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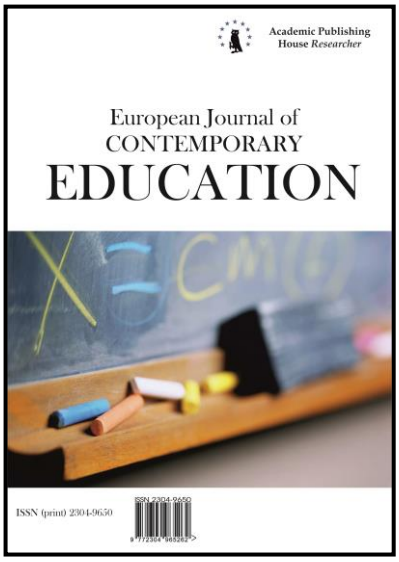

Development and Implementation of Integrated Curriculum in Management Studies

Algis Junevicius [a], Ona Juneviciene [b], Gabriele Cepeliauskaite [a, *], Rasa Daugeliene [a]

[a] Kaunas University of Technology, Lithuania
[b] Kaunas University of Applied Sciences, Lithuania

Abstract

Global economic and social challenges in the World require fundamental changes in quality assurance in higher education institutions at the national and international level. Higher education institutions are encouraged to adjust study programs, which would meet the current requirements and needs of the labor market and individuals. Integrated curriculum is one of the measures, which could transform traditional educational paradigm and contribute to higher quality and relevance of learning and teaching. Therefore, this article addresses development and implementation issues of the integrated curriculum with the aim to provide the concept of integrated study program and discuss the opportunities for its application in educational institutions. The theoretical part of the paper gives a brief review of the meaning of the concept of integrated curriculum, the basis for development of such study programs and the connection of such curriculum with requirements of the labor market. Accordingly, the practical part presents the findings of empirical research about the implementation of integrated curricula in Kaunas University of Applied Sciences. The results of the study revealed integrated curriculum meets the students' expectations when the assessment of such programs is ensured constantly.

Keywords: integrated curriculum, integrated curriculum implementation, curriculum development, concept development, curriculum integration models, curriculum design.

1. Introduction

The Bologna process has created a single European Higher Education Area (EHEA) highlighting the importance of the programs based on learning outcomes. They ensure higher quality of learning and provide the possibility to apply more individualized learning techniques as well as to create preconditions to compare the quality of curricula on an international scale. The importance of updating the study content and the curriculum reform as well as a student-

* Corresponding author
E-mail addresses: Gabriele.cepeliauskaite@ktu.lt (G. Cepeliauskaite), algis.junevicius@ktu.lt (A. Junevicius), ona.juneviciene@go.kauko.lt (O. Juneviciene), rasa.daugeliene@ktu.lt (R. Daugeliene)

centered approach alongside with students learning outcomes was highlighted in several communications issued by the ministers of higher education of the countries of the Bologna process. In the conference of 2009 in Leuven/Louvain-la-Neuve, the results of the first decade of the Bologna process were summarized and the guidelines for a new decade were established (The Bologna process, 2009). The new priorities of the EHEA were identified in the Communication "The Bologna process 2020 – EHEA in the new decade". The conference stated that the focus of attention should be transferred from the organization of the study process and development of academic subjects to the student, to his/her needs and abilities, which are determined by the labor market and by the agreement of all partners of the study process. The schools of higher education are to focus on the program quality of all the study stages. Flexible learning paths, diversity of higher learning systems perfectly meet the changing reality of the modern world. During the decade until the year 2020, the European higher education had to make an essential contribution to creating a really innovative knowledge-based Europe. Globalization and rapid development of technologies is a great challenge producing new opportunities for higher education, which means a wide range of suppliers of education services, different students and innovative learning techniques. Integrated curriculum is designed to develop the necessary skills for the changing labor market and to help the students become active and responsible citizens.

The Motion for a European Parliament Resolution on Follow-up on the implementation of the Bologna Process as of 2015 also stressed that to overcome new challenges, the student-centered teaching and learning are necessary, which sometimes failed to be recognized as an important part of the structure of the European scientific degrees and were not properly integrated in the university programs. The educational paradigm should be transferred from *what is taught to what the students are to learn*. Social aspects of the process are considered the most neglected features of the European higher education areas. In that respect, the role of higher education is to provide the students with the necessary knowledge, abilities, competence and opportunities to develop them throughout their professional career. A regular dialogue with employers, implementation of the competence-based programs and watch of the graduates' career development should be maintained in order to enhance the employment possibilities (Motion for a European Parliament Resolution, 2015).

The importance of study quality improvement is highlighted in the report of the Education, Audiovisual and Culture Executive Agency (EACEA) of the European Commission "The European Higher Education Area in 2018: Bologna Process Implementation Report (European Commission/EACEA/Eurydice, 2018). The report stresses the importance of graduate employment, which still remains a significant problem in some parts of Europe, and lack of relationship between higher education institutions and the employers in curricular planning. Accordingly, higher education institutions should ensure that in each stage of education the students acquire competences, which are necessary for integration in the labor market. They should pursue that goal by intensifying the dialogue with the business sector and by applying the most appropriate model for combining theoretical and practical disciplines. The Report (2018) also highlights the importance of flexibility in higher education. It refers to different ways of enabling individuals to follow educational paths adapted to their needs. This section focuses on one aspect of flexibility in higher education, namely flexible modes of delivery of higher education programs. Students may study for more innovative degrees by following a learning path in two different subject areas.

