenge for Consumer Citizens*. Retrieved from http://www.educationforsustainabledevelopment.org/papers/paper_48.doc
 39. Dislere V., Lice I. (2008). Some Aspects of Consumer Citizenship Education in Home Economics - Student's Knowledge, Practice and Experience. In A. Klein, V.W. Thoresen (Eds.), *The Proceedings of the International Conference of the Consumer Citizenship Network Tallin 2008 Assessing information as Consumer Citizens*, 5. Hamar: Hedmark University College, 173-181.
 40. Dislere V. (2012a). Mājturības mācību metodika [Home Economics Teaching Methodology]. Jelgava: LLU. (in Latvian)
 41. Dislere V. (2012b). Methodology Structure for Training Teachers of Home Economics and Technologies. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 5. Jelgava: Latvia University of Life Sciences and Technologies, 201-208. Retrieved from <https://llu.lv/conference/REEP/2012/REEP-2012-proceedings-E-ISSN-2255-808X.pdf#page=202>

42. Dišlere V., Grasmann D. (1999). Teaching Home Economics in Latvia. *Journal for Home Economics teachers* 3.
43. Dišlere V. (2000e). Methodology of decorative Machine Embroidery for Home Economics Students. In the Proceedings of the International conference: *Changes of Home Economics and technology Content in School: the Reality and Perspectives*, Siauliai: Siauliai university, 84-85.
44. Dišlere V. (2020). Dekoratīvā mašīnizšūšana. Metodika pašmācībai pieaugušajiem [Decorative Machine Embroidery. Methodology for self-study for adults]. Jelgava: Latvia University of Life Sciences and Technologies. (in Latvian)
45. Dizains un tehnoloģijas 1.-9. klasei. Mācību priekšmeta programmas paraugs [Design and technologies for grades 1-9. Sample subject program]. (2020). Skola 2030, Valsts izglītības satura centrs, ESF projekts Nr.8.3.1.1/16/I/002 Kompetenču pieeja mācību saturā. Retrieved from <https://mape.skola2030.lv/resources/174> (in Latvian)
46. Donnellan M.B., Robins R. W. (2009). The development of personality across the lifespan. In P.J. Corr, G. Matthews (Eds.), *The Cambridge handbook of personality psychology* (Cambridge Handbooks in Psychology). New York, NY: Cambridge University Press, 191-204. doi: [10.1017/CBO9780511596544.015](https://doi.org/10.1017/CBO9780511596544.015)
47. Dudareva I. (2018). Informācijas tehnoloģijas mācīšanās iedziļinoties atbalstam [Information technology for support in-depth learning]. In D. Namsone (Ed.), *Mācīšanās lietpratībai*. Rīga: LU Akadēmiskais apgāds, 189-211. Retrieved from https://www.siic.lu.lv/fileadmin/user_upload/lu_portal/projekti/siic/Kolektiva_mono_grafija/Macisanas_Lietpratibai.pdf (in Latvian)
48. Eat well and save the planet! A guide for consumers on how to eat greener, healthier and more ethical food. (2007). SUSTAIN The alliance for better food and farming. Retrieved from http://www.sustainweb.org/pdf/SFG_Consumers.pdf
49. Elstrup O. (2009). The ways of humans: Modelling the fundamentals of Psychology and Social relations. *Integrative Psychological and Behavioral Science*, 43(4), 267-300. doi: [10.1007/s12124-009-9095-x](https://doi.org/10.1007/s12124-009-9095-x)
50. European Commission / EACEA / Eurydice. (2012). Developing key Competences at School in Europe: Challenges and Opportunities for Policy. Eurydice Report. Publications Office of the European Union. doi: [10.2797/93204](https://doi.org/10.2797/93204)
51. Faculty of Engineering. (2020). Latvia University of Life Sciences and Technologies. Retrieved from <https://www.llu.lv/en/faculty-of-engineering>
52. Frankl V.E. (1976). *Paradoxien des Glücks*. (Paradoxes of happiness). In U. Hommers (Ed.), *Ein Symposium Was ist Glück?* München: Deutsche Taschenbuch Verlag, 108. (in German)
53. Fraser W.J. (2000). *Didactics and pedagogy*. Technology: access, pedagogy and use in ODL research. Hong Kong: The Open University of Hong Kong.
54. Glatzer W. (1992) Lebensqualität und subjektives Wohlbefinden. Ergebnisse sozialwissenschaftlicher Untersuchungen. In A. Bellebaum (Ed.), *Glück und Zufriedenheit*. VS Verlag für Sozialwissenschaften, Wiesbaden. doi: [10.1007/978-3-663-10184-0_4](https://doi.org/10.1007/978-3-663-10184-0_4)
55. Graudiņš U. (2012). Jāpērk droša vietējā pārtika [Buying safe native food]. Latvijas avīze.18.10.2012 (in Latvian)
56. Hegel G.W.F. (2009). *Grundlinien der Psychologie des Rechts*. (Elements of the Philosophy of Right). Hamburg: Feliks Meiner Verlag. Retrieved from <https://meiner.de/reading/web/?isbn=9783787309054>
57. Hills P., Argyle M. (2002). The Oxford Happiness Questionnaire: a compact scale for the measurement of psychological well-being. *Personality and Individual Differences*. Psychological Wellbeing. 33(7), 1073-82. doi: [10.1016/s0191-8869\(01\)00213-6](https://doi.org/10.1016/s0191-8869(01)00213-6)

