

**KAUNAS UNIVERSITY OF TECHNOLOGY**

GINTARĖ TAUTKEVIČIENĖ

**FACTORS INFLUENCING THE EMERGENCE OF STUDENTS'  
INDIVIDUAL LEARNING ENVIRONMENTS IN THE UNIVERSITY  
LIBRARY EDUCATIONAL ENVIRONMENT**

**Summary of Doctoral Dissertation**

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GINTARĖ TAUTKEVIČIENĖ

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## INTRODUCTION

Contemporary higher education is affected by ongoing changes resulting from changing educational, economic, information, social, and technological environment. In the case of Lithuania the changes are also related to socio-cultural and economic transformations, characteristic to the countries in transition from planned to market economy. Knowledge of any field is constantly changing, which entails new requirements for individual's performance and constant need to update or even radically change one's knowledge and understanding (Edwards, 2000). To cope with these changes in science, work and everyday life, an individual has to be able to perform effectively. A prerequisite for this is broad competence of performance, which enables to effectively act in the changing environment, rather than knowledge in a narrow field of specialization (Entwistle, 1997; Ramsden, 1998; Bowden and Marton, 1998; Jonnassen, 2000; Jucevičienė and Lepaitė, 2002; Lipinskienė, 2002; Biggs, 2003). Higher education should help individuals to acquire generic skills, required for life-long learning and for adaptation in the changing environment. This approach calls for revision and change of the conventional system of studies. A new approach to learning also determines the same need. Learning takes place everywhere and all the time: it is related to individual's constructive life-long activity in a formal educational system, working and personal environments (Hiemstra, 1992; Tuijman & van der Kamp, 1992; Field & Leicester, 2000).

The aim of study organization in a university which favours the new educational paradigm (Ramsden, 1998; Bowden&Marton, 1998; Longworth, 1999 and others) is developing empowering learning environments rather than transmitting information.

The issues of learning and teaching at university in the context of the changing educational paradigm have been analysed by overseas (Barr & Tagg 1995; Marton, Hounsell & Entwistle 1997; Bowden, Marton, 1998; Ramsden, 1998; Martin, 1999; Bigg, 2003) and Lithuanian researchers (Jucevičienė and Stanikūnienė, 2001; Jucevičienė and Lipinskienė, 2001; Lipinskienė, 2002; Novikienė, 2003; Cesevičiūtė, 2003 and others). Different researchers take different approaches to the development of learning environments: some stress on different learning styles (Kolb, 1984), application of active learning methods (Resnick, 1987; Collins, Greeno and Resnick, 1994), orientation to different aims (Bransford, Brown, & Cocking, 1999), development of school communities (Retallik, Cocklin, & Coombe, 1999), in-service training (Boud & Garrick, 1999), differentiated learning (Šiaučiukėnienė, 1997), development of conditions empowering for university studies (Lipinskienė, 2002), development of targeted educational environments (Cesevičiūtė, 2003). Most researchers analyse learning environments in relation to the educational environments which are developed by study programmes. However, drawing on the new paradigm of learning and the concept of life-long learning, learning takes place not only during classes; it takes

place anywhere, where the learner gets new information and knowledge: at home, in the street, in cinemas, museums and libraries. Formal and informal learning environments are interrelated and interacting (Moss, 1987a, b); they can intensify or reduce the influence or counterbalance the tension in one environment by the factors of other environment. Knowledge, skills, capacities, values, attitudes and personal traits that have been formed in a specific environment can facilitate or hinder learning if transferred to another learning environment (Brown and Campione, 1984). Some individuals, in relation to their personal traits, will find the same specially created or natural learning environment encouraging their learning, whereas others will not find them useful at all. Thus, irrespective of the educational/learning environment developed by the educator, learners will perceive it individually, according of their experience, competence, attitudes and motivation.

Analysing the development of learning environments, researchers in educational science mainly refer to educational environments developed by teachers in classrooms so that learners can identify them as learning environments in accordance to their competence, experience and motivation. Development of students' learning environments in the university library should also first of all refer to the development of educational environments. Then students would recognize and use these purposefully developed educational environments to form their own individual and unique learning environments.

The university library, as one of the constituent parts of university structure, can be characterized by the abundance of information resources. Thus in a university, which relies on the new educational paradigm to organize learning, the library can become an active promoter of life-long learning as well as developer of flexible learning environment (Henning&Van Vuren, 1998; Schmidt&Cribb, 1998; Van Bentum& Braaksma 1999). However, these researchers do not refer to the above mentioned feature: the library does not develop students' learning environments directly; it can only influence them through its educational environment. As library environment is distinguished by information abundance, it has a potential of developing rich and empowering educational environments, which can be identified as appropriate and useful by different individuals. Publications by researchers (Bjorner, 1991; Fjällbrant; 1994, Behrens, 1994; Candy, Crebert and O'Leary, 1994; Doley, 1994; Bruce, 1998; Henning and Van Vuren, 1998; Schmidt and Cribb, 1998), devoted to the analysis of changes in the activity of libraries, development of users' information literacy, library role for continuing education and life-long learning, do not provide a systemic approach to the library as a constituent part of university educational environment identifiable as part of students' learning environments. In most cases these works focus on the changes in library activity, related to new computer equipment, information technologies and growing volume of information, as well as the need for developing information literacy. However, library activity is not related to the new

approach to learning and learning environments influenced by the university educational environment.

In Lithuania, more fundamental research is carried out in the field of library research (Glosienė, 2004), in research on the history of books (Lietuvninkaitė, 2002; Paparėlytė, 2003) or is oriented towards the changes in the activity and functions of public libraries (Glosienė, Petuchovaitė and Racevičiūtė, 1998, Petuchovaitė, 2004). Researchers in the fields of information and communication analyse the trends of electronic publishing of periodicals in Lithuania (Šarlauskienė, 2003), the issues of database development (Šarlauskienė, 2000), library performance evaluation and management (Rudžionienė, 2002), information research (Janiūnienė, 2001) and information infrastructures at university (Janavičienė, 2001). However, the activity of academic libraries is not a priority research question in Lithuania; it has not been analysed extensively by scholars, even though sometimes is discussed in the publications by practitioners (Pupelienė, 2004, Duobinienė and Tautkevičienė, 2002, 2003a).

Both on the global scale and in Lithuania the issues of developing educational environments at academic libraries and the emergence of students' learning environments in the library environment have been given little attention, whereas the development of learning environments in educational environments has not been analysed at all. Therefore, this area of educational activity calls for a profound analysis. Thus the question about the factors influencing the emergence of learning environments in the university educational environment is at the core of the **research problem**, which may be defined by the following questions: *What are the factors influencing the emergence of students' learning environments in the university library? What the library educational environment should be like to be effective for students' learning environments? How to identify specific individual learning environments as a projection of the library educational environment? How to identify the reasons for the mismatch of these environments?*

The **aim** of the dissertation is to provide rationale for the factors affecting the emergence of students' individual learning environments in the university library educational environment.

The research focuses on the following **objectives**:

1.To provide a theoretical rationale for the emergence of students' learning environments in the university educational environment.

2.To provide a theoretical rationale for the factors influencing the emergence of students' learning environments in the university educational environment.

3.To provide rationale for the methodology of research on the factors affecting the emergence of students' learning environments in the university educational environment and the reasons for the mismatch between these environments.

4. To specify students' individual learning environments in the university library educational environments in a particular university:

- to highlight the specific features of the university library educational environment;
- to evaluate the factors affecting the emergence of students' learning environments in the university library learning environment;
- to specify the influence of educational impact on the changes in the learning environments identified by students in the university library educational environment.

**The main theoretical concepts:**

- The concept of learning environment is analysed in the context of relation between the paradigms of teaching and learning and their interaction in the change process of the university educational environment (Longworth, 1999; Bowden and Marton, 1998).
- The rationale for the concept and characteristics of learning environments is provided by combining sociocultural (Vygotsky, 1978; Lave and Wenger, 1991; Novak, 1998) and constructivist (Glaserfeld, E. von, 1995; Wilson, 1996) approach to teaching/learning.
- Educational environment is analysed as a whole of educational system empowering a student for learning (Jucevičienė and Lipinskienė, 2001). An empowering environment is developed by providing competence-based, material organizational and psychological conditions of learning.
- The levels of library educational environment are distinguished drawing on the features of organizational culture of a traditional and modern library (Glosienė, 2000), manifested in different stages of societal development.

**The main methodological concepts:**

*Methodological concepts of research on educational environment*

Educational environment is regarded as a system of factors encouraging students' learning that have educational value and are purposefully organized.

*Methodological concepts of research on learning environment*

Students' learning environments emerge in the university educational environment, which involve study and library educational environments as essential educational environments. Therefore, specific learning environments are analysed with reference to the criteria of educational environments developed by the study programme and library.

*Methodological concepts of barrier identification of students' learning environments emergence from the university library educational environment*

Students identify individual learning environments, determined by a specific educational environment, in relation to their experience, interests and competence. These factors can also be barriers for learning environments to emerge in educational



environments. Therefore, the barriers of using library educational environments are analysed to specify the causes of emerging learning environments.

*Methodological concepts of developing the potential of university library educational environment to influence students' learning environments*

The potential of transforming university library educational environment into students' learning environments can be developed in different ways. One of the ways is educational impact which helps students to learn about educational potential of the library. Therefore, the effectiveness of the impact is specified by analysing students' conceptions of the university library before and after the educational impact is delivered.

The dissertation adopted the following **research methods**:

- *Research literature analysis* was employed to refine the concepts of educational and learning environment, to provide rationale for the concepts of university library educational environment and learning environment with reference to empowering students for learning. Research literature analysis, adopted to analyse the trends of library change, allowed distinguishing the levels of university library educational environment; research literature analysis provided rationale for a model of university library as a students' learning environment.

- *Case study* was employed to analyse a specific university library educational environment (at Kaunas University of Technology) and the resulting learning environments students'. It involved:

- *Document analysis and participant observation* – to evaluate the educational environment of a particular university. The documents of KTU library were analysed (activity reports and statistical data).

- *Questionnaire survey* – to find out students' preferred ways of information retrieval, experience of using the library, evaluations of study and library environments. Nine hundred and three students from different faculties at KTU were surveyed. A questionnaire survey was also used in the experiment to find out the evaluation of utility obtained from the educational impact during the training session, of material and psychological conditions and changes in students' skills. In both cases, original questionnaires were developed.

