

OUTCOMES-BASED SELF-DIRECTED UNIVERSITY STUDIES

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Abstract. The relevance of the theoretical study was to show the components of self-directed studies and internal and external factors having an impact on them as well as competences as the main learning outcomes. The relevance of the empirical study was to find out results of self-directed studies of the first and third year students of Latvia University of Agriculture (LLU) according to indicators. The results of the indicators showed stronger and weaker sides of teaching/learning quality and allowed to make conclusions for further actions. Therefore self-directed studies can be analysed as an instrument of increasing students' learning success. The term "self-directed studies" was replaced by the term "self-directed learning" (SDL) in the study because it is used in adult education and students' learning also refers to the results of SDL investigations. SDL involves such qualities as responsibility, purposefulness and activity, and therefore the students are in the process of self-evaluation and decisions about their learning outcomes which are understood as knowledge, skills and competence. SDL was considered in the study as a process where each individual actively keeps cognition, emotions, motivation and activities which are systematically oriented towards reaching of personal goals. The method of questionnaire was used to investigate the students' self-evaluation on their SDL focusing on attitude, study environment and tutors' support. The questionnaire results served as a means of revision of the students' and lecturers' understanding of the quality of studies. The main results of the study were obtained from the fields of engineering, agriculture and veterinary medicine, food technology and economics students of Latvia University of Agriculture. The results of the indicators showed that the quality improvements are necessary in the field of students' purposefulness and responsibility towards learning rise as well as more efforts should be taken to change students' attitude towards desire to implement innovations in their professional field and to improve learning environment.

Keywords: self-directed learning components, competences, internal and external factors of SDL

Introduction

The relevance of the study comprises theoretical investigation of the components of self-directed studies, competences and factors having an impact on self-directed studies, and the empirical data of responsible and purposeful studies, desire to introduce innovations in the professional field as well as necessity of tutors and satisfaction with the study environment at Latvia University of Agriculture.

Purposefully managed self-directed university studies are highly important because they put a stress on each student's higher responsibility, initiative, motivation, independence, collaboration and self-assessment. Teachers should provide a high level lecturing and advising. The situation is that not all students are ready for self-directed studies because higher education is very popular among young people, but not all of them are motivated for deep and research-based studies. Therefore it is necessary to find solutions how to promote students' learning considering self-directed studies indicators.

Self-directed learning (the term used instead of self-directed studies further in the text because it is analysed widely in scientific articles and referred also to higher education) is a topical conception nowadays because in the situation when a large quantities of individuals are involved in higher education quite big effort is necessary to keep high quality of studies. For example, there were 17 state and 15 private higher educational establishments and there were enrolled 22585 first-year undergraduate students, and the total number of students

was 85881 in Latvia in 2014/2015 study year (Pārskats ..., 2015).

European higher education establishments ticked the factors influencing enrolment in higher education and the three main ones put stronger emphasis on widening access and participation (41%); international recruitment (39%) and changes in admission policies (28%) (Sursock A., 2015, p.65).

Considering large and at the same time different quantities of students and societal interest higher education institutions have to:

- varyify education programmes offer considering labour market forecasts,
- implement various types of studies (full and part-time, distance and blended studies),
- strengthen life long learning opportunities,
- revise teaching/learning methods and focus on innovations and outcomes (knowledge, skills and competence) based learning to promote students to study purposefully and reach high competence,
- implement multilingual courses,
- improve their attractiveness improving their outreach in the fields of science, academic work and services.

Nowadays student-centered learning considering IT and teaching/learning methods at school should be focused un problem-based learning when students reach their learning outcomes by traditional methods but also by means of case studies and practical group works because they are more close to real life understanding and promote self-directed learning motivation. Therefore the investigation of

self-directed learning components and their content is a topical problem for keeping study quality.

The main methods of the study were theoretical analysis and the questionnaire of the students of LLU.

The aim of the study was to determine components of SDL, competences as the main SDL outcomes and internal/external factors having an impact on SDL, and analyse selected indicators' results of SDL at Latvia University of Agriculture.

Materials and methods

The theoretical construct of the research instrument was M. Siniscalco and N. Auriat (2005) guidelines for writing questions. They stress keeping of the vocabulary simple and the questions short, avoiding of: double-barrelled, hypothetical questions and double negatives, overtaxing of the respondent's memory and overlapping response categories.

L. Cohen, L. Manion and K. Morrison (2011) mention that questionnaires should encourage respondents to co-operate and they have to be easy and attractive. They also comment on Moser and Calton's conclusion that central tasks in the questionnaires editing are completeness, accuracy and uniformity (Cohen, Manion, Morrison, 2011). The questionnaire touched the problems important for students and promoted deeper reflection on attitude and purposefulness towards learning, study environment, and desire to be an innovative professional.