58. Huajin Z. (2005). Human Quality and social progress. In W. Miaoyang, Y. Xuanmeng, G.F. McLean (Eds.), *Beyond Modernization: Chinese Roots for Global Awareness. Culture Heritage and Contemporary Change Series III, 12*. Washington, DC: The Council for Research in Values and Philosophy, 173-183.
59. Inglehart R., Foa R., Peterson P., Welzel C. (2008). Development, Freedom, and Rising Happiness: A Global Perspective (1981–2007)". *Perspectives on Psychological Science*, 3(4), 264-285. doi: [10.1111/j.1745-6924.2008.00078.x](https://doi.org/10.1111/j.1745-6924.2008.00078.x)
60. International Federation for Home Economics. (2020). Retrieved from: www.ifhe.org
61. *International Scientific Conference "Rural Environment, Education, Personality"*. (2020). Latvia University of Life Sciences and Technologies. Retrieved from <https://www.llu.lv/en/conference-rural-environment-education-personality>
62. Izglītība mūsdienīgai lietpratībai: mācību saturs un pieejas apraksts [Education for modern skills: a description of the content and approach of learning]. (2017). Projekts Nr.8.3.1.1/16/I/002 Kompetenču pieeja mācību saturā. Skola 2030. Retrieved from <https://static.lsm.lv/documents/ge.pdf> (in Latvian)
63. Izglītības un mājsaimniecības institūts [Institute of Education and Home Economics]. (2020). Latvia University of Life Sciences and Technologies. Retrieved from <http://www.tf.llu.lv/lv/izglitibas-un-majsaimniecibas-instituts-imi> (in Latvian)
64. Jegou F., Thoresen V., Manzini E. (Eds.). (2009). Looking for Likely Alternatives. Hamar: Hedmark University College. https://issuu.com/strategicdesignscenarios/docs/lola_brochure
65. Johnson R., Cureton A. (2016). Kant's Moral Philosophy. Retrieved from <https://plato.stanford.edu/entries/kant-moral/>
66. Jutvika G., Liepiņa I. (Eds.). (2015). Izglītība pārmaiņām: ilgtspējīgas attīstības mācīšanas un mācīšanās rokasgrāmata [Education for Change: A Handbook for Teaching and Learning for Sustainable Development]. Rīga: Baltijas Universitātes programma, Upsalas Universitāte, *Vides vēstis*. (in Latvian)
67. Kalēja- Gasparoviča D. (2006). Vizuālās mākslas apguve radošās pašizaugsmes kursā skolotāju izglītībā [Acquiring Visual Arts in the creative personal development course for teacher education]. In Zinātnisko rakstu krājums *Teorija praksei mūsdienai sabiedrības izglītībā, 3*. Rīga, Latvia: RPIVA, 47-55. (in Latvian)
68. Kepaliene I., Žygaitiene B., Petruškevičiene K. (2013). Preconditions for Entrepreneurship Education in Technology Subject. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP), 6*. Jelgava: LLU, 221-226. Retrieved from https://llufb.llu.lv/conference/REEP/2013/Latvia-Universitatis-Agricult_REEP_2013_ISSN_2255-808X-221-226.pdf
69. Kinslejs M.Dž. (2001). Ceļvedis ekonomikas attīstībā [Guide of economic development]. *Vides vēstis, 1*(37). (in Latvian)
70. Kitson M. (Ed.). (2003). *Empowering Consumers: Educated Choices. A Handbook of Consumer Education for Adults*. Vienna: Pädagogische Akademie des Bundes in Wien.
71. Kitson M. Dislere V. Harrison H. (2003) An investigative study of adult consumer education and lifelong learning needs in the United Kingdom and Latvia. *International Journal of Consumer Studies* 27(3). doi: [10.1046/j.1470-6431.2003.00308_6.x](https://doi.org/10.1046/j.1470-6431.2003.00308_6.x)
72. Klein S. (2014). *Die Glücksformel. oder Wie die guten Gefühle entstehen* [The formula for happiness or how to arise the good feelings]. Frankfurt am Main: S. Fisher Verlag GmbH. (in German)
73. Knowles D. (2002). Hegel and the philosophy of right. London: Routledge. Retrieved from <https://eltalondeaquiles.pucp.edu.pe/wp-content/uploads/2016/05/Routledge-Philosophy-GuideBooks-Dudley-Knowles->

[Routledge-Philosophy-GuideBook-to-Hegel-and-the-Philosophy-of-Right-Routledge-2002-1.pdf](#)

74. Koķe T., Muraškovska I. (2007). Latvija ceļā uz zināšanu sabiedrību: izpratne un izaicinājumi [Latvia in the way to knowledge society: understanding and challenges]. Zinātniski pētnieciskie raksti *Izglītība zināšanu sabiedrības attīstībai Latvijā*. Rīga: Zinātne, 121-141. (in Latvian)
75. Konstam A. (2006). Historical Atlas of Ancient Greece. San Diego: Mercury Books.
76. Kozule V. (1998). Uzturs I daļa [Nutrition Part I]. Ozolnieki, Latvia: Latvijas Lauksaimniecības konsultāciju un izglītības atbalsta centrs. (in Latvian)
77. Kozule V. (2000). Uzturs II daļa [Nutrition Part II]. Ozolnieki, Latvia: Latvijas Lauksaimniecības konsultāciju un izglītības atbalsta centrs. (in Latvian)
78. Kozule V. (2001). Uzturs III daļa [[Nutrition Part III]. Ozolnieki, Latvia: Latvijas Lauksaimniecības konsultāciju un izglītības atbalsta centrs. (in Latvian)
79. Kozule V. (2002). Uzturs IV daļa [[Nutrition Part IV]. Ozolnieki, Latvia: Latvijas Lauksaimniecības konsultāciju un izglītības atbalsta centrs. (in Latvian)
80. Kozule V. (2007). Ēdināšanas darba organizācija skolās un pirmskolas izglītības iestādēs [Organization of catering work in schools and pre-school educational institutions]. Rīga: Viesnīcu un restorānu mācību centrs. (in Latvian)
81. Kozule V., Kulakova M., Ķeruže A. (2010). Lasāmgrāmata mājturībā [Reading book in home economics]. Rīga: Zemkopības ministrija, 2010, 247 lpp. (in Latvian)
82. Ködelpeter T., Fichtner K. (Eds.). (2012). *Nachhaltige Ernährung. Handreichung zur schulischen und außerschulischen Bildungsarbeit* [Sustainable nutrition. Handout for school and extracurricular educational work]. Dietramszell, German: Ökologische Akademie. Retrieved from https://www.nachhaltigeernaehrung.de/fileadmin/Newsletter/Handreichung-web_Nachhaltige_Ernaehrung_ThKoedelpeter.pdf (in German)
83. Kristapsone S. (2020). *Dzīves kvalitāte* [Quality of Life]. Nacionālā enciklopēdija. Retrieved from <https://enciklopedija.lv/skirklis/61290-dz%C4%ABves-kvalit%C4%81te->
84. Kultūrpolitikas pamatnostādnes 2014.-2020. gadam "Radošā Latvija" [The Guidelines of the Cultural Policy 2014-2020. "Creative Latvia"]. (2014). Ministru kabineta noteikumi Nr. 401. Rīga: Ministru kabinets. Retrieved from https://www.km.gov.lv/uploads/ckeditor/files/KM_dokumenti/Radosa_Latvija.pdf
85. Kūle M. (2006). *Eirodzīve - formas, principi, izjūtas* [Eurolife - forms, principles, feelings]. Rīga: LU Filozofijas un socioloģijas institūts. (in Latvian)
86. Kūle-Braža E. (2013). Mājturības un tehnoloģiju apguves pilnveides iespējas [Home Economics Education Development Opportunities]. In the Proceedings of the International Scientific Conference *Society, Integration Education, 1*. Rēzekne: Rēzeknes augstskola, 250-257. doi: [10.17770/sie2013vol1.534](https://doi.org/10.17770/sie2013vol1.534)
87. Lasmane S. (2006). *Rietumeiropas morāles filozofija* [Western moral philosophy]. Antoloģija. LU, Rīga: Akadēmiskais apgāds. (in Latvian)
88. Latvia University of Life Sciences and Technologies. (2020). Retrieved from <https://www.llu.lv/en/studies>
89. *Latvian National Development plan 2007-2013*. (2006). Riga: Ministry of Regional Development and Local Government of the Republic of Latvia. Retrieved from http://www.aip.lv/files/National_development_plan_2007-2013_eng.pdf
90. Latvijas mazpulki [Latvian 4h club].(2020). Retrieved from <https://mazpulki.lv/> (in Latvian)