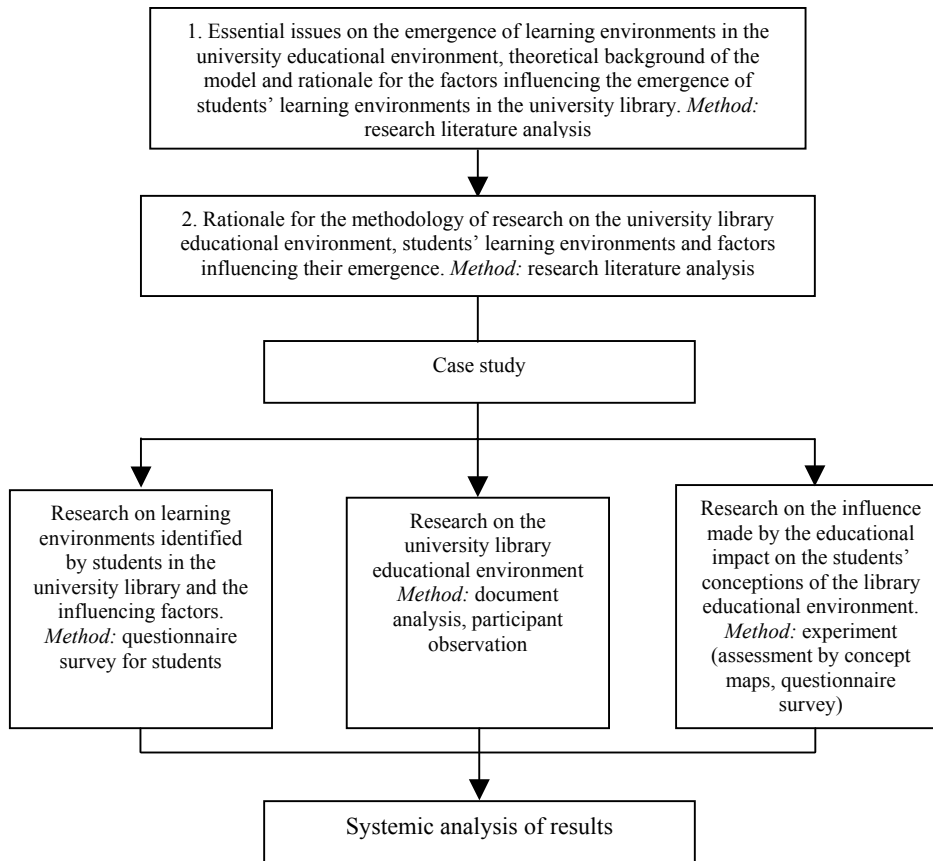
- *Experiment* – to specify the university library educational environment as identified by the students and its changes due to the educational impact. A pilot research (involved 44 students in 2003) and natural experiment were carried out (involved 97 students in 2004).

- *Content analysis* – to specify the university library educational environment as identified by the students. Concept maps were used to elicit the information.

- *Statistical data analysis* of the questionnaire survey was based on the methods of descriptive statistics, mean and standard deviation, factor

analysis (the method of principal components and Varimax rotation, analysis of factor loadings), values of correlation coefficients.

The **logical sequence** of theoretical analysis and empirical research are presented in Figure 1.



**Figure 1. Logical structure of research**

The **scientific novelty** and **theoretical significance** of the dissertation are defined by:

- Specified concepts of educational and learning environments;
- Rationale for the concepts of university library educational and learning environments;
- Identification of the levels in the university library educational environment;

- Theoretical rationale for the model of learning environments emergence in the university library educational environment;
- Created methodology of research on the factors influencing the emergence of students' learning environments in the university library educational environment;
- Created methodology of testing whether activating students' learning environment in the library entails changes related to the emergence of learning environments in the educational environment.
- Identification of library educational environment characteristics, determining the emergence of empowering learning environments; identification of barriers in using the library.

The **practical significance** of the dissertation: the model of university library educational environment can be used to improve the activity of academic libraries, to develop empowering learning environments in the library and to relate them to educational environments of other study programmes. The main results of the dissertation have been implemented in relating the educational environment of KTU library with the educational environments of Master's programmes of Educational Management, Educational Technology and Business Administration at the Faculty of Social Sciences.

#### **Approbation of the research results**

The papers on the dissertation topic were presented at the following conferences:

- The Conference "Teaching and Learning in Higher Education" at Kaunas University of Technology, April 28, 2000;
- The Conference of Lithuania's Doctoral Students and Supervisors in Educational Science at Klaipeda university, October 11, 2000;
- The Conference "Teaching and Learning in Higher Education" at Kaunas University of Technology, April 27, 2001;
- The Conference of Lithuania's Doctoral Students and Supervisors in Educational Science at Lithuanian Academy of Physical Education, October 6, 2000;
- The Eighth International Scientific Conference "Educational Reform and Teacher Training" at Vilnius Pedagogical University, October 16, 2001;
- The International Conference of European Educational Research Association at the University of Lisbon, September 11-14, 2002;
- The Conference "Teaching and Learning in Higher Education" at Kaunas University of Technology, September 27, 2002;
- The International Conference of European Educational Research Association at the University of Hamburg, September 17-20, 2003;
- The Conference "Teaching and Learning in Higher Education" at Kaunas University of Technology, December 11-12, 2003;

- The International Conference of European Educational Research Association at the University of Crete, September 22-25, 2004.

**The dissertation consists of** introduction, four parts, conclusions, recommendations, bibliography and annexes. The bibliography involves 273 items. The dissertation consists of 238 pages, 87 figures, 39 tables and 11 annexes.

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## GENERAL REVIEW OF THE CONTENT

The rationale for the research problem, definition of the research subject, aim, main objectives, research methodology and methods employed, scientific novelty and theoretical significance are presented in the introductory part of the dissertation.

An in-depth analysis of the research literature was carried out to reveal the relationship of educational and learning environments in the higher school and to provide rationale for the emergence of students learning environments in the university library educational environment.

### **1.1. Educational environment and learning environment: the problem of concepts and their relationship**

Educational and learning environments are analysed in the context of contemporary educational theories. The difference between these theoretical concepts is disclosed drawing on the socio-cultural and constructivist approaches to learning. Referring to the works by Vygotsky (1978), Lave&Wenger (1991), Marton&Ramsden (1998), Wilson (1996), Jonassen&Land (2000), Lipinskienė (2002), Jucevičienė (2003), Cesevičiūtė (2003) and other scholars, the relationship between educational and students' learning environments is disclosed. *Educational environment* is a dimension at the level of institution. It is developed by the educator referring to some educational aim, relevant content and methods that facilitate learning. *Learning environment* is a dimension at the level of the individual. It is an individually identified (according to individual learning goals, skills, needs, interests and experience) from the educational environment.

In relation to the way students identify the developed educational environment, their learning environment can partly overlap with the educational environment, be completely different or completely match (Jucevičienė, 2003). To develop flexible and learner-oriented educational environments, one has to consider learner differences: prior competence, attitude to learning, learning needs, motivation, individual learning style and characteristic learning strategies. Educational environments should be rich and diverse. *Rich educational environment* can have as many components as required to for the opportunity to use different learning styles and ways of knowledge construction (Dunlap&Grabinger, 1996; Merrienboer&Pass, 2003). Not every educational environment becomes the environment of students' learning. First of all, students should be motivated to use it; on the other hand, they should know how and be able to use it. To empower students for learning in a specific educational environment, competence-based, psychological and material-organizational conditions entailing every learner's learning power and influencing learning success, should be created (Lipinskienė, 2002). *Empowering* learning environment should be organized in the way which makes an individual feel able for effective personal development, realized through learning efforts. To make students able to identify relevant learning environments, we have to develop learning-intensive environments. A

learning-intensive educational environment involves a lot of rich and empowering learning environments, recognized and identified by individuals; the organization of educational environment should allow every individual to easily identify a learning environment relevant for specific learning aim(-s) and interact with it.

### **1.2. University library educational environment and its relationship with students' learning environments at university**

This section considers the specificity of university library educational environment in comparison to other educational environments at university. The emergence of students' learning environments in the university library educational environment is influenced by the environments of different study programmes and modules, faculties, departments, university educational environment, also those educational and learning environments that affect students beyond the university. This external educational environment can consist of family, friends, non-formal institutions and NGOs, the World Wide Web, etc. Students will be able to recognize rich and empowering learning environments only if library educational environment will meet their personal learning goal(-s). A learning-intensive *educational environment*, corresponding to the needs of the study programmes, aiming at the continuing development of information and metalearning competence and offering a manifold potential of learning environments, has to be created in the university library. As the aims and content of study programme are part of the university library educational environment, the content of study programmes determines the university library educational environment. Thus a university library has to assess students' needs and to ensure the access to adequate information resources as well as develop material, psychological and competence-based conditions empowering students for learning. Considering that students' needs for information and learning are differ depending on study programmes and level, students' learning environments involve some specific features.

### **1.3. Developing the conditions for students' learning empowerment in the university library educational environment**

This section focuses on the following questions: who should encourage students to use the library educational environment; how students may be empowered for learning in the university educational environment. Thus the concept of 'empowerment' is analysed in the context of library educational environment (Kirby *et al*, 1998; Christopher, 2003). Student empowerment with reference to university library is conceptualised as both provision with up-to-date and relevant information and developing competence of retrieving and using information effectively. Student empowerment can take place in the university library by developing information-intensive learning environments and providing conditions of using the retrieved information, as well as developing adequate competence of using the library and learning partnerships for teachers, students and librarians (Wright&McGurck, 2000; Radomski, 2000), which ensures the development of information literacy.

#### **1.4. Integration of information literacy development into the university study as a major factor of empowering students' learning in the library**

The section discusses the importance of information literacy which is inextricable from life-long learning and successful performance in the contemporary ever-changing information society. To ensure students' successful learning at university, considerable attention should be given to the development of these skills.

The development of students' information literacy is one of the major empowering factors towards the integration of the university library into university studies (Rader, 1998; Smith, 1997; Bruce, 1997, Henning, 1998; Oberman, Lindauer and Wilson, 1998). However, information literacy normally is not an issue of academic studies; but it can be integrated into other modules or optional programme (Fjallbrant, 1994). Information users education in university studies should be an ongoing process (Henning and Van Vuren, 1998), as each level of studies requires additional competence of information literacy. It should take place whenever the needs of searching, retrieving and using information emerge in the study environment. The development of information literacy should be supported by the cooperation between teachers and library staff at all levels of university studies (Hepworth, 2000).