There were compared the data and their distribution received from the first and third year students using p value ($p \leq \alpha = 0,05$) as a criterion. Calculations were done by interactive calculation tool (Preacher, 2001).

The method of questionnaire to investigate students' self-evaluation on the development of first and third year students' self-directed learning had been carried out. Students marked high (h), medium (m) and low (l) level of responsibility and purposefulness of studies, interest in introduction of innovations and study environment. They also answered the question about necessity of tutors. The obtained results could be used in the revision of planned results of study courses and implementation of methods and content promoting better reaching of learning outcomes.

Results

352 students (196 – first year and 156 – third year) of Latvia University of Agriculture from the fields of engineering, food technology, agriculture, veterinary medicine and economics answered four questions (Table 1). The survey covered 10 study groups and it had been carried out in April and May 2015.

Statistically significant ($p \leq \alpha = 0,05$) differences were observed only in a part of fields between the first and the third year students self-directed learning success indicators.

There was also a question about the necessity of tutors asked to students. About 50% the first year engineering and food technology students and 50% the third year engineering students supported introduction of tutors' service. The main reason is a necessity for help in exact courses (physics, chemistry, mathematics), and the first year students emphasize understanding of the study process and system.

Students also substantiated their choice of high, medium and low level. Therefore a qualitative data analysis is possible for further investigation of self-directed learning at LLU.

Table 1. Students' self-assessment of self-directed learning

Indicator	Respondents					Self-assessment			P value	
	Field	Year	Totally	Female	Male	h	m	l		
Responsible studies	Engineering	1	33	4	29	12	21	0		
		3	40	2	38	15	21	4		
	Food technology	1	37	31	6	15	22	0		
		3	36	26	10	22	13	1		
	Veterinary medicine, agriculture	1	89	58	31	51	35	3	0,01	
		3	57	45	12	19	34	4		
	Economics	1	37	31	6	15	20	2	0,60	
		3	23	18	5	8	12	3		
	Purposeful studies	Engineering	1	33	4	30	18	15	0	0,44
			3	40	2	38	16	21	3	
Food technology		1	37	31	6	22	15	0		
		3	36	26	10	24	11	1		
Veterinary medicine, agriculture		1	89	58	31	63	26	0	0,01	
		3	57	45	12	23	29	5		
Economics		1	37	31	6	18	17	2	0,07	
		3	23	18	5	15	8	0		
Desire to introduce innovations in professional field		Engineering	1	33	4	29	23	9	1	
			3	40	2	38	20	16	4	
	Food technology	1	37	31	6	25	9	3		
		3	36	26	10	22	13	1		
	Veterinary medicine, agriculture	1	89	58	31	40	45	4	0,00	
		3	57	45	12	22	30	5		
	Economics	1	37	31	6	18	17	2	0,07	
		3	23	18	5	7	14	2		
	Satisfaction with the study environment	Engineering	1	33	4	29	14	16	3	
			3	40	2	38	15	23	2	
Food technology		1	37	31	6	23	11	3		
		3	36	26	10	18	18	0		
Veterinary medicine, agriculture		1	89	58	31	42	45	2	0,01	
		3	57	45	12	22	25	10		
Economics		1	37	31	6	23	14	0	0,07	
		3	23	18	5	7	16	0		

Discussion

The terms „self-directed learning” (SDL) and „self-regulated learning” (SRL) are both used in education. SDL and SRL have the following common indicators: „1. both are seen in two dimensions a) external/process/event; b) internal/personality/

aptitude; 2. both have four key - phases: defining tasks - setting goals and planning - enacting strategies - monitoring and reflecting; 3. active participation; 4. goal - directed behaviour; 5. metacognition; 6. intrinsic motivation” (Saks, Leijen, 2014, 193).

The choice in favour of SDL in the article was because it refers to adult education and its indi-

cators are more appropriate to university studies: „originates from adult education; practiced mainly outside traditional school environment; involves designing learning environment; involves planning learning trajectory; broader macro-level construct” (Saks, Leijen, 2014, 193).

Acquisition of competence as the highest learning outcome is a process which should be promoted by self-directed learning (SDL). It is a process where each individual actively keeps cognition, emotions, motivation and activities which are systematically oriented towards reaching of personal goals. SDL is a precondition for innovative and responsible activity in the labour market. Therefore systematically implemented and promoted SDL model at higher aeducational institution could be a factor which has a positive impact on graduates’ job quality.

SDL covers three mutually overlapping fields: cognitive and metacognitive, social and motivation and behavioural and health (Zimmerman, Schunk, 2011).