91. Latvijas pamatskolu programmas [Latvian elementary school program]. (1935). Rīga: Izglītības ministrijas mācības līdzekļu nodaļa. (in Latvian)
92. Latvijas tautskolu programma [Latvian folk school program]. (1925). Rīga: Leta. (in Latvian)
93. Lice I. (2003a). Historical Development of the Subject “Home Economics” at General Education Schools in Latvia. In B. Briede (Ed.), *The Proceedings of the International Conference Rural Environment. Education. Personality (REEP)*, 2. Jelgava: LLU, 126–131.
94. Lice I. (2003b). Mājturības priekšmeta attīstības pirmsākumi [The beginnings of development of Home Economics study subject]. In Starptautiskās konferences *Pedagoģija: teorija un prakse* raksti, Liepāja: Liepājas Pedagoģijas akadēmija. (in Latvian)
95. Lice I. (2005). *Development of Pupils' Creative Action Skills at Home Economics*. Synopsis of the Doctoral Thesis in School Education. Supervisor Vija Dislere. Jelgava: LLU.
96. Lice I. (2012). Change of direction of Home Economics subject. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 5. Jelgava: LLU, 241-248. Retrieved from <https://llufb.llu.lv/conference/REEP/2012/REEP-2012-proceedings-E-ISSN-2255-808X.pdf#page=242>
97. Lice I., Dislere V. (2009). LOLA – One of the Creative Approaches to the Consumer Citizenship Education. In A. Klein, V.W. Thoresen (Eds), *Making a Difference*. Hamar: Hedmark University College, 203-219.
98. Lice I., Reihmane S. (2015). Education for sustainable development at home economics. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 8. Jelgava: LLU, 230-236. <https://llufb.llu.lv/conference/REEP/2015/Latvia-Univ-Agricult-REEP-2015proceedings-230-236.pdf>
99. Lice I., Reihmane S. (2016). The approaches to education for sustainable development at home economics. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 9. Jelgava: LLU 166-173. <https://llufb.llu.lv/conference/REEP/2016/Latvia-Univ-Agricult-REEP-2016proceed2255-808X-166-173.pdf>
100. Lice-Zikmane I. (2018). Handicraft in the context of sustainable education. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 11. Jelgava: LLU, 296-303. doi: [10.22616/REEP.2018.036](https://doi.org/10.22616/REEP.2018.036)
101. Lind E., Parlin L. (2017). Work Education in the Family: Similarities and Differences between the City and Rural Areas. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 10. Jelgava: LLU, 352-358. Retrieved from https://llufb.llu.lv/conference/REEP/2017/Latvia-Univ-Agricult-REEP-2017_proceedings-352-358.pdf
102. Lips A., Kikkull A. (2017). The necessity of teaching material and its Development in Technology Education in Estonia. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 10. Jelgava: LLU, 359-399. Retrieved from https://llufb.llu.lv/conference/REEP/2017/Latvia-Univ-Agricult-REEP-2017_proceedings-359-366.pdf
103. Ļubkina V. (2007). *Kompetenču paaugstināšana skolotājiem jaunā pamatizglītības standarta realizēšanai vispārizglītojošā skolā* [Enhancing the competence of teachers in the new basic education standard for implementation in a comprehensive school]. Rēzekne: Rēzekne Higher Education Institution. (in Latvian)

104. Marcenko G., Dislere V. (2017). Thinking of Pupils in the Lessons of Home Economics and Technologies. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP), 10*. Jelgava: LLU Retrieved from http://lufb.llu.lv/conference/REEP/2017/Latvia-Univ-Agricult-REEP-2017_proceedings-367-375.pdf
105. Marsh K.L., Johnston L., Richardson M.J., Schmidt R.C. (2009). Toward a radically embodied, embedded social psychology. *European Journal of Social Psychology*, 39(7), 1217-1225. doi: 10.1002/ejsp.666
106. Matisāne I. (2010). Saeimā apspriež nākotnes izglītības vīziju [The Saeima discusses the vision of future education]. Retrieved from <https://lvportals.lv/skaidrojumi/209147-saeima-apspriez-nakotnes-izglitibas-viziju-2010>
107. Mayer R.E. (2009). *Multimedia learning* (2nd ed.). New York: Cambridge University Press. doi: 10.1017/CBO9780511811678
108. Mācības patērētājinībās: gudra izvēle. 7 mācību moduļi patērētājinīgā izglītībā pieaugušajiem [Trainings in consumer science: Educated Choices. 7 training modules for consumer education for adults]. (2007). Socrates/Grundtvig-2 projekts Patērētāju izglītošanas pilnveide laukos 2004-2007. Jelgava: PMPMA. (in Latvian)
109. Mājturība un tehnoloģijas 5.-9. klasei ar izvēli koka un metāla tehnoloģijās [Home Economics and Technology for grade 5th-9th with a choice of wooden and metal technology]. (2010a). Pamatizglītības mācību priekšmeta programmas paraugs. Valsts Izglītības satura centrs. Rīga: IZM. Retrieved from <https://www.visc.gov.lv/lv/media/2701/download> (in Latvian)
110. Mājturība un tehnoloģijas 5.-9. klasei ar izvēli tekstila tehnoloģijās [Home Economics and Technology for grade 5th-9th with a choice of textile technology]. (2010b). Pamatizglītības mācību priekšmeta programmas paraugs. Valsts Izglītības satura centrs. Rīga: IZM. Retrieved from <https://www.visc.gov.lv/lv/media/2704/download> (in Latvian)
111. Mājturība un tehnoloģijas. Mācību priekšmeta standarts 1.-9. klasei [Home Economics. The Standard of study subject for grade 1-9]. (2014). MK Noteikumi Nr. 468. Rīga: Ministru kabinets. Retrieved from: <https://likumi.lv/doc.php?id=268342#piel19> (in Latvian).
112. Mājturība. Pamatizglītības standarts [Handicraft and Home Economics. The Standard of Elementary Education]. (1998). ISEC. Rīga: Mācību apgāds NT. (in Latvian)
113. McGregor S.L.T. (2010). *Well-being, Wellness and Basic Human Needs in Home Economics*. McGregor Monograph Series No. 201003. Retrieved from http://www.consultmcgregor.com/documents/publications/well-being_wellness_and_basic_human_needs_in_home_economics.pdf
114. McGregor S.L.T. (2011a). Knowledge Generation in Home Economics Using Transdisciplinary Methodology. *Kappa Omicron Nu FORUM*, 16(2). Retrieved from <https://www.kon.org/archives/forum/16-2/mcgregor2.html>
115. McGregor S.L.T. (2011b). Home Economics as an Integrated, Holistic System: Revisiting Bubolz and Sontag's 1988 Human Ecology. *International Journal of Consumer Studies*, 35(1), 26-34. doi: 10.1111/j.1470-6431.2010.00920.x
116. McGregor S.L.T., Dislere V. (2012). Home economics philosophy in Latvia: an exploratory study. *Kappa Omicron Nu FORUM*, 19(1). Retrieved from <http://www.kon.org/archives/forum/19-1/mcgregor-dislere.html>
117. McGregor S.L.T., Goldsmith E.B. (1998). Expanding our understanding of quality of life, Standard of living, and well-being. *Journal of Family and Consumer Science*, 90(2), 2-6.
118. McKeown R. (2002). Education for Sustainable Development. Toolkit, Version 2. Retrieved from http://www.esdtoolkit.org/esd_toolkit_v2.pdf