#### **1.5. Institutional characteristics of university library levels of educational environment and participant interaction**

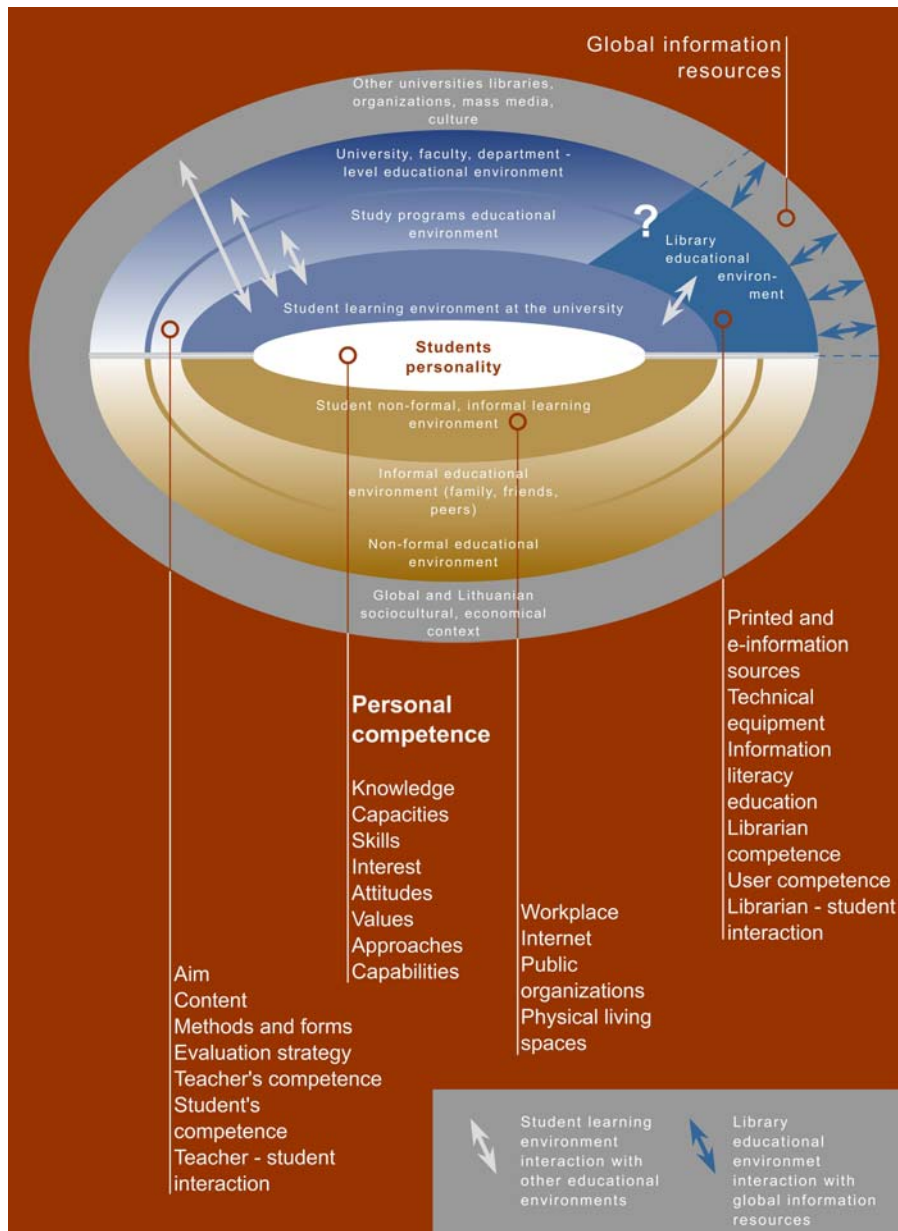
The levels of university library educational environment are based on the features of traditional and modern library identified by Glosienè (2000). The levels of university library educational environment, corresponding to different levels of societal development and revealing the model of participant interaction of the library educational environment, are useful for the evaluation of the library educational environment in a particular university. In the context of the paradigm of teaching, which implies the teaching of students, and using different methods of information presentation, a university library plays the role of a *traditional* library. A *hybrid* library emerges on the level of information culture (Dugdale, 1999; Petuchovaitè, 2000; Johannsen&Pors, 2004), which comprises both printed and electronic sources of information. On the level of information culture, the library becomes an *information gateway* (Dowler, 1997; Lyman, 1997), ensuring access to the global sources of information. On the level of learning society, the university library becomes a *learning library* (Simons, Young & Gibson, 2000; Marcum, 2001); the library is an equal partner in the implementing the study programmes and ensuring the process of teaching/learning in the university studies. Each level of the university library entails a different model of participant communication. On the level of traditional and hybrid library, one-way communication between *librarians* and *students*, also *librarians* and *teachers* in the library environment and *teachers* and *students* in the study environment takes place. On the level of *information gateway*, an exchange of information takes place between librarians, students and teachers, and students' information literacy is developed. On the level



of learning library, a learning partnership of librarians, students and teachers is developed.

#### **1.6. Essential considerations for the emergence of students' learning environments in the university library educational environment in the context of other environments**

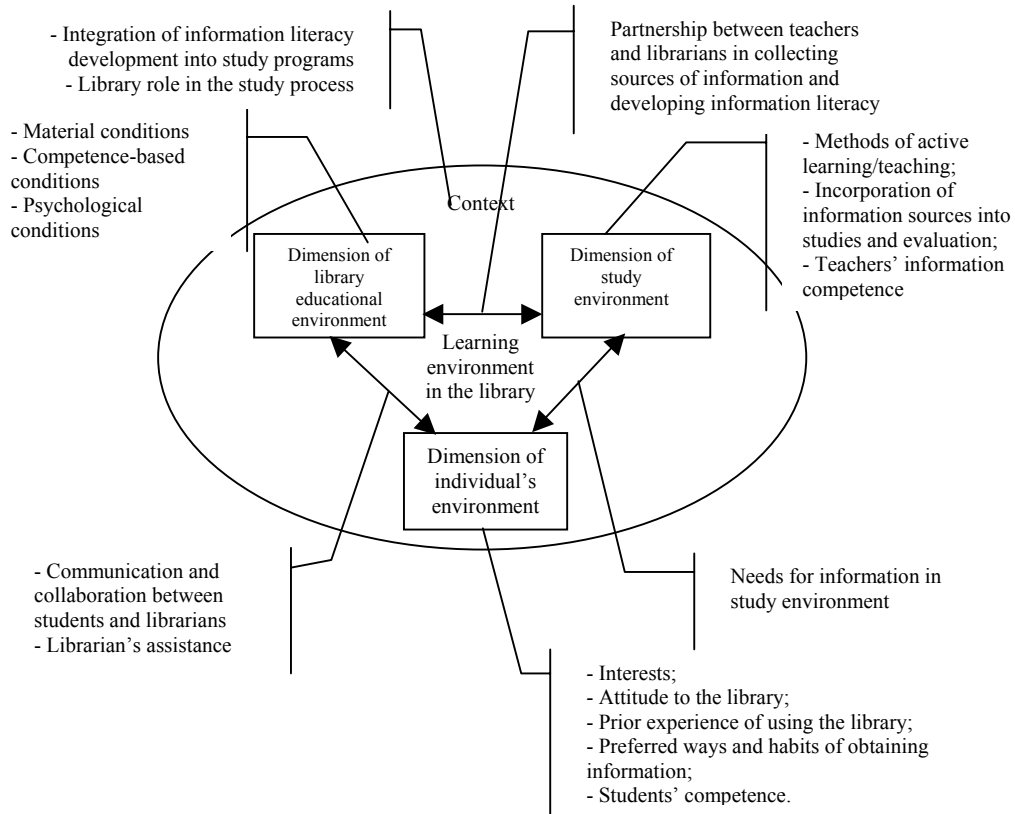
Rationale for the model of the emergence of students' learning environments in the university library educational environment is provided; the model incorporates the models developed in the context of learning (Shute, 1994; Biggs, 2003; Ramsden, 1998; Lipinskienė, 2002; Cesevičiūtė, 2003), interaction of environmental factors (Moss, 1987) and systemic model of environmental impact (Bronfenbrenner, 1977). The major element in the model of *the emergence of students' learning environments in the university library educational environment* (Figure 2) is an individual studying at the university, purposefully influenced by formal educational environments at university as well as a number of non-formal and informal environments. In the process of non-formal and informal education the learners develop competence relevant for the development of holistic competence. The selectivity of learning environments depends on individual characteristics of the learner: experience, interests, needs, motivation and skills. Through reflection and learning efforts, an individual develops a new competence which empowers for learning and expands the potential of learning environments. Concerning the compensatory aspect in the interaction of environments (Moss, 1987), empowering learning environment in the university library should assist students in coping with the problems of personal and academic nature, especially those related with the need for relevant information. As students bring their learning aims from their study environment and their learning outcomes are also evaluated in the study environment, the factors empowering students' learning in the library are more or less related both to the psychological, competence-based and material conditions, and to the study environment. Study and university library educational environments and their interrelationship are also influenced by the prevailing approach to learning and the role of the library in the process of learning. The emergence of students' learning environments in the university library educational environment is influenced by the general socio-cultural and economic context of the country. Depending on the prevailing attitude to the library and the need to use it because of work-place requirements, students have their predetermined attitudes about using the library; this determines the students' choice of using the university environment as a learning environment or not.



**Figure 2. The model of emergence of students' learning environments in the university library educational environment**

## 2. Factors influencing students' learning environments in the university library educational environment

The factors influencing the emergence of students' learning environments in the university library educational environment (see Figure 3) are analysed on three dimensions: individual's personal dimension, educational environments of the library and of study programme; the context of these environments (i.e. factors manifested in university environment and outside: peers, family, leisure, global and local level of economic, cultural and technical development, etc.).



**Figure 3. Model of factors influencing the emergence of learning environments in the library educational environment**

The factors manifested in students' personal dimension are related to their interests, attitude to the library and learning, prior experience of using the library, preferred ways and habits of information retrieval, metalearning, information and self-regulating learning competence. The factors of the study environment are

related to teaching/learning methods adopted by the teachers, incorporation of information sources into the study process and assessment; teachers' information competence is not of lesser importance. The factors in the library educational environment are related to the potential of the library to develop rich and empowering learning environments. These factors manifest themselves in the development of competence-based, material and psychological conditions in the university library. These environments and the factors within them are interrelated by complex relationships; thus new factors influencing learning environments in the university library emerge as a result of the interaction. The factors on the level of interaction between personal dimension and study environments are related to the need for information emerging from the study environment. Library staff cooperation becomes a factor on the level of interaction between personal dimension and library educational environment. The factor on the level of interaction between studies and library educational environments is the partnership of teachers and librarians in collecting sources of information and developing information literacy. The emergence of all the factors is affected by the external context which determines a different attitude to the library role in the study process and development of information literacy in university studies.