The first field involves cognitive and metacognitive critical and self-reflection abilities (to evaluate one’s experience and judge critically on problems and events, and make appropriate decisions) (Bogo, Regher, 2006) as well as know and understand – How? It means that the student is able to organize and evaluate success of studies. As regards labour market, a person is able to adapt to changing demands flexibly and solve them professionally: to state and manage job tasks in various situations, find solutions and transitions in problems and set down decisions based on real analysis (Kniel, 2009, 58).

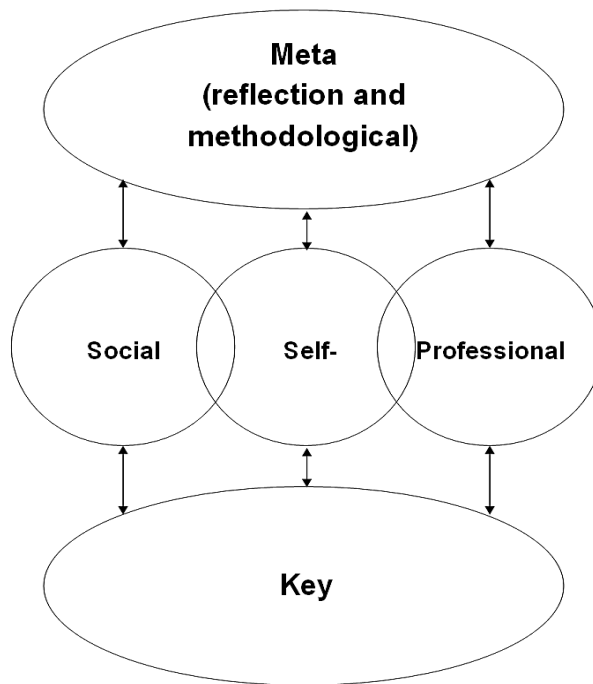
The second field focuses on social processes and motivation. Students display their values and outer impacts on their decisions and behaviour. „Attitude” is a key word of the field.

The third field covers behavioural processes to solve health and other psychical problems in order to avoid inadequate self-esteem or self-punishing, or self-pitying.

Considering theoretical investigations of SDL phases and fields it is possible to determine the following SDL components: responsibility and purposefulness (setting of goals and planning) towards studies and chosen professional field, active participation in the study process and societal activities, continuous cognition and metacognition, self-assessment of learning outcomes and behaviours and managing one’s study process and time.

SDL orientation towards learning outcomes promotes more detailed understanding of their components and content. According the Descriptors defining levels in the European Qualification Framework (EQF) (2015) the learning outcomes are distributed into knowledge, skills and competence. The last one is the most complicated, widest and developing

concept comprising the development of the individual’s potential. Competence as a complicated entity has to be distributed in several overlapping competences with the purpose to emphasize the developmental opportunities of the individual’s potential. Competence can be divided into: meta, key, social, professional and self-competence (Fig. 1).



Picture 1. Coherences among competences (Briede, Pēks, 2014).

Key competences comprise essential knowledge, skills and attitudes for lifelong learning related to the following competences: „1) Communication in the mother tongue; 2) Communication in foreign languages; 3) Mathematical competence and basic competences in science and technology; 4) Digital competence; 5) Learning to learn; 6) Social and civic competences; 7) Sense of initiative and entrepreneurship; 8) Cultural awareness and expression” (European Commission, 2007, 7).

Self-competence expresses as an individual’s capability to judge and take decisions independently, understand himself/herself.

Social competence includes such competencies as co-operation, communication, competitive capacity and also self-competence (Halfpap, 1992; Keller, Novak, 2000) as well as it is described as a part of civic maturity which is demonstrated as an individual’s capability to take decisions and manage particular social and business situations in compliance with conditions (Keller, Novak, 2000).

Professional competence is a research object both in professional organizations and by theoreticians.

ticians. R. Garleja emphasizes that professional competence is a capability to perform in the frame of one's occupational functions considering values, select knowledge and develop skills, integrate knowledge and values with the purpose to achieve professional aims. Professional competence means that the individual is able to reflect analytically, model behaviour and material and abstract things, express views, systematize, organize, summarize data, etc. (Garleja, 2006).

The conception of meta-competence "refers to higher order, overreaching qualities and abilities of a conceptual, interpersonal, and personal/professional nature. This includes students' cognitive, critical, and self-reflective capacities" (Bogo, Regehr, 2006). So the topicality of metacompetence is that an individual should be able to adapt flexibly to changing conditions and requirements and solve problems both in everyday and professional situations.

Reflection as a crucial element of metacompetence includes evaluation, prediction of consequences and appropriate judgement of an individual's action and decisions. The individuals conclude, think over their experience and take new decisions in the the result of reflection.