119. Miķelsons R. (Ed.). (1969). *Skolas un pedagoģiskās domas attīstība Padomju Latvijā* [Development of Pedagogical Thought and Schools in Soviet Latvia]. Rīga: Zvaigzne. (in Latvian)
120. Muster V. (2013). The Underrated Discipline. In U. Schader, V. Fricke, D. Doyle, V.W. Thoresen (Eds.), *Enabling Responsible Living*, Berlin, Heidelberg: Springer, 19-29. doi: [10.1007/978-3-642-22048-7_3](https://doi.org/10.1007/978-3-642-22048-7_3)
121. National Development Plan of Latvia for 2014-2020. (2012). Rīga: Cross-Sector Coordination Centre. Retrieved from: https://www.pkc.gov.lv/images/NAP2020%20dokumenti/NDP2020_English_Final.pdf
122. Ness Ā., Heikelands I.P. (2004). *Dzīves filozofija* [Philosophy of life]. 2. iespiedums. Rīga: Norden AB. (in Latvian)
123. Oliņa Z. (2019). *Caurvijas – efektīvi rīki mācībās un dzīvē* [Cross-curriculum - effective tools for learning and life]. Retrieved from: <https://www.skola2030.lv/lv/jaunumi/blogs/caurvijas-efektivi-riki-macibas-un-dzive> (in Latvian)
124. Ozolina-Kenge M., Auzina-Smith I. (1989). *Kaucmindes mājturības seminārs un Latvijas mājturības institūts: apraksti un atmiņu sakopojumi* [Kaucminde Household Seminar and Latvian Institute of Home Economics: descriptions and memory aggregations]. England: Almelija - Edition of alumni group of Kaucminde Household Seminar and Latvian Institute of Home Economics. (in Latvian)
125. *Par Eiropas Padomes Vispārējo konvenciju par kultūras mantojuma vērtību sabiedrībai* [Framework Convention of the Council of Europe on the Value of Cultural Heritage for Society]. (2006). Rīga: Saeima. Retrieved from: <http://likumi.lv/doc.php?id=130436> (in Latvian)
126. Pendergast D. (2006). *Sustaining the Home Economics Profession in New Times: a Convergent Moment*. Dundee: University of Aberdeen.
127. Petrovskij A.V. (1982). *Ličnost, dejatelnost, kolektiv* [Personality. Activity. The team]. Moskva: Mislj. (in Russian)
128. *Pētījumi par dzīves kvalitāti Eiropā* (EQLS) [Research on quality of life in Europe (European Quality of Life Survey)]. (2017). Eurofound. Retrieved from <https://www.eurofound.europa.eu/lv/surveys/european-quality-of-life-surveys>
129. Piorkowsky M.B. (2003). *Neue Hauswirtschaft für diepostmoderne Gesellschaft- zur politische ökonomik des Privathaushalts* [New housekeeping for postmodern society - for the political economy of the private household]. In B. Methfessel, K. Schlegel-Mathies (Eds.), *Fokus Haushalt. Beiträge Sozioökonomie des Haushalts*. Baltmannsweiller: Schneider Verlag Hohengehren. (in German)
130. Platon. *Sočinenije v troh tomah* [Platon. Works in 3 volumes]. (1968). Pod redakcījei A.F. Loseva I.V.F. Asmusa. Moskva: Mislj. (in Russian)
131. Pöllänen S., Urdziņa-Deruma M. (2017). Future-Oriented Reform of Craft Education: The Cases of Finland and Latvia. In E. Kimonen, R. Nevalainen (Eds.), *Reforming Teaching and Teacher Education*. Rotterdam: Sense Publishers, 117-144. doi: [10.1007/978-94-6300-917-1_5](https://doi.org/10.1007/978-94-6300-917-1_5)
132. *Praktisko darbu programma 5.-7. klasei* [Practical work program for grade 5-7]. (1958). Rīga: Latvijas valsts izdevniecība. (in Latvian)
133. Preacher K.J. (2001). *Calculation for the chi-square test: An interactive calculation tool for chi-square tests of goodness of fit and independence*. Retrieved from: <http://www.quantpsy.org/chisq/chisq.htm>
134. Prets D. (2000). *Izglītības programmu pilnveide*. Pedagoģa rokasgrāmata [Improvement of educational programme. A Handbook for Educator]. Rīga: Zvaigzne ABC (in Latvian)

135. Pridane A. (2009). *Implementation of the principle of life quality in Home Economics education at elementary school*. Synopsis of Doctoral Thesis in School Education. Supervisor Baiba Briede. Jelgava: LLU. Retrieved from https://lufb.llu.lv/dissertation-summary/education/Aija_Pridane_Promocijas_darba_kopsavilkums_2009_LLU_TF.pdf#page=38
136. Pridane A. (2012). Innovation in school subject Home Economics. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 5. Jelgava: LLU, 256-263. Retrieved from <https://lufb.llu.lv/conference/REEP/2012/REEP-2012-proceedings-E-ISSN-2255-808X.pdf#page=257>
137. Pridane A. (2013). The principles of sustainable development acquiring theme food within subject home economics and technologies. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 6. Jelgava: LLU, 92-99. Retrieved from http://lufb.llu.lv/conference/REEP/2013/Latvia-Univ-Agricult_REEP_2013_ISSN_2255-808X-92-99.pdf
138. Pridane A. (2017). The Study on Competence - Based Curriculum Implementation in the Subject Home Economics and Technologies. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 10. Jelgava: LLU, 376-384. Retrieved from https://lufb.llu.lv/conference/REEP/2017/Latvia-Univ-Agricult-REEP-2017_proceedings-376-384.pdf
139. Pridāne A. (2014). Dzīves kvalitātes principa īstenošana mājturības izglītībā pamatskolā: Mājturība un tehnoloģijas, dzīves kvalitāte, personības vajadzības, personības pašrealizācija [Implementation of the principle of life quality in Home Economics at elementary school. Home economics and Technologies, quality of life, personality needs, personality self-realization]. GlobeEdit. (in Latvian)
140. Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning. (2006). Retrieved from <https://eur-lex.europa.eu/eli/reco/2006/962/oj>
141. Regulation (EU) No 1169/2011 of the European parliament and of the Council of 25 October 2011 on the provision of food information to consumer. (2011). Official Journal of the European Union, L 304/18. Retrieved from <https://eur-lex.europa.eu/eli/reg/2011/1169/oj>
142. Regulations Regarding the State Standard in Basic Education, the Subjects of Study Standards in Basic Education and Model Basic Educational Programmes. (2014). Republic of Latvia. Cabinet of Ministers. Cabinet Regulation No. 468. Retrieved from <https://likumi.lv/ta/en/en/id/268342>
143. Richarz I. (2003). The cultural aspect in Household Education in the Process of European And Globalisation. In B. Briede (Ed.), *The Proceedings of the International Conference Rural Environment. Education. Personality (REEP)*, 2. Jelgava: LLU, 139-144
144. Rivža B., Krūzmētra M. (2007). *Ievads. Izglītība zināšanu sabiedrības attīstībai Latvijā*. [Introduction. Education for developing knowledge society in Latvia]. In Zinātniski pētnieciskie raksti *Izglītība zināšanu sabiedrības attīstībai Latvijā*. Rīga: Zinātne, 7-16. (in Latvian)
145. Roberts B.W., Wood D., Smith J.L. (2005). Evaluating Five Factor Theory and social investment perspectives on personality trait development. *Journal of Research in Personality*. 39(1) 166–184. doi:10.1016/j.jrp.2004.08.002
146. Ruberts J. (1973.). *Vidzemes un Kurzemes tautskolas XIXgs. 80.-90. gados* [Livonia and Courland folk school of the XIX century 80-90s]. Rīga: Zvaigzne. (in Latvian)