### **3. Methodology of research on students' learning environments in the university library educational environment**

This section provides rationale for the methodology of identification of university library educational and students' individual learning environments as well as the potential reasons for their mismatch. Considering the factors manifested in different dimensions, the methodology of research on the emergence of students' learning environments in the university library educational environment is based on the case study; the unit of study was the Library of Kaunas University of Technology. The reason for choosing this particular case was that the Library at KTU is one of the most modern university libraries in Lithuania; the Library was the first to implement the integral library information system ALEPH, which is now being implemented in the libraries of other universities. The empirical part of research incorporates three related pieces of research aiming to evaluate the educational environment of the Library and its readiness to develop learning environments, learning environments in the library environment as they are identified by the students as well as the factors influencing their emergence; the research also aims to verify if a targeted educational impact influences the changes of students' learning environments in the university library.

#### **3.1. Methodology of research on university library educational environment**

The methodology of research on the library environment is based on the analysis of competence-based, material and psychological conditions in the university library. The evaluation of the library educational environment is carried out in relation to the levels of library educational environment identified in Section 1.5; they point out the level of the educational environment developed in a

particular university library. The identified level implied the potential of the library for developing empowering learning environments. Research method: analysis of library documents and participant observation.

### **3.2. Methodology of research on students' learning environments in university library and factors influencing their emergence**

The methodology of research on students' learning environments in the university library is based on the model of factors influencing the emergence of students' learning environments in the library educational environment (see Figure 2). The research instrument is based on the system of criteria and indicators. The original questionnaire allows identifying students' individual learning environments in the university library and evaluating the factors influencing their emergence. Research method: questionnaire survey; research sample: 903 students representing all the faculties and study levels at Kaunas University of Technology.

### **3.3 Methodology of research on the influence of activating university library educational environment on students' learning environment**

The methodology of research on the influence of activating university library educational environment on students' learning environments is based on a special educational impact, development of competence-based, psychological and material conditions in the library educational environment, development of information literacy by integrating it into the study process and developing partnerships among teachers and library staff. The educational impact involved training of students for the development information literacy. The students learnt about the university library, its services, tools of information retrieval, strategy development for information retrieval, information assessment and other issues related to information retrieval. The subjects of the research could use the available and accessible sources of information in the Library, computers and ICT. They were given the opportunity to get counselling on the question of information retrieval and selection. The process of information retrieval during the training was related to a specific course module, i.e. the development of information literacy was integrated into the subject knowledge in a particular field of study.

The learning environment identified in the library by the students is assessed by concept maps. The assessment took place before and after the training. The analysis of concept maps involved quantitative and qualitative research methods. The assessment of students' knowledge about the learning environment in the university library before and after the educational impact involved the analysis of the cognitive statements (Marchand et al., 2002; West, Park, Pomeroy, Sandoval, 2002) and structural analysis of concept maps (Novak&Gowin, 1994). To assess the changes of content, the method of content analysis was adopted. The influence of the educational impact on the manifestations of students' learning environments in the university library was examined following the method of experimental research. A questionnaire survey was employed to find out how students evaluate the training and the statistically significant changes resulted by the training. The

research was carried out in two stages: the sample of pilot (pre-experimental) research was 44 students; the sample of experimental research was 97 students.

#### **4. Research on the emergence of students' learning environments in the university library educational environment**

##### **4.1. Analysis of the library educational environment at KTU**

The results of analysis of the university library educational environment point out the readiness of the Library to develop empowering learning environments. As a result of impact by complex factors, the features of educational environment at the Library of KTU are manifested in different levels of library educational environment: according to technical-technological parameters, conceptualisation of the library mission and efforts to implement it, the Library of KTU corresponds to the requirements of the *information gateway* level; according to the equipment with information sources – the level of *hybrid* library; according to the maintenance of cooperation and partnership in the academic community and the development of information literacy – the level of *traditional* library; with reference to the continuing competence development of the Library staff and efforts to participate in the development of integral global information system and processes of academic communication, the Library of KTU manifests the features of *learning library*.

##### **4.2. Research on the identification of students' learning environments in the university library educational environment**

The section presents the results of the questionnaire survey. The results disclose the learning environments in the university library and allow evaluating the factors influencing the emergence of students' learning environment.

###### **4.2.1. Structure of diagnostic variables in students' questionnaire survey**

The factor analysis was carried out to reduce the number of variables and construct scales and indexes. Sixteen scales of variables with 47 subscales were obtained. The factor analysis clearly pointed out the dependence of negative factors of using the library learning environment on the factors manifested in the study and library educational environments. The first factor ( $L=0,40-0,74$ , Cronbach  $\alpha=0,55$ ) involves the statements focused on the study-related negative factors of using the library: prioritising studies involving the methods of information transmission; reluctance to study information resources in foreign languages; using information transmission methods in the study process; large and unbalanced work load; inability to retrieve information independently. The statements in the second factor ( $L=0,40-0,75$ , Cronbach  $\alpha=0,45$ ) focus on the library-related problems: unfavourable psychological climate in the library; uncomfortable physical environment; lack of information sources. Theoretically significant scales of other variables have confirmed the differences in the influence of factors from study and library environments on the learning environment a student uses in the library.

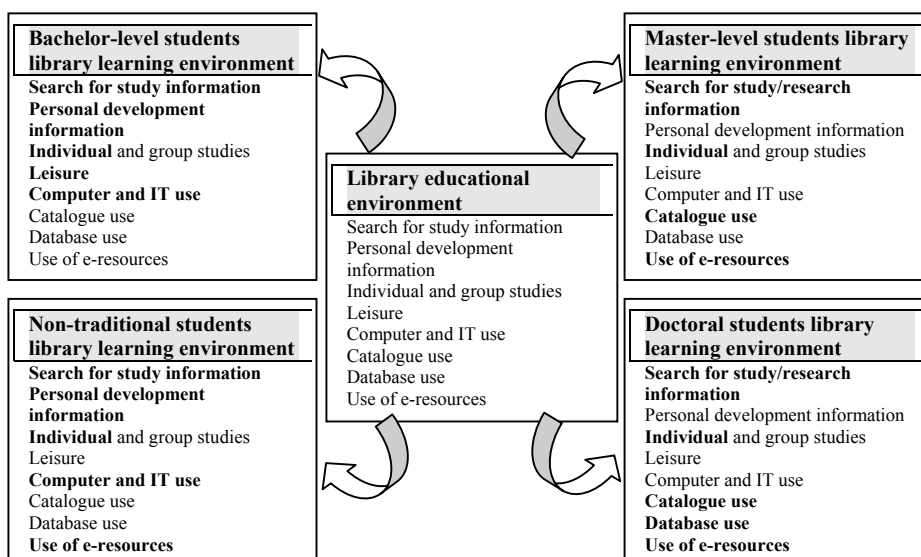
#### **4.2.2. Preferred ways of retrieving information and the option of using the library**

According to preferred ways of information retrieval, the university library is rated as the fourth popular. The most popular way of information retrieval is the immediate environment: internet, other people, personal activity and experience, teachers and their assistants. Librarians are of little popularity as a source of information among students. When students have to use some library, in most cases they opt for the university Library. They use the libraries of their faculties because they want to use the closest library. Preferred ways of information retrieval and using the library are different in different sub-samples. Students in higher levels of study programmes use more varied environments of learning and information retrieval.

#### **4.2.3. Students' learning environments in the library**

The university library educational environment as identified and used by the students depends on the need for information emerging in the study environment; this need is determined by the teaching/learning methods and can be satisfied through students' involvement and skills of independent work that differ in relation to different study levels. In doctoral studies the library ensures the access to scientific information. Master's students need the library both as a place for learning and as a gate to electronic information. In their studies, one can note the elements of both traditional teaching and self-regulated learning. Non-traditional students, in spite of their positive predisposition to the university library and its services, the least often use the university library educational environment. The reason for this is the lack of time, living in remote places and the prevailing effort to provide non-traditional students with all information resources required for passing the course. In Bachelor's studies the university library is a place where students can access to recommended course books, communicate, using ICT, etc. A matter of concern is the situation that more than half of Bachelor's students do not use the library information system and electronic information resources. This situation is determined by students' prior experience in the school library, lack of focus on information competence development in university studies, especially with reference to the first year students.

A generalised structure of learning environments used in the university library by Bachelor's, Master's and doctoral students as well as non-traditional students is provided in Figure 4 (the elements of the library educational environment that are the most popular among the students of a particular level are highlighted).