J.Keller and F. Novak (2000) conclude that the question *how?* is in the centre of methodological competence, and it relates both to thinking and demonstration of competence in action.

Considering SDL, SRL and leaning outcomes conceptions as well as enrolment situation in European higher education institutions it is possible to determine two main bloks which have an impact on students' SDL:

- External impact:
 - family, society and groups of friends/students;
 - study environment including study process equipment, living conditions, and buddies'/tutors' and psychological assistance;
 - didactics including teaching quality (methods, assessment, subject knowledge);
 - labour market offer and opportunities;
 - learning outcomes (knowledge, skills, competence) set by an academic staff.
- Internal impact:
 - attitude towards studies including motivation, responsibility and purposefulness;
 - attitude towards innovations (interest in them and desire to introce them)
 - learning skills (planning, performance, self-assessment, reflection);
 - learning outcomes (knowledge, skills, competence) accepted/set by the student

Conclusions

1. Quantitative and qualitative research methods of students' SDL should be carried out regularly because the results are indicators of learning process successes and shortcomings comprising overall qualities of the development of the individual's potential.
2. Continuous development and support of SDL components promote the quality of learning and understanding of the individual's human capital opportunities in the frame of competence oriented systemic studies. Strengthening of coherences among components and deeper study of their content and results implementation in practice is one of the ways how to make outcomes-based self-directed studies more effective.

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Ī REZULTATUS ORIENTUOTOS SAVARANKIŠKOS UNIVERSITETINĒS STUDIJS

Santrauka

Šiuolaikinio aukštojo mokslo situacija yra tokia, kad daugybė studentų renkasi studijuoti ir įgyti aukštąjį išsilavinimą dėl įvairių priežasčių ir šis procesas vyksta visoje Europoje: tai yra populiaru, didėja galimybės studijuoti, platesnės tarptautinių studijų galimybės, pasikeitimai priėmimo į studijas politikoje. Ne visi studentai yra pakankamai motyvuoti gilioms tyriminėms studijoms ir negali pasiekti sėkmingų studijų rezultatų, arba tai nėra taip lengva, kaip jiems atrodo. Viena iš pagrindinių priežasčių yra savarankiško mokymosi (SM) įgūdžių trūkumas. Tai reiškia, kad studentams reikia sisteminės, gerai organizuotos aukštojo mokslo institucijos pagalbos. Taigi, reikalingas kruopštus SM komponentų, mokymosi rezultatų, SM įtakančių veiksnių, SM rodiklių rezultatų ir atitinkamų po to sekančių veiksmų tyrimas ir nustatymas. SM, kaip svarbus įrankis geresniems mokymosi rezultatams pasiekti, yra sudarytas iš tokių komponentų, kaip atsakingumas, studijų ar pasirinktos profesinės srities kryptingumas (tikslų nustatymas ir planavimas), aktyvus dalyvavimas studijų procese ir socialinėse veiklose, tęstinis kognityvumas ir metakognityvumas, mokymosi rezultatų įšvertinimas ir studijų proceso bei laiko valdymas. SM turėtų skatinti kompetencijų įgyjimo procesą, kaip svarbiausią mokymosi pasiekimą. Kompetencija, kaip sudėtingas subjektas turi būti paskirstoma per kelias persidengiančias kompetencijas, siekiant pabrėžti individo potencialo vystymosi galimybes. Kompetencijos skirstomos į: meta, benrašias, socialines, profesines ir asmenines. SM kompetencijos tyrimas vykdytas Latvijos žemės ūkio universitete remiantis šiais rodikliais: atsakomybės už studijas, mokymosi kryptingumas, noras būti inovatyviu profesionalu, studijų aplinka ir poreikis pažinti dėstytoją. 352 Latvijos žemės ūkio universiteto (196 pirmo kurso ir 156 trečio kurso) inžinerijos, maisto technologijos, žemės ūkio, veterinarinės medicinos ir ekonomikos studentai atsakė į keturis klausimus. 2015 metų vykdyta balandžio-gegužės mėnesiais buvo apklausta 10 grupių. Statistiškai reikšmingi skirtumai ($p \leq 0,05$) matomi tik keliuose pirmakursių ir trečiakursių studentų sėkmingo savarankiško mokymosi rodiklių srityse. Sisteminis SM rodiklių tyrimas ir rezultatų analizė leidžia matyti, kokios pagalbos reikia studentams vykdyti sėkmingą į rezultatus orientuotą mokymąsi.

Raktiniai žodžiai: savarankiško mokymosi komponentai, kompetencijos, savarankiško mokymosi vidiniai ir išoriniai faktoriai.

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