147. Schools - EU agenda to improve competences and learning for the 21st century. (2016). Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3Aef0004>
148. Schuh M. (Ed.). (2003). *Empowering Consumers: Educated Choices. Consumers learn sustainable ways of consumption. 7 modules of Consumer Education for Adults*. Vienna: Pädagogische Akademie des Bundes in Wien. Retrieved from https://www.umweltberatung.at/download/?id=cea_1-18module_einleitung_engl.pdf
149. Schweitzer R. (2006). *Hauswirtschaftswissenschaften und -gesetze - Nachhaltiges Leben managen [Home Economics Science and Acts- Managing Sustainable Life]*. Berlin: IFHE. (in German)
150. Sederevičiūtė-Pačiauskienė Z., Valantinaite I., Žilinskaitė-Vytienė V. (2020). From Handicraft to technologies: historical Development of Handicraft Education in general Schools in Lithuania. *Eurasia Journal of Mathematics, Science and Technology Education*, 16(1), No em1805. doi: 10.29333/ejmste/109659
151. Seven principles of sustainable food for the holidays and every day. (2012). Strategic Sustainability Consulting. Retrieved from <http://www.sustainabilityconsulting.com/blog/2012/11/20/seven-principles-of-sustainable-food-for-the-holidays-and-ev.html>
152. Skestere I. (2012). Pētījums par dzīves kvalitātes izvērtējuma metodēm un instrumentiem (1.daļa) [The research on quality of life assessment methods and tools (Part 1)]. Rīga: Valsts Kanceleja. Retrieved from https://www.sif.gov.lv/nodevumi/nodevumi/4881/petijums_dz_kvalit_1.pdf (in Latvian)
153. Sproge S. (2007). *Mācību process informācijas tehnoloģiju laikmetā [Learning process in the epoch of information technologies]*. (Master Thesis. Jelgava, Latvia: LLU). (in Latvian)
154. Steigens A. (1999). *Nākotne sākas šodien [The future begins today]*. Rīga, Nordok. (in Latvian)
155. Suhov A.N. (2004). *Realnaja socialnaja psihologija [Real social psychology]*. Moskovskij psihologiceskij institut. Moskva: Poligr. Centr. p. 351. (in Russian)
156. *Sustainable Development Strategy of Latvia until 2030*. (2010). Riga: Saeima of the Republic of Latvia. Retrieved from: https://www.cbs.nl/-/media/imported/documents/2011/36/latvia_2010.pdf?la=en-gb
157. Šmids V. (2001). *Skaista dzīve. Ievads dzīves mākslā [Beautiful life. Introduction to the art of living]*. Rīga: Zvaigzne ABC. (in Latvian)
158. Šuvajevs I. (2007). Dzīves mākslas paradoksi [Paradoxes of living art]. *Zinātnes vēstnesis*. 351(17). Retrieved from <http://archive.lza.lv/ww3/ZV/zv071700.htm> (in Latvian)
159. Taar J. (2015). Home Economics Curricula in Estonia. In H. Janhonen-Abruquah, P. Palojoki (Eds.), *Creative and Responsible Home Economics Education*. Helsinki: Helsingin yliopisto, 164-175. Retrieved from <https://helda.helsinki.fi/bitstream/handle/10138/157591/luovajav.pdf#page=171>
160. Taar J., Vant T. (2017). The Role of the School Subjects' Name on its Content and Image. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environmt. Education. Personality (REEP)*, 10. Jelgava: LLU, 392-399. Retrieved from https://lufb.llu.lv/conference/REEP/2017/Latvia-Univ-Agriclt-REEP-2017_proceedings-392-399.pdf
161. *Technology is Helping Improve Quality of Life*. (2019). Retrieved from <https://www.businesswire.com/news/home/20190820005762/en/Technology-is-Helping-Improve-Quality-of-Life-Lenovo%E2%84%A2-Research-Reveals>

162. Thiele-Witting M. (2003). Kompetent im Alltag: Bildung für Haushalt und Familie [Competent in everyday life: education for home and family]. *Aus Politik und Zeitgeschichte*, B.9, 3-6. Retrieved from <https://www.bpb.de/apuz/27769/kompetent-im-alltag-bildung-fuer-haushaltund-familie> (in German)
163. Thomson M. Koskinen T. (Eds.). (2012). *Design for Growth and Prosperity: Report and Recommendations of the European Design Leadership Board*. Helsinki, Finland: DG Enterprise and Industry of the European Commission. doi: [10.2769/52223](https://doi.org/10.2769/52223)
164. Thoresen V.W. (Ed.). (2004). *Guidelines for consumer education in the Baltic. Life skills for sustainable consumption*. Hamar: Hedmark University College.
165. Thoresen V.W. (2007). Stimulating Stakeholder Involvement. In D. Doyle (Ed.), *Building Bridges, Consumer Citizenship: Promoting new responses*, 3. Hamar: Hedmark University College, 11-18. Retrieved from https://www.oneplanetnetwork.org/sites/default/files/promoting_new_responses_-_building_bridges.pdf
166. Thoresen V.W. (2015). The Route to Responsible Living: Doubting, Discovering, daring and Doing. In V.W. Thoresen, R.J. Didham, J. Klein, D. Doyle (Eds.), *Responsible Living*. Switzerland: Springer International Publishing.
167. Timsans S. (1998). *Mēs savā zemē un laikā. Mājturība: dzīvē, zinātnē, cauri gadiem* [We are in our Own Land and Time. Home Economics: in Life, in Science, through the Years]. *Latvijas Vēstnesis, Kultūra un zinātne*, 02.10.1998. (284/285). Retrieved from <http://www.vestnesis.lv/index.php?menu=doc&id=50005> (in Latvian)
168. Turkki K. (2007). *Home Economics as a Discipline and Science*. Helsinki: Helsinki University.
169. Turkki K. (2012). Home Economics - a Forum for Global Learning and Responsible Living. In D. Pendergast, S.L.T. McGregor, K. Turkki (Eds.), *Creating Home Economics Futures: The Next 100 Years*. Bowen Hills, QLD: Australian Academic Press, 38-51.
170. Twigg C.A. (2001). *Innovations in Online Learning: Moving Beyond no Significant Difference*. Troy: The New Learning and Technology Program. Retrieved from: <http://www.thencat.org/Monographs/Mono4.pdf>
171. UNESCO. (2018) *A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2*. Montreal: UNESCO Institute for Statistics. Retrieved from: <http://uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf>
172. Valantinaitė I., Sederevičiūtė-Pačiauskienė Ž., Dislere V. (2016). Dimension of Consumer Culture in Verbal Creativity expression of Pre-service Technology Teachers in the Baltic Countries: the Field of Electronics. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 9. Jelgava: LLU. Retrieved from <https://llu.lv/conference/REEP/2016/Latvia-Univ-Agricult-REEP-2016proceed2255-808X-174-186.pdf>
173. Valsts kultūrpolitikas vadlīnijas 2006.-2015. Nacionāla valsts. Ilgtermiņa politikas pamatnostādnes [The guidelines of State cultural politics 2006.-2015. National State. Guidelines for long term politics]. (2006). Kultūras ministrija. Retrieved from http://oldweb.km.lv/v/doc/dokumenti/Valsts_kulturpolitikas_vadlinijas_groz.pdf (in Latvian)
174. Van Den Dool P., Kirschner P. (2003). Integrating the Educative Functions of Information and Communications Technology (ICT) in teachers' and learners' toolboxes: a reflection on pedagogical benchmarks for ICT in teacher education. *Technology, Pedagogy and Education*, 12(1), 161-179, doi: [10.1080/14759390300200151](https://doi.org/10.1080/14759390300200151)