**Figure 4. Students' learning environments in the university library**

#### **4.2.4. Negative factors in students' using university library educational environment**

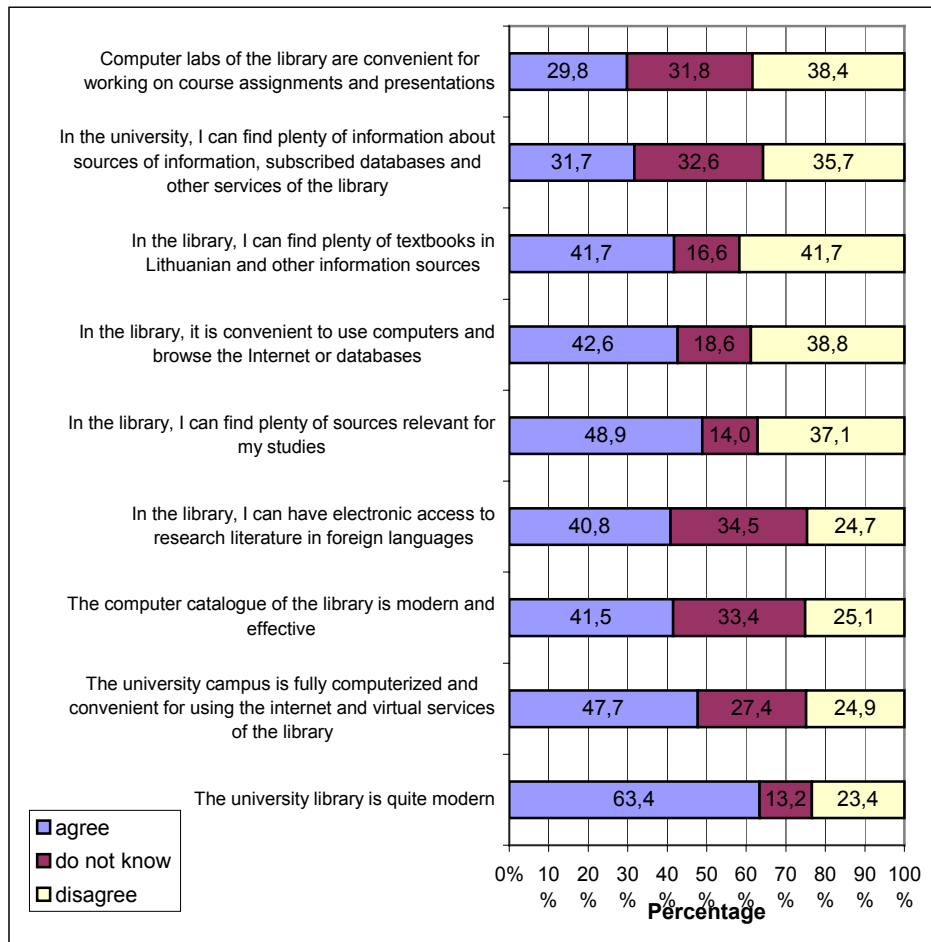
Students' access to the library educational environment is negatively affected by the factors manifested in the study environment (large work load, teaching based on the methods of information transmission), students' competence (lack of competence in using foreign languages, negative attitude to self-study). Much less influential are the factors manifested in the library (lack of information sources, physical environment, competence of the staff). Students think that the least influential for the emergence of their learning environments in the library are their skills of information retrieval.

#### **4.2.5. Students' evaluation of library educational environment**

Most students agree that the Library of KTU is a modern (see Figure 5). The students favour the material (supply of information sources, computer and technical equipment, computer catalogue, sanitary conditions, opening hours, accessibility through the internet), psychological (kindness of the staff, willingness to help, focus on students' problems) and competence-based (competence of the staff) conditions. The students are less positive about the training, involvement of the librarians into the study process, conditions for working on individual and group tasks, dissemination of information about the services of the Library. The evaluations of the library educational environment vary in different sub-samples:



the most positive evaluations are given by non-traditional and doctoral students, whereas Bachelor's and Master's students evaluation are less positive.



**Figure 5. Evaluation of the library environment**

#### 4.2.6. Evaluation of the study environment

Students' responses show that educational environments developed in different study programmes and course modules are implemented drawing on different educational paradigms. Some teachers encourage or require students to use supplementary sources of information and consider them for assessment; still, a considerable number of modules are taught by the methods based on information transmission and using 'a single course book'. The least positive evaluations are

given concerning the development of information skills, its incorporation into course modules, cooperation between teachers and librarians for the development of students' information competence. The analysis has shown that the higher levels of study programmes are more positive and empowering for using the library educational environment in comparison to the lower levels of study programmes.

#### **4.2.7. Students' competence, self-regulated learning skills and attitude to learning**

Most students manifest a deep approach to learning and are of high opinion about their metalearning and self-regulated learning skills: they can manage and assess the process of their own learning, can select learning materials and resources, plan and manage their study time, have acquired the skills of ICT management. The students also are of high opinion about their skills of ICT management: they can define a search question and select search tools, retrieve information by different tools of information retrieval, analyse, generalize the information and make conclusions. The above responses contradict the librarians' responses that students do not possess effective information skills to retrieve relevant information in the library. The students are more sceptical about their ability to find information in databases and electronic catalogues. The discrepancy of opinions implies a lack of students' knowledge about potential ways of information retrieval.

#### **4.2.8. Impact of socio-demographics variables on the factors influencing students' learning environments and their formation on the library**

Library educational environment as identified and evaluated by the students is determined by different socio-demographic variables: study level and form, year, sex, age, average score of exams and the faculty. Statistically significant differences with reference to different variable were identified in students' evaluation of study environment and their own competence. The analysis with reference to the study level showed considerable differences in the need for information, skills of using electronic sources and preferred variety of learning environments manifested in the responses of doctoral students. The students of vocational training programmes opt for the university library as a learning environment least often; they tend to buy the study materials they need in bookstores. The students of this group prefer the traditional way of teaching, when the teacher provides students with all the information necessary for the examination. Bachelor's students use both traditional (searching for course books, spending breaks and leisure, communicating with friends) and modern (using computers, e-mail) library; however, electronic sources and databases are rarely used. Master's students use the university library only to the extent they are required by the study environment.

**Table 1**

**Correlation between individual characteristics, study and library educational factors and the extent of using library educational environments in different sub-samples**

Characteristics of individual and environmental factors	Bachelor's students		Master's students		Non-traditional students		Doctoral students	
	T	M	T	M	T	M	T	M
<b>Factors in library educational environment</b>								
Modern and computerized library		**	***	*	**			
Supply of information resources			**	*				
Librarian's competence and assistance	**	**	*		*	*		
Training given by librarians		**						- ***
Conditions of physical environment	**	**	***	*	*			- ***
Library accessibility	**	**	*	***	*			
Negative factors related to the library	*				- ***			****
<b>Factors in study environment</b>								
Prevailing paradigm of teaching	- ***	- ***	- ***	- *	- ***			
Using active learning methods	***	***	**		***	*		
Teachers' information competence	**	***	*	*				**
Study-related negative factors	- **	- **	- **	- ***	- ***			
<b>Factors in the personal environment</b>								
Skills in using ICT	*	**	- ****			***	- **	
Skills in using databases	*	***			**	****		**
Skills of cooperation and partnership	**	*	*			***		
Skills of metalearning					*	**		
Information skills	*	**	- ***		**	**		
Flexibility and application of acquired knowledge	**	**						
Deep approach to learning	**	**	*					
Surface approach to learning	*			- *				
Metalearning skills	**	**		*				
Self-confidence	*	*			**	***		
Lack of self-confidence			**			- **		
Self-regulated learning skills	**	**			**	**	**	
Lack of volition			- *		- ***			
Skills of reflective learning	**							
Need for facilitated learning	*		**	**				
<b>Preferred learning environments as determined by the socio-cultural context</b>								
Library as a source of information	***	***	***	***	***	*		
Learning from the environment	**	***			***	**		
Other people as sources of information	*				**			
Buying sources of information in bookstores	*							

T- traditional library services

M- modern library services

\* - very weak correlation, often manifested as a single service of the library

\*\* - weak correlation, often manifested with several types of activity

\*\*\* - medium strong correlation, manifested with almost all traditional or modern services

\*\*\*\* - strong correlation, manifested with all traditional or modern services

- - indicates a negative relation between individual, environmental factors and the extent of using the library educational environment.

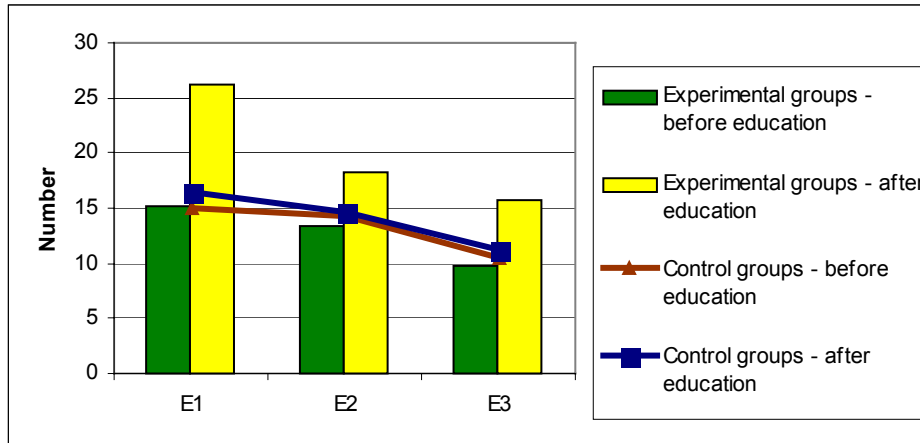
#### **4.2.9. Relation of students' learning environment in the library on the factors of study and library educational environments and students' individual characteristics**

Selection of students' learning environments in the university library is influenced by the factors manifested in all the three dimensions. In the general population of students, these factors are more or less influential in students' opting for some services of the university library. The most influential is a positive attitude towards the library as a learning environment. This particular attitude emerges as a result of prior experience and socio-cultural influence. In different sub-samples, the influence of different factors on using the library educational environment is varied (see Table 1). For doctoral students the factors in all the dimensions are of little influence for their decision to use the library educational environment. The factors make the biggest influence in the sub-sample of Bachelor's studies. For Bachelor's students, the learning environment in the university library mainly depends on the factors manifested in the study environment. These influence the extent the students use traditional and modern (i.e. computer-equipped and accessing e-resources) library. The factors in library educational and students' personal environment are weaker, but they also influence the extent of using the traditional and modern library. The factors manifested in the sub-sample of Master's students influence the extent of using traditional and modern library, whereas the factors in the library and personal environment positively affect the extent of using the traditional. The factors in the sub-sample of non-traditional students influence the extent of using the traditional library, whereas the factors of personal nature have a greater effect on the extent the modern library is used.

#### **4.3. Research on activating students' library learning environment in the library**

The analysis of concepts related to major elements of the university library as a learning environment, referring to the frequency of using the concepts in concept maps before and after the educational impact, revealed a positive impact of the training on the emergence of students' learning environments in the university library. The research showed that even a short-term educational impact oriented towards activating the learning environment in the library, development of adequate material, psychological and competence-based conditions in the library educational environment as well as connecting the library educational environment and the environment of the study programmes determine statistically significant changes in students' knowledge and understanding about the library educational environment and, correspondingly, learning environments and expands the learning environments identified in the library by the students (see Figure 6). In experimental groups the number of statements increased: E1=11,0 (p=0,000); E2=4,9 (p=0,002); E1=5,9 (p=0,000) (see Figure 5); the number of scores increased in the structural analysis: E1=33,7 (p=0,000); E1=25,4 (p=0,001); E1=21,9 (p=0,000). In control groups the changes in cognitive statements and

scores of the structural analysis were statistically insignificant. The need for developing information literacy in the institutions of higher education and the positive changes in the information competence of the subjects who took part in the training are supported by the results of the questionnaire survey of those respondents. After the educational impact, the changes in students' skills were different, depending on their prior competence; the most significant changes were reported in terms of their skills in using information sources in the Library: skills in using databases (0,98; p=0,000), computer catalogue (0,71; p=0,000), internet tools of information retrieval (0,5 p=0,000), Boolean logics (0,35 p=0,01), defining query (0,29; p=0,02).



**Figure 6. Changes in cognitive statements after the educational impact**

## CONCLUSIONS

*1. The theoretical framework for the emergence of students' learning environments in the university library educational environment consists of the concepts and characteristics of library educational environment and students' learning environment, the factors empowering students' learning in the university library and the model of students' learning environments emergence in the university educational environment.*

The university library educational environment is a constituent part of the university educational environment where the learning aims, as projected by the study programme and/or individual needs, are implemented by assisting students to retrieve the information relevant for their learning goals and by developing competence-based, material and psychological conditions for learning in the library.

The university library educational environment may be characterized by the following features of academic specificity:

- it is an integral part of the educational system at university;
- it has to interact with educational environments of all study programmes at the university;
- its regular clients (students, teachers, researchers and administration staff) interact with each other.

The university library learning environment is an individualized space emerging in the library educational environment that is identified by individual learners in relation to their prior experience in relation to the library, competence and personal learning goals. The physical and virtual environment of the library involves the information relevant to the individuals' learning goals, ways of information retrieval and perception, stakeholders (peers, library staff, etc.) and tools.

The features characteristic of students' learning environment in the university library:

- contents: reflects information valuable for learning;
- context, the educational environment developed by the library is perceived by learners as a whole entity influencing the process of their learning.

Levels of the university educational environment (*traditional library, hybrid library, information gateway, learning library*), manifested in different stages of socio-cultural, economic and technical- technological development, point out the potential of the library for becoming a rich and empowering learning environment. Features of organization culture characteristic of a particular university library indicate that the library belongs to a specific level of university library educational environment.

The model of emerging learning environment in the library educational environment is a dynamic system with an individual student as the central element of the system, characterized by personal traits and affected by targeted formal educational environments at the university as well as other non-formal and informal environments. In the variety of environments, students recognize and use those environments which are relevant for their competence, experience and motivation. Students' use of library educational environment is influenced by the factors manifested in the study and library educational environments as well as university, national and global contexts.

Student empowerment in the university library educational environment may be carried out in several major directions: by developing rich learning environments, providing access to the library, by developing relevant competence of using the library and by developing learning partnerships for teachers, students and library staff.

Information literacy education is one of the major factors of empowering students' learning in the library. It has to be based on the cooperation and partnership between teachers and library staff. Learning should correspond to the

real and immediate needs of information users (e.g. in problem solving and working on course papers). Information users education at university may be integrated into other course modules of optional educational programmes. As each study level requires the competence of information literacy and the ICT tools are constantly developing, it should be ongoing.

One of the major conditions for a successful functioning of university library educational environment and students' learning environment is a learning partnership of library staff, students and teachers/researchers, which is a space of information flow, relevant for the development of every individual and organization. The main feature of the learning partnership is that its participants have to be competent to receive and exchange information.

***2. The factors influencing the emergence of students' learning environments in the university library educational environment are manifested in three interrelated dimensions: students' personal, study and library educational environments; they are affected by university, national and global contexts.***

The factors manifested in the dimension of *student's personal environment* embody the aspects of students' motivation and empowerment for using the university library. They are represented by interests, attitudes towards the library and learning, prior experience of using the library, preferred information tools, habits of information retrieval, information competence and self-regulated learning competence. The factors in the dimension of *study environment* are related to students' motivation for using the library educational environment: active methods of teaching/learning, incorporation of information sources into the study process and assessment tasks and teachers' information competence. The factors in the dimension of library educational environment are related to the development of competence-based, material, and psychological conditions. The factors manifested as a result of the *interaction* between the above dimensions: need for information (resulting from the interaction between students' personal environment and study environment); cooperation and partnership of the library staff (resulting from the interaction between students' personal environment and library educational environment). On the level of the interaction between study and library educational environment, partnership between teachers and librarians in accumulating sources of information and developing information literacy is manifested. With reference to the *context*, attitudes to the role of the library in the study process and attitudes to the development of information literacy in university studies emerge.

***3. The methodology of research on the factors influencing the emergence of students' learning environments in the university library educational environment is based on the theoretical model of factors influencing the emergence of students' learning environments in the university library educational environment, which is analysed drawing on the case of a particular library. With reference to a particular library, research on the university library***

***educational environment, students' learning environments and the factors influencing their emergence is carried out.***

The methodology of research on the university library educational environment is based on the 'triangulation principle', which is relevant for a complex analysis of the influence of factors manifested in different dimensions on the emergence of students' individual learning environments with reference to a specific case. To analyse the factors manifested in the library educational environment, competence-based, material and psychological conditions of the university library and the socio-cultural context, which provides preconditions for students' learning in the library, are considered. The readiness of university library educational environment for the development of rich and empowering learning environments can be assessed with reference to the levels of library educational environment, which indicate the potential of the library to become students' learning environment. The assessment involves the system of criteria and indicators, which is relevant for identification of predominant educational environment in a particular university library, which contains premises for the emergence of learning environments.

*Material conditions:*

- Criteria of information sources (accumulation of printed information sources, ensuring access to the electronic sources of information).
- Criteria of technical and technological tools and equipment (development and maintenance of the information system; number of computers available for library users; opportunity to use the Internet, scanner, copier, printer and multimedia).
- Criteria of physical and virtual space (interior design, shapes, colour; furniture, its arrangement; lighting, humidity, temperature, ventilation, conditioning, etc.; arrangement of workplaces; conditions for using printed and electronic sources of information).
- Library accessibility.

*Competence-based conditions:*

- Information and teaching competence of the library staff.
- Teachers' information competence.
- Students' learning and information competence.

*Psychological conditions:*

- Librarians' efforts to understand the students' needs for information.
- Librarians' attitude to users; kindness.
- Librarians', teachers' and students' positive attitude to partnership.
- Partnership between teachers and librarians in the acquisition and storage of information sources, in developing students' information literacy.

The methodology of research on students' identification of learning environments in the university library educational environment is based on the model of emergence of students' learning environments in the university library educational environment. The assessment of emergence involved the system of



criteria and indicators referring to the library educational environment as identified by students and their relationship with the factors manifested in the library educational environment, study environment and personal environment.

The methodology of research on the influence of activating the university library educational environment on the manifestation of students' individual learning environments is based on developing rich learning environments in the library educational environment and their integration into the study process by focusing on information literacy development and maintenance of partnerships between the librarians and teachers. Students' learning environments are developed with reference to the factors manifested in students' personal, library educational and study environments. The influence of educational impact was assessed by the means of experimental research, which involved concept maps and questionnaire survey for data collection.

**4. The study of the Library showed that the factors manifested in students' personal, university library, study environments and the dimension of context are interrelated. The factors manifested in the study environment (need for information, teaching/learning methods used, assessment strategies) are of motivating nature, encouraging to use the library environment, whereas the factors manifested in students' personal environment (prior experience, attitude to the library and competence) and in library educational environment (competence-based, material, psychological conditions) ensure the empowerment of students for using the library educational environment.**

*The case study of the Library of KTU (specifically, the analysis of the library educational environment) showed that the development is inconsistent.*

Over the recent decade, the Library of KTU has gone through big changes related to the development of information technology, changes in the study process and organization culture of the university and the transformations in the mission statement and functions of the Library. As a result of these changes, the features of the library can manifest themselves on different levels at the same time.

Rapid technical and technological development of the Library, access to the global resources of information, growing 'virtual' nature of provided services and opening for the external environment imply the potential for becoming an empowering learning environment. However, the implementation of the potential of the Library can fail because of conventional habits of using the library, predominance of the teaching paradigm in the study programmes, unsure partnership between librarians and teachers in developing students' information literacy and storing the sources of information, as well as the absence of communication between teachers and students.

*Students' tendencies to use the university library educational environment depending on their experience and competence (concerning their predispositions, prior experience and habits of using the library, preferred ways of information retrieval determined by the factors of socio-cultural environment), competence-based, material and psychological conditions. Still, the most influential in terms of*

*students' tendencies of using the library are the factors manifested in the study environment:* need for additional information required by the study environment, teaching/learning methods, using active learning methods in the study process, incorporation of supplementary information sources into the studies.

Negative factors in terms of students' tendencies to use the university library educational environment emerge in study rather than library environment. The barriers of using the university library are related to extensive workload, focus on teaching methods based on information transmission (i.e. when all the information necessary for passing the course can be found in a single textbook). An important factor reducing the tendency to use the university library is related to the lack of knowledge of foreign languages.

The students who have a positive prior experience of using the library, who demonstrate a deep approach to learning and have more developed competences of metalearning, information literacy and self regulated learning, are more motivated and empowered for using the library educational environment.

The selectivity of learning environments depends on the type of students, which is defined by the study level and form, as well as the educational environment the study programme. In different groups of students (Bachelor's, Master's, doctoral studies, non-traditional students), differences in the manifestations of factors in study, library and personal environments have been reported:

- Bachelor's students are more interested in study information, but they spend quite a lot of time in the library with purposes unrelated to their studies: spend breaks during classes, communicate with friends, use computers, internet, etc.) Still, the students in this group use the library educational environment to the extent it is meaningful in the study environment. It has been noted that Bachelor's students prefer the methods of teaching and methods based on information transmission.

- Master's students possess bigger needs for information, which are determined by active methods of teaching/learning used in Master's studies. Master's students tend to look for the sources in the internet by using universal search engines rather than use databases accessible in the Library.

- Non-traditional students rarely use the Library, which is related to the fact that they are occupied and lack of time rather than their negative predispositions towards the Library. Non-traditional students understand the importance of information and the role of the library in its retrieval; they give good evaluations of the library educational environment, treat the librarians as assistants, who can help to achieve learning goals.

- Doctoral students use a wide variety of learning environments, library environment among them (in particular, its virtual services – databases, electronic sources). They do not find the Library particularly attractive as a physical environment of learning. Doctoral students highly (more than others) appreciate the information competence of teachers and librarians, which is treated as an

opportunity to get advice or assistance searching for relevant information sources. With reference to using virtual services of the Library, very effective are training sessions, database presentations given by the librarians and the related ability to use databases.