175. Vičs A. (1994.) *Latviešu skolu vēsture II grāmata* [Latvian School History Book II]. Rīga: Zvaigzne ABC. (in Latvian)
176. Vincenti V., Smith F. (2004). Critical science: What it could offer all family and consumer sciences professionals. *Journal of Family and Consumer and Applied Sciences*, 96(1), 63–70.
177. Vindaca O., Lubkina V. (2020). Transformative Digital Learning in the Context of Higher Education: Definition and Basic Concepts. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 13. Jelgava: LLU, 177-184. doi: [10.22616/REEP.2020.021](https://doi.org/10.22616/REEP.2020.021)
178. Volane E. (2014). The acquisition of primary school pupils' life activity skills in the aspect of teaching content of home economics and technologies. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 7. Jelgava: LLU, 162-171. Retrieved from <https://llufb.llu.lv/conference/REEP/2014/Latvia-Univ-Agricult-REEP-2014proceedings-162-171.pdf>
179. Volane E. (2015). Home Economics and Technologies at an Elementary School: Problems and Solutions. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 8. Jelgava: LLU, 292-300. Retrieved from <https://llufb.llu.lv/conference/REEP/2015/Latvia-Univ-Agricult-REEP-2015proceedings-292-300.pdf>
180. Von Schweitzer R. (2000). *Einführung in die Wirtschaftslehre des privaten Haushalts* [Introduction in the economics of the household]. UTB für Wissenschaft. (in German)
181. Vorobjovs A. (2002). *Sociālā psiholoģija* [Social psychology]. Rīga: Izglītības sōji. (in Latvian)
182. Vronska N. (2012). Development of prospective teacher information and communication technologies integration skills in Household and Home Economics education. Synopsis of the Doctoral Thesis in University Education. Supervisor Elita Volāne. Jelgava: LLU. Retrieved from https://llufb.llu.lv/dissertation-summary/education/Nataljas-Vronskas_promoci_d_kopsavilkums_bibl_LLU_TF_IMI.pdf#page=38
183. Vronska N. (2014). Students' information skills in the Latvia University of Agriculture. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 7. Jelgava: LLU, 249-254. Retrieved from <https://llufb.llu.lv/conference/REEP/2014/Latvia-Univ-Agricult-REEP-2014proceedings-249-254.pdf>
184. Vronska N. (2016). ICT Competences as a Necessary Part of Professional Qualities at the Latvia University of Agriculture. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 9. Jelgava: LLU, 122-127. Retrieved from <http://llufb.llu.lv/conference/REEP/2016/Latvia-Univ-Agricult-REEP-2016proceed2255-808X.pdf>
185. Vronska N. (2017). Use of Videos to Support Teaching and Learning in the Study Process. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 10. Jelgava: LLU, 321-327. Retrieved from https://llufb.llu.lv/conference/REEP/2017/Latvia-Univ-Agricult-REEP-2017_proceedings-321-327.pdf

186. Zaļoksnis J. (2009). Vides izglītība un izglītība ilgtspējīgai attīstībai politikā un augstskolās [Environmental Education and Education for Sustainable Development in Policies and at Universities]. In M. Kļaviņš, J. Zaļoksnis (Eds.), *Environmental Education at Universities*. Riga, Latvia: LU Akadēmiskais apgāds, 107-126. Retrieved from https://www.lu.lv/fileadmin/user_upload/lu_portal/projekti/vides_izglitiba/materiali/Vides_izglitiba_augstskola.pdf#page=108 (in Latvian)
187. Žygaitienē B., Miškinienē M. (2012). Realization of Professional Competences of Future Technology Teachers during Pedagogical Practice. In V. Dislere (Ed.), *The Proceedings of the International Scientific Conference Rural Environment. Education. Personality (REEP)*, 5. Jelgava: LLU, 189-197. Retrieved from <https://llufb.llu.lv/conference/REEP/2012/REEP-2012-proceedings-E-ISSN-2255-808X.pdf#page=190>

Annexes

Example of the Programme of Home Economics and Technologies with Choices in Textile Technologies - Annual Thematic Plan for Grades 5-9 in Elementary School (Dislere, 2012a).

Theme/ grade	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
Housing	Organisation of a private household. Maintenance of housing. (4h)	Division of home works. Housing safety, electrical security. Vacuum cleaner. (4h)	Arrangements of living room and lounge. Means of destruction of pest rodents. Services for housing. (4h)	Art items in housing. Textiles in the interior. Waste sorting and recycling. (4h)	Improving the quality of life in the family. Action in accidents. Maintenance of engineering technology provision. (2h)
Nutrition	Food stuff. Kitchen, it's equipment. Breakfast food. Crops in breakfast mixes. (16h)	The characterization of nutrient. Vitamins. Primary processing of the product. Soups, stews. Cooking according to recipes. Laying the table for daily lunch. (16h)	Principles of menu design. Meat, fish food. Tablecloths and accessories for the Sunday dinner table. Behaviour at the table. (16h)	Nutrition effects on health. Milk and dairy products. Kinds of sweet dishes, cooking, technology. Choice and presentation of food and drink. A buffet table. (16h)	Biological and energy-equivalent products. Food in extreme conditions. Preservation. Pastry products. Food additives, food supplements. Latvian national dishes, other national dishes. Table covers for celebration. (14h)
Clothing	Choice of clothing. Types of care. Label symbols. (4h)	Multiple clothes. Buttons, buttonholes. Ironing of shirt and blouse. (4h)	Chemical and mixed textile fibres. Seasonal clothing, washing in a washing machine, storage. Shoe grooming. (4h)	Fashion. Youth style. Cleaning of clothes at home and in the dry cleaner. Change of furniture. (2h)	The history of the costumes. Styles. Accessory. The outgoing outfit. Creative transformation. (4h)
Crocheting	Basic elements. Making of simple items. (16h)				Crocheting of lace. Crocheting of item. (12h)
Knitting		Elements of ethnographic patterns, color combinations. Analogies. Material properties. Optional knitting. (18h)	Crafts and folk art. Knitwear nowadays. Product making sequence, costs, time planning. Rounding. Circular knit. (14h)	Stylization, textures. Knitting after pattern. Joining, forming and steaming details. Knitting the intended product. (20h)	Synthesis of different techniques. Possibilities of combining different technologies and materials in one product in an

Theme/ grade	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
Embroidery	Basic stitch adoption. Embroidery in color technique. (18h)	White material works. Types of embroidery. Decoration of little item. (16h)	Shading stitch. Composition development for small item. Stylization. (12h)		interior or suit. Design elements. (20h)
Weaving	0	0		Types of woven products. Braiding. Garter and belt. Mini gobelin. (10h)	
Batik	0	0	Enrichment of finished products with batik and printing. Powerful batik techniques. Materials, paint, tools. (6h)		
Sewing	Hand stitches, machine seams. Sewing of simple item - pillow, bag or shoe sac. (12h)	Working principles of sewing machine, care. Machine stitches, hand sewing. Sewing work clothing. (12h)	Shoulder garment (T-type) in the wardrobe. Basic pattern's (cut-out's) construction. Types of edging seams. (12h)	Modeling of basic pattern of skirt or trouser. Sewing one of them. (18h)	
Total:	70 h	70 h	70 h	70 h	70 h

Example of the Programme of Home Economics and Technologies with a Choice in Wood and Metal Technologies Annual Thematic Plan for Grades 5-9 in Elementary School (Dislere, 2012a).

Theme /grade	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
Graphic language	Training instruments. Lines. Squares. Scale. Stencils. Meaning of dimensions in drawings. (10h)	Projection of the object on two planes. Use of stencils. Layout construction. (8h)	Projection of the object on 3 straight-angle planes. Placement of three basic views. A 3-D detail in the frontal symmetric projection of the straight-angle. (8h)	Slicing. Types of constructor documents. Drawings of the schemes. The concept of detail. Geometrical body spreads. (10h)	Design of the object in acsonometric projections. The concept of a pool drawing. Bolt connection details. (14h)
Wood-working	Making simple wooden items. Sketches and drawings. Ethnographic article. Drawing the material. Material cross-cutting, drilling, rolling, grinding. Strengthening of wood parts. (18h)	To construct a technical design. Material handling - long-standing, shading, drilling, wilting, milling, licking. Preparation of the product. (22h)	Design of the object's intention in straight-angle projections. Sawing, moulding, rolling, milling, milling. Preparation of products. (24h)	Materials for wood carvings, their characteristics. Hand drill machine, grinder. Preparation of the product. (20h)	Applied ornamental products. Use of different materials and technologies. Preparation of the product. (16h)
Metal working	Simple articles of wire. Using a graphic image. Drawing, cutting, straightening the material. Moving, unmoving types of wire connection. (10h)	Treatment techniques, assortment. Drawing, cutting, folding, unwrapping, riveting. Preparation of the product. (16h)	Metals, their chemical and physical properties. Extraction of alloys. Metal drilling, felling, rolling, chiselling, joining of metals. (14h)	Steel products - forgings and rolls. Material drilling, swirling, threading, connecting materials. Preparation of the product. (16h)	
Combined work	Development of creative work. Joining techniques of wood and metal. Folding and connecting loops. Preparation of the product of wood. Sawing of plywood, cutting an ornament. (10h)	Using of processing technologies when working with plywood and tin. (2h)	Selection of machine tools. Using processing technologies when working with plywood and tin. (2h)	Use of processing technologies for the manufacture of wood carvings and the treatment of metal. (2h)	Use of different materials in the preparation of products. Wood, metal, polymers, plastic. The latest material-handling technologies. (20h)

Theme /grade	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
Food	Maintenance. The kitchen, its arrangement. Work tools, appliances in the kitchen. Cooking. Use the food pyramid for the choice of a full-fledged diet. Cereals. Eggs. Breakfast and dinner table covers. (12h)	The characterization of nutrient. Vitamins. Primary processing of the product. Vegetables, potatoes, legumes, fruit and berries. Soups, stews. Cooking according to recipes. Laying the table according to the menu. (12h)	Devices, tools for primary processing and cooking of meat and fish. Meat, fish food. Types of cold drinks, their cooking technology. Behaviour at the table. (12h)	Nutrition effects on health. Milk and dairy products. Kinds of sweet dishes, cooking, technology. Choice and presentation of food and drink. A buffet table. (12h)	Biological and energy-equivalent products. Food in extreme conditions. Preservation. Pastry products. Food additives, food supplements. Latvian national dishes, other national dishes. Table covers for celebration. (12h)
Housing	Electricity. Safety rules using electrical appliances. Furniture-making materials. Types of lamps. Municipal waste. (8h)	Responsibilities and participation in home life. Housing safety, electrical security. Vacuum cleaner. Municipal waste. (8h)	Prevention of damage to spaces and furniture. Seasonal cleaning works for spaces. Rodents, their destruction. Services in the maintenance of housing. (8h)	Art objects in house. Comfortable, aesthetic dwelling. Electric trauma. Waste sorting and recycling. (8h)	Improving the quality of life in the family. Action in accidents. Maintenance of engineering technology provision. (8h)
Clothing	Style, fashion, types of clothing, buying. Label. Pants ironing. (2h)	Multiple clothes. Detergents. Shirt ironing. Ties, their tying. (2h)	Chemical and mixed textile fibres. Seasonal clothing, washing in a washing machine, storage. Shoe grooming. (2h)	Fashion. Youth style. Cleaning of clothes at home and in the dry cleaner. Change of furniture. (2h)	The history of the costumes. Styles. The outgoing outfit. Creative transformation. (2h)
Total:	70 h	70 h	70 h	70 h	70 h

List of Doctoral Theses Defended in Latvia in the field of Home Economics and Technologies