***4.3. Intensive, even though short-term educational impact related to activating the library educational environment, integrating the library educational environment into the studies and developing partnerships between teachers and librarians, as well as the development of empowering material, psychological, and competence-based conditions in the library educational environment result in statistically significant changes in students' knowledge and understanding of the library environment and expands the learning environments identified in the library environment.***

Educational impact should be timely, flexible, targeted and integrated into other course modules; in other words, the development of information literacy should be carried out when students face additional real needs for information; it should be consistent with the level of study programme and students' competence, as well as be based on teachers', librarians and other stakeholders of the process.

Before the educational impact, students' conceptualisations of the library focused on the functions of accumulation and storage and the elements of traditional library: printed sources of information, physical spaces of the library (reading room, lending department, storage department). They related teaching and learning to the university environment and teachers rather than the library.

After the educational impact, students' understanding about virtual services of the library, electronic sources of information and databases has increased. In addition, their understanding about the agents of the library has developed: the students identify the library as a learning environment, where they work independently or communicate and cooperate with other students. Particularly important is the change in the way of conceptualising the librarians' role: the librarian is now conceptualised as advisor and facilitator of learning rather than as library employee concerned only with the storage and presentation of information sources.

## PUBLICATIONS

**The main statements of the dissertation are presented in the following peer-review publications:**

1. Merkys, G., Jucevičienė, P., Tautkevičienė, G. (2005). Library as preferred learning environment. *Baltische Studien zur Erziehungs- und Sozialwissenschaft. Band 12: Learning and Development for Innovation, Networking and Cohesion*, 121-140. ISBN 3-631-53426-4.
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**Research interests:** higher education, learning environments, educational environments, information literacy, academic library.

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## Reziumė

Šiuolaikinis aukštasis mokslas patiria nuolatinius pokyčius dėl besikeičiančios edukacinės, ekonominės, informacinės, socialinės, technologinės aplinkos. Lietuvos aukštasis mokslas veikiamas dar ir sociokultūrinės bei ekonominės transformacijos, kuri būdinga pereinančioms į rinkos ekonomiką šalims. Konkrečios mokslo srities žinios nuolat kinta ir kelia naujus reikalavimus žmogaus darbui, todėl individas turi nuolat atnaujinti žinias arba net iš esmės pakeisti turimą žinojimą ir supratimą (Edwards, 2000). Tokie nuolatiniai pokyčiai, vystantys moksle, darbe ir kasdieniniame gyvenime, reikalauja individo gebėjimo efektyviai veikti pakitusioje aplinkoje. Tam reikalingos ne siauros specializacijos, baigtinės žinios, leidžiančios atlikti konkretų darbą, bet plati veiklos kompetencija, įgalinanti efektyviai veikti greitai besikeičiančioje aplinkoje (Entwistle, 1997; Ramsden, 1998; Bowden, Marton, 1998; Jonnassen, 2000; Jucevičienė, Lepaitė, 2002; Lipinskienė, 2002; Biggs, 2003). Aukštoji mokykla turi padėti įgyti bendruosius įvairios veiklos gebėjimus, reikalingus mokymuisi visą gyvenimą, kurie įgalintų prisitaikyti prie pasikeitusių sąlygų. Toks požiūris skatina peržiūrėti ir keisti ilgus metus egzistavusią studijų organizavimo sistemą. To reikalauja ir naujai susiformavęs požiūris į mokymąsi. Mokymasis gali ir turi vykti visur ir visada: jis siejamas su paties individo konstruktyvia veikla, vykstančia tiek formalioje švietimo sistemoje, tiek darbo ar asmeninėje žmogaus aplinkoje ir tęsiasi visą gyvenimą (Hiemstra, 1992; Tuijman & van der Kamp, 1992; Field & Leicester, 2000).

Universitete, kuris vadovaujasi nauja edukacine paradigma (Ramsden, 1998; Bowden&Marton, 1998; Longworth, 1999 ir kt.), studijų organizavimo tikslu tampa ne informacijos perteikimas, bet įgalinančių studijuoti mokymosi aplinkų kūrimas.

Universitete vykstančio mokymo ir mokymosi klausimus edukacinės paradigmos kaitos sąlygomis nagrinėjo ir nagrinėja užsienio (Barr & Tagg 1995; Marton, Hounsell & Entwistle 1997; Bowden, Marton, 1998; Ramsden, 1998; Martin, 1999; Bigg, 2003) bei Lietuvos mokslininkai (Jucevičienė, Stanikūnienė, 2001; Jucevičienė, Lipinskienė, 2001; Lipinskienė, 2002; Novikienė, 2003; Cesevičiūtė, 2003 ir kt.). Įvairūs autoriai į mokymosi aplinkų kūrimą žiūri skirtingai: atsižvelgdami į skirtingus mokymosi stilius (Kolb, 1984), aktyvių mokymosi metodų taikymą (Resnick, 1987; Collins, Greeno, Resnick, 1994), orientaciją į skirtingus tikslus (Bransford, Brown, & Cocking, 1999), mokymąsi bendruomenių kūrimą (Retallik, Cocklin, & Coombe, 1999), mokymosi darbo vietoje (Boud & Garrick, 1999), mokymosi diferencijavimą (Šiaučiukėnienė, 1997), įgalinančių studijuoti sąlygų sukūrimą (Lipinskienė, 2002), tikslinių edukacinių aplinkų kūrimą (Cesevičiūtė, 2003). Daugelyje darbų nagrinėjamos mokymosi aplinkos susijusios su studijų programų kuriamomis edukacinėmis aplinkomis. Tačiau, remiantis naująja mokymosi paradigma bei mokymosi visą gyvenimą koncepcija, mokymasis vyksta ne tik paskaitų metu, jis vyksta visur, kur besimokantysis įgyja naujos informacijos ir žinių: namuose, gatvėje, kino teatre, muziejuose ar bibliotekose. Formalios ir neformalios mokymosi aplinkos tarpusavyje susijusios ir veikia viena kitą (Moss, 1987); jos gali sustiprinti ar susilpninti daromą įtaką, vienoje aplinkoje kylančią įtampą kompensuoti kitos aplinkos veiksniais. Žinios, gebėjimai, įgūdžiai, vertybės, asmeninės savybės, susiformavusios vienoje aplinkoje, gali būti perkeltos į kitą mokymosi aplinką ir padėti arba trukdyti mokymuisi (Brown, Campione, 1984). Ta pati sukurta ar natūraliai egzistuojanti mokymosi aplinka vieną skatins mokytis, o kitą - ne, priklausomai nuo individo asmeninių charakteristikų. Vadinasi, nepaisant to, kokią edukacinę ar mokymosi aplinką kuria edukatoriai, kiekvienas besimokantysis ją identifikuoja individualiai pagal turimą patirtį, kompetenciją, vertybines nuostatas ar motyvaciją.

Kalbėdami apie mokymosi aplinkų kūrimą, edukologijos mokslininkai dažniausiai mintyje turi pedagogų kuriamas edukacines aplinkas klaseje ar auditorijoje, kurias besimokantieji pagal turimą kompetenciją, patirtį ir motyvaciją identifikuoja kaip mokymosi aplinkas. Universiteto bibliotekoje siekiant kurti studentų mokymosi aplinkas, taip pat pirmiausia reikia galvoti apie edukacinių aplinkų kūrimą. Tuomet studentas atpažintų ir naudotųsi šiomis tikslingai kuriamomis edukacinėmis aplinkomis, iš kurių susiformuotų kiekvienam individuali, tik jam būdinga mokymosi aplinka.

Universiteto biblioteka, viena iš sudėtinių universiteto struktūrinio darinio dalių, pasižymi itin išskirtine informacijos išteklių gausa. Todėl universitete, kuriame mokymasis organizuojamas naujos edukacinės paradigmos pagrindu,

biblioteka turi potencialią galimybę tapti aktyvia mokymosi visą gyvenimą skatintoja bei lanksčių mokymosi aplinkų organizatore ir kūrėja (Henning&Van Vuren, 1998; Schmidt&Cribb, 1998; Van Bentum& Braaksma 1999). Deja, šie autoriai nepastebi anksčiau minėto ypatumo: biblioteka tiesiogiai nekuria studentų mokymosi aplinkų, ji daro įtaką per savo sukuriamą edukacinę aplinką. Kadangi biblioteka iš kitų aplinkų išsiskiria išskirtine informacijos gausa, todėl joje gali būti sukurtos turtingos ir įgalinančios edukacinės aplinkos, kurias individas identifikuotų kaip jam suprantamas ir naudingas mokymuisi. Užsienio autorių (Bjorner, 1991; Fjällbrant; 1994, Behrens, 1994; Candy, Crebert, O'Leary, 1994; Doley, 1994; Bruce, 1998; Henning, Van Vuren, 1998; Schmidt, Cribb, 1998) mokslinėse publikacijose, skirtose bibliotekų veiklos pokyčių tyrimams, vartotojų informacinio raštingumo ugdymo klausimams, bibliotekų vaidmeniui tęstiniame ugdyme bei mokantis visą gyvenimą, pasigendama sisteminio požiūrio į biblioteką kaip į sudėtinę universiteto edukacinėje aplinkoje studentų atpažįstamą mokymosi aplinkos dalį. Dažniausiai šiuose darbuose akcentuojami bibliotekų veiklos pokyčiai, susiję su nauja kompiuterine technika ir informacinėmis technologijomis bei sparčiai augančiu informacijos kiekiu, taip pat su šiais pokyčiais susijusiu poreikiu ugdyti informacinį raštingumą; tačiau jos veikla nesiejama su pasikeitusiu požiūriu į mokymąsi bei su universiteto edukacinės aplinkos sąlygota mokymosi aplinka.

Lietuvoje fundamentalesni tyrimai, susiję su bibliotekų veikla, atliekami knygotyros ar bibliografijos srityse (Glosienė, 2004), tyrinėjant knygos istoriją (Lietuvninkaitė, 2002; Paparėlytė, 2003) arba orientuoti į viešųjų bibliotekų veiklos ir funkcijų kaitą, bibliotekų prieinamumą (Glosienė, Petuchovaitė, Racevičiūtė, 1998, Petuchovaitė, 2004). Informacijos ir komunikacijos krypties mokslininkai analizuoja periodinių leidinių elektroninės leidybos (toliau - e.leidybos) tendencijas Lietuvoje (Šarlauskienė, 2003), duomenų bazių kūrimo (Šarlauskienė, 2000), bibliotekų vertinimo ir vadybos (Rudžionienė, 2002), informacijos paieškos vadybos (Janiūnienė, 2001), universitetų informacinės infrastruktūros (Janavičienė, 2001) klausimus. Deja, akademinė bibliotekų veikla Lietuvoje nėra mokslinių tyrimų prioritetas, todėl šis klausimas kol kas mažai analizuojamas mokslininkų, šiek tiek dažniau aptariamas praktikuose publikacijose (Pupelienė, 2004, Duobinienė, Tautkevičienė, 2002, 2003).