- Kalēja-Gasparoviča D. (2012). *Studentu radošuma veicināšana vizuālā mākslas studijās* [Promoting Students' Creativity in Visual Art Studies]. Doctoral Thesis in the field of pedagogical science in the sub-branch of branch (art) pedagogy Supervisor Dr. paed. A. Spona. Rīga: LU. Retrieved from https://dspace.lu.lv/dspace/bitstream/handle/7/4720/22977-Daiga_Kaleja_Gasparovica_2012.pdf (in Latvian, Synopsis in English)
- Vronska N. (2012). *Topošo skolotāju informācijas un komunikācijas tehnoloģiju integrēšanas prasmi attīstība mājturības un mājsaimniecības izglītībā* [Development of Prospective Teacher Information and Communication Technologies Integration Skills in Household and Home Economics Education]. Doctoral Thesis in the field of pedagogical science in the sub-branch of higher education pedagogy. Supervisor Dr. paed. E. Volane. Jelgava: LLU. Retrieved from https://lufb.llu.lv/dissertation-summary/education/Nataljas-Vronskas_promoci_d_kopsavilkums_bibl_LLU_TF_IMI.pdf#page=38 (in Latvian, Synopsis in English)
- Briška I. (2011). *Topošo skolotāju profesionālo vērtību veidošanās mākslinieciski radošā darbībā* [Formation of Professional Values of Prospective Teachers in Artistic and Creative Activity]. Doctoral Thesis in the field of pedagogical science in the sub-branch of higher education pedagogy. Supervisor Dr. phil. V. Kincāns. Rīga: LU. Retrieved from <https://dspace.lu.lv/dspace/handle/7/4590> (in Latvian, Synopsis in English)
- Grīnfelde A. (2010). *Pensionāru dzīves kvalitāte Latvijas reģionos* [Quality of life of Pensioners in the Regions of Latvia]. Doctoral Thesis in the field of economics. Supervisor Dr. oec. A. Eglīte. Jelgava: LLU. Retrieved from https://lufb.llu.lv/dissertation-summary/economics/Anda_Grinfelde_promocijas_darba_kopsavilkums_2010_LLU_EF.pdf#page=61 (in Latvian, Synopsis in English)
- Pridāne A. (2009). *Dzīves kvalitātes principa īstenošana mājturības izglītībā pamatskolā* [Implementation of the Principle of Life Quality in Home Economics Education at the Basic School]. Doctoral Thesis in the field of pedagogical science in the sub-branch of school pedagogy. Supervisor Dr. paed. B. Briede. Jelgava: LLU. Retrieved from https://lufb.llu.lv/dissertation-summary/education/Aija_Pridane_Promocijas_darba_kopsavilkums_2009_LLU_TF.pdf#page=38 (in Latvian, Synopsis in English)
- Cacka M. (2009). *Studentu radošās darbības attīstība mākslas studiju procesā* [Development of Students' Creative Activity in the Process of Art Studies]. Doctoral Thesis in the field of pedagogical science in the sub-branch of branch (art) pedagogy. Supervisor Dr. paed. A. Slahova. Daugavpils: DPU. (in Latvian, Synopsis in English)
- Lice I. (2005). *Skolēnu radošās darbības prasmi pilnveide mājturības mācībās* [Improving Skills of Creative Action of Pupils at Home Economics]. Doctoral Thesis in the field of pedagogical science in the sub-branch of school pedagogy. Supervisor Dr. paed. V. Dislere. Jelgava: LLU, Daugavpils: DPU. (in Latvian, Synopsis in English)
- Olehnovica E. (2005). *Vidējās pakāpes lietišķās mākslas izglītības attīstība Latvijas pirmās brīvvalsts laikā* [Development of Secondary Applied Arts Education During the First Free



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State of Latvia]. Doctoral Thesis in the field of pedagogical science in the sub-branch of branch (art) pedagogy. Supervisor Dr. paed. A. Kruze. Daugavpils: DPU. (in Latvian, Synopsis in English)

Eglīte A. (2003). *Latvijas lauku privātās mājturības analīzes modeļi* [Analysis models of the Latvian Rural Private Householding]. Doctoral thesis in the field of economics. Supervisor Dr. oec. E. Grinovskis E. Jelgava: LLU. (in Latvian, Synopsis in English)

Visnola D. (2003). *Tradicionālās kultūras apguve topošo skolotāju mākslas izglītībā* [Acquisition of Traditional Culture in Art Education of Prospective Teachers]. Doctoral Thesis in Pedagogical Sciences (Art) Pedagogy. Supervisor Dr. paed. J. Anspaks. Rīga: LU. Retrieved from <https://dspace.lu.lv/dspace/handle/7/34384> (in Latvian, Synopsis in English)

Urdžiņa-Deruma M. (2002). *Tekstils kā mākslas izglītības sastāvdaļa topošo mājturības skolotāju studijās augstskolā* [Textiles as a Part of Art Education in the Studies of Prospective Home Economics Teachers at the University]. Doctoral Thesis in the field of pedagogical science in the sub-branch of higher education pedagogy. Supervisor Dr. paed. Dz. Albrehta. Rīga: LU. Retrieved from <https://dspace.lu.lv/dspace/handle/7/546> (in Latvian, Synopsis in English)

Valdena I. (1998). *Floras dizaina studiju saturs un formas augstskolā* [Content and Forms of Flora Design Studies at the University]. Doctoral Thesis in the field of pedagogical science in the sub-branch of higher education pedagogy. Supervisor Dr. paed. J. Anspaks. Rīga: LU. (in Latvian, Synopsis in English)

Dislere V. (1997). *Dekoratīvās mašīnizšūšanas mācību efektivitātes kāpināšana* [Increasing the Efficiency of Decorative Machine Embroidery Training]. Doctoral Thesis in the field of pedagogical science in the sub-branch of on-the-job teaching methodology. Supervisor Dr. paed. L. Pēks. Daugavpils: DPU, Jelgava: LLU. (in Latvian, Synopsis in English)

Volane E. (1997). *Rokdarbi kā skolēnu prasmju veidošanās līdzeklis sākumskolā* [Handicrafts as a Means of Pupils Working Skills Development at Primary School]: Doctoral Thesis in the field of pedagogical science in the sub-branch of on-the-job teaching methodology. Supervisor Dr. paed. A. Špona. Rīga: LU. (in Latvian, Synopsis in English)

Vucenlzdans P. (1994). *Darb mācības metodikas struktūras pamati skolā* [Basics of Work-Based Learning Methodology Structure at School]. Doctoral Thesis in the field of pedagogical science in the sub-branch of on-the-job teaching methodology. Supervisor Dr. paed. L. Keirāns. Daugavpils: DU. (in Latvian, Synopsis in English)

Lubkina V. (1994). *Pedagoģiskie un ražošanas apstākļi skolēnu sagatavošanai darbam mazajā biznesā* [Pedagogical and Production Conditions for Preparing Students for Work in Small Business]. Supervisor Dr. I. Sasova. Moscow: Russia Academy of Education. (in Latvian, Synopsis in English)

Pokulis J. (1997). *Darb mācības skolotāja sagatavošanas metodiskā sistēma augstskolā* [Methodical System of On-the-Job Teacher Training in a Higher Education Institution. Synopsis of Habilitation Work in Education. Daugavpils: DPU, Rīga: LU. (in Latvian, Synopsis in English)

Kopelovica A. (1992). *Darb mācība personības veidošanās sistēmā vispārīgglītojošā skolā* [On-the-Job Training in the System of Personality Formation in a General Education School]: Synopsis of Habilitation Work in Education. Rīga: LU. (in Latvian, Synopsis in English)