Taigi tiek pasauliniu mastu, tiek Lietuvoje akademinė bibliotekų edukacinės aplinkos kūrimo klausimai ir studentų mokymosi aplinkų susiformavimas jose yra mažai tyrinėti, o mokymosi aplinkų kūrimas edukacinėse aplinkose – visai netyrinėta sritis. Vadinasi, ši edukacinės veiklos sritis reikalauja gilesnės analizės. Todėl klausimas, kokie *veiksniai daro įtaką studentų mokymosi aplinkų susiformavimui iš universiteto bibliotekos edukacinės aplinkos*, yra ypač svarbus ir sudaro mokslinės problemos esmę. Ji taip pat atskleidžiama ir šiais smulkesniais klausimais: kokia turi būti bibliotekos edukacinė aplinka, kad ji sėkmingai sąlygotų studentų mokymosi aplinkas? Kaip nustatyti mokymosi aplinką

kiekvieniu konkrečiu atveju kaip bibliotekos edukacinės aplinkos projekciją? Kaip nustatyti šių aplinkų neatitikimo priežastis?

**Tyrimo objektas** – studentų mokymosi aplinkų susiformavimo veiksniai, **tyrimo dalykas** – bibliotekos edukacinė aplinka.

**Disertacijos tikslas** - pagrįsti ir atskleisti studentų mokymosi aplinkų susiformavimui iš universiteto bibliotekos edukacinės aplinkos įtaką darančius veiksniai.

Tyrimo tikslui realizuoti iškelti šie **uždaviniai**:

1. Sukurti studento mokymosi aplinkos susiformavimo iš universiteto bibliotekos edukacinės aplinkos teorinius pagrindus.

2. Teoriškai pagrįsti studento mokymosi aplinkų susiformavimui iš universiteto bibliotekos edukacinės aplinkos įtaką darančius veiksniai.

3. Pagrįsti studentų mokymosi aplinkų susiformavimo iš universiteto bibliotekos edukacinės aplinkos veiksnių ir šių aplinkų neatitikimo galimų priežasčių nustatymo tyrimo metodologiją.

4. Nustatyti universiteto bibliotekos edukacinės aplinkos ir studento mokymosi aplinkos raišką konkrečiame universitete:

- išryškinti universiteto bibliotekos edukacinės aplinkos ypatumus;
- įvertinti studentų mokymosi aplinkų susiformavimui iš universiteto bibliotekos edukacinės aplinkos įtaką darančius veiksniai;
- nustatyti edukacinio poveikio įtaką studentų identifikuojamos mokymosi aplinkos universiteto bibliotekos edukacinėje aplinkoje kaitai.

**Teorinės nuostatos:**

- Mokymosi aplinkos samprata analizuojama mokymo ir mokymosi paradigmu santykio, jų sąveikos universiteto edukacinės aplinkos kaitos proceso kontekste (Longworth, 1999; Bowden, Marton, 1998).

- Mokymosi aplinkos samprata ir charakteristikos grindžiamos sujungiant sociokultūrinį (Vygotsky, 1978, Lave, Wenger, 1991, Novak, 1998) ir konstruktyvistinį (Glaserfeld, E. von, 1995; Wilson, 1996) požiūrius į mokymą/si.

- Edukacinė aplinka analizuojama kaip edukacinės sistemos visuma, įgalinanti studentą mokytis (Jucevičienė, Lipinskienė, 2001). Studentą studijuoti įgalinanti aplinka kuriama sudarant kompetencines, materialines-organizacines, psichologines mokymosi sąlygas.

- Bibliotekos edukacinės aplinkos lygiai grindžiami remiantis tradicinės ir modernios bibliotekos organizacinės kultūros bruožais (Glosienė, 2000), pasireiškiančiais skirtingais visuomenės vystymosi etapuose.

**Tyrimo metodologinės nuostatos:**

*Edukacinės aplinkos tyrimo metodologinės nuostatos.* Edukacinė aplinka yra tiriama kaip edukacinę vertę turinčių ir tikslingai suformuotų veiksnių sistema, kuri įtakoja studentus mokytis.

*Mokymosi aplinkos tyrimo metodologinės nuostatos.* Studentų mokymosi aplinkos susiformuoja iš universiteto edukacinės aplinkos, kurioje esminės yra



studijų ir bibliotekos edukacinės aplinkos. Vadinasi, konkretaus studento mokymosi aplinka tiriama taikant tuos pačius edukacinės aplinkos kriterijus, kurie atspindi studijų programos ir bibliotekos sukuriamos edukacinės aplinkos.

*Studentų mokymosi aplinkų susiformavimo iš universiteto bibliotekos edukacinės aplinkos barjerų identifikavimo metodologinės nuostatos.* Kiekvienas studentas savąją mokymosi aplinką, sąlygotą konkrečios edukacinės aplinkos, identifikuoja pagal turimą patyrimą, interesus ir kompetenciją. Šie veiksniai taip pat gali būti ir mokymosi aplinkos susiformavimo iš edukacinės aplinkos barjerai. Taigi, nustatant asmeninės mokymosi aplinkos susiformavimo priežastis, tiriami naudojami bibliotekos edukacinė aplinka barjerai.

*Universiteto bibliotekos edukacinės aplinkos galimybių daryti įtaką studentų mokymosi aplinkoms didinimo metodologinės nuostatos.* Universiteto bibliotekos edukacinės aplinkos galimybės transformuotis į studentų mokymosi aplinkas gali būti didinamos įvairiais būdais. Vienas iš tokių būdų – edukacinis poveikis studentams, padedantis jiems pažinti šiuolaikinės bibliotekos edukacinės galimybes. Todėl, nustatant šio poveikio veiksmingumą, tiriama kaip studentai konceptualiai suvokia universiteto biblioteką prieš edukacinį poveikį ir po jo.

#### **Disertaciniame tyrime taikyti šie tyrimo metodai:**

- *Mokslinės literatūros analizė* buvo reikalinga norint patikslinti edukacinės ir mokymosi aplinkos sampratas, pagrįsti universiteto bibliotekos edukacinės ir mokymosi aplinkų sampratas studento įgalinimo mokytis atžvilgiu. Mokslinės literatūros analizė, taikyta išryškinant akademinį bibliotekų kaitos tendencijas, leido išskirti universiteto bibliotekos edukacinės aplinkos lygius. Teorinė analizė leido pagrįsti universiteto bibliotekos, kaip studentų mokymosi aplinkos, modelis.

- *Atvejo analizė* buvo atliekama atskleidžiant konkretaus universiteto (Kauno technologijos universiteto) bibliotekos edukacinę aplinką ir jos sąlygotas studentų mokymosi aplinkas bibliotekoje. Tam naudota:

- *Dokumentų analizė ir stebėjimas dalyvaujant* - buvo vertinama konkretaus universiteto bibliotekos edukacinė aplinka; analizuoti KTU bibliotekos veiklos dokumentai (darbo veiklos ataskaitos ir statistiniai duomenys).

- *Apklausa raštu* - buvo siekiama išsiaiškinti studentų informacijos gavimo būdų prioritetus, naudojamos biblioteka patirtų studijų ir bibliotekos aplinkų vertinimą. Apklausoje dalyvavo 903 KTU įvairių fakultetų studentai. Apklausa taip pat pravesta eksperimento metu, siekiant išsiaiškinti edukacinio poveikio naudingumą, materialijų ir psichologinių sąlygų vertinimą ir studentų gebėjimų pokyčius. Abiem atvejais naudotas originalus klausimynas.

- *Eksperimentas* taikytas siekiant išsiaiškinti studentų identifikuojamą universiteto bibliotekos edukacinę aplinką ir pokyčius po edukacinio poveikio. Atliktas žvalgomas tyrimas (dalyvavo 44 studentai, 2003 m.) ir natūralusis eksperimentas (dalyvavo 97 studentai, 2004 m.).

- *Turinio (content) analizės* metodas naudojamas siekiant išsiaiškinti studentų identifikuojamą universiteto bibliotekos edukacinę aplinką. Informacijos rinkimui naudoti koncepcijų žemėlapiai.

- Apklausa raštu *statistinė duomenų analizė* atlikta taikant aprašomosios statistikos metodus, skaičiuojant respondentų nuomonių aritmetinį vidurkį, standartinį nuokrypį, atliekant faktorinę analizę (taikant principinių komponentų metodą, VARIMAX rotaciją ir analizuojant faktorinį svorį), skaičiuojant koreliacijos koeficientus.

Darbo **mokslinis naujumas ir teorinis reikšmingumas:**

- patikslintos edukacinės ir mokymosi aplinkos sampratos;
- pagrįstos universiteto bibliotekos edukacinės ir mokymosi aplinkos sampratos;
- pagrįsti universiteto bibliotekos edukacinės aplinkos lygiai;
- teoriškai pagrįstas studento mokymosi aplinkos susiformavimo iš universiteto bibliotekos edukacinės aplinkos modelis;
- teoriškai pagrįsta ir empiriškai patikrinta studentų mokymosi aplinkų susiformavimų iš universiteto bibliotekos edukacinės aplinkos įtaką darančių veiksnių tyrimo metodologija;
- pagrįsta metodologija, kuria remiantis galima patikrinti, ar studento mokymosi aplinkos bibliotekoje aktyvinimas tampa prielaida jos formavimosi kaitai iš universiteto bibliotekos edukacinės aplinkos.
- nustatytos bibliotekos edukacinės aplinkos charakteristikos, sąlygojančios studentą įgalinančios mokymosi aplinkos susiformavimą, taip pat atskleisti tam trukdantys barjerai.

Darbo **praktinis reikšmingumas:** Sukurtu universiteto bibliotekos edukacinės aplinkos modeliu galima vadovautis tobulinant akademinę bibliotekų veiklą, kuriant studentus įgalinančias mokymosi aplinkas bibliotekoje bei siejant jas su studijų programų edukacinėmis aplinkomis. Pagrindiniai disertacijos rezultatai yra įdiegti siejant KTU bibliotekos edukacinę aplinką su Socialinių mokslų fakulteto studijų programų, konkrečiai edukologijos, edukacinių technologijų ir verslo administravimo magistrantūros studijų programų edukacinėmis aplinkomis.

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