Previously mentioned political documents call the European higher education institutions to modernize curriculum referred to as the main study unit, apply the study outcome-based approach, define and describe qualifications of the specialists. Scientists extensively analyze advantages and disadvantages of the integrated curriculum on the institutional, national and international levels. However, current scientific findings reveal lack of empirical evidence to prove a success of integrated curricular (Drake el al., 2015; Wall, Leckie, 2017; Gürkan, 2020). Therefore, this paper looks deeply into the concept of the integrated curriculum and discusses the opportunities for its application in higher educational establishments by analyzing the case study of Kaunas University of Applied Sciences. The paper provides the answers to the three main research questions: 1) How can integrated curriculum be defined? 2) What are the specific features of integrated curriculum?, and 3) What essential characteristics should be highlighted for their identification, construction and implementation?

The paper is distinguished into two parts – theoretical and practical, which are based on different methods. In the theoretical analysis authors use logical method, systematic analysis and

generalization method. Logical method is used for making a substantiated generalization of the collected facts and formulating transitional as well as final conclusions of the research. The method of systematic analysis was applied for systemic evaluation of the models used for the development of integrated curriculum. Together with the logical method, the generalization method was used which helped to identify general and major features and characteristics of mechanisms analyzed in this paper. The theoretical part was expanded by empirical study of Kaunas University of Applied Science, which is based on the quantitative research method – questionnaire survey. Subsequently, the results of the implementation of integrated curricular are presented comparing two research stages. Finally, the authors discuss the theoretical and practical implications of the findings and provide the answers to the research questions.

The Conception and Models of Curriculum

The outcomes of the global financial and economic crisis make the society strive for sustainable recovery and growth. Dynamic and flexible European higher education needs innovations based on integration of studies and research on all levels. Consequently, the interest for integrated curriculum is increasingly growing not only on the institutional, but also on the international levels. However, defining integrated curriculum has been a topic of discussion since the turn of the 20th century and in 2020 this paradox is still relevant (Drake, 2007). Drake el al. (2015), Wall, Leckie (2017) stressed the lack of a clear definition and empirical evidence of success of integrated curriculum. Moreover, the recent findings of Gürkan (2020) study on the preparation, implementation and effects of integrated curricular also revealed the same issues stating that there is no common understanding of what an integrated curriculum is, even if there are a number of various definitions in the theory. Also, the author argued that solid empirical research of success of integrated approaches are needed (Gürkan, 2020). There are more additional questions many curriculum developers still raise, such as: 1) How to exactly define the integrated curriculum, interdisciplinary relations and their basis, should it be knowledge or skills? 2) What are the links of disciplines with the requirements of the labor market? and 3) What outcomes should be achieved in studying a particular curriculum? According to these questions, the answers can be found in the concepts of the integrated curriculum.

Scientists use many different definitions for integrated curriculum (Jacobs, 1989; Fogarty, Pete, 2009; Mathison, Freeman, 1997; Drake, 2007; Badley, Henry, 2009; Drake et al., 2015). In general, integrated curricular can be defined as connection of multiple content enhancing learning from one subject to another (Fletcher et al., 2018) that ensures student learning through higher-level thinking processes (Wall, Leckie, 2017) and improves understanding of knowledge usability in daily life (Bintz, Monobe, 2018; Hammond, 2017). Mathison, Freeman (1997) in analyzing the integrated curriculum suggest that “interdisciplinary/integrated/integrative approaches are not simply attempts to combine two or more knowledge bases, but also to do so in ways that are more inquiry oriented, hands-on, and connected to the real world”. Jacobs (1989) defines interdisciplinary as "a knowledge view and curricular approach that consciously applies methodology and language from more than one discipline to examine a central theme, issue, problem, topic, or experience". Badley and Henry (2009), however, stresses integration connections between two or more disciplines. According to the authors, “integration involves curriculum or instruction that combines, draws upon or encourages students to see connections between the contents of two or more academic disciplines” (Badley, Henry, 2009). Drake et al. (2015) stress that “interdisciplinary programs tend to go for the “big picture” in order to incorporate multiple disciplines”, however, many of the programs called “integrated” do not reflect the real essence of integrated programs. Therefore, it should be noted that curriculum integration takes a variety of forms, including the course integration, cross-curriculum integration, school-wide integration and career academies. That is confirmed by Jacobs (1989), Drake and Burns (2004), Klein (2010), Meeth (1978) and other authors who single out multidisciplinary, interdisciplinary and transdisciplinary curriculum from integrated curriculum. The scientists, however, fail to adopt a unified opinion to define the core of the integrated curriculum. That concept does not occur in the documents regulating higher education. Very often authors identify connections as the main feature of the integrated curriculum. But what is the nature of these connections? Are they interdisciplinary connections or connections between the academic world and the world of work, or between knowledge and skills, or between the aim of the curriculum and

the learning outcomes? According to Bloom (2006), the approach that there exists an in-depth expansive learning, has been dominating up to now, and the confusion about the importance of integration may hinder its efficient and increasingly spreading implementation.

Often the definitions of integrated curriculum used as the synonyms of the integrated curriculum are interdisciplinary study programs which come across the subjects, focus on the comprehensive everyday problems or extensive studies of the main areas and combine different segments of the program into a meaningful link. In the integrated curriculum, several subjects are combined in one single project where the students deal with the important issues of the labor market as well as develop practical abilities. It can be argued that the integrated curriculum is a holistic approach to teaching, learning and designing study content, where conceptions, content, skills and aspects of more meaningful teaching are combined. Practically, there exist several models of curriculum integration. The authors in analyzing the aspects of designing, implementation and assessment of curriculum propose different levels and models of curriculum development which are to be consistently followed.

The researchers and practitioners propose different levels of program creation in analyzing the development of integrated curriculum. Jacobs (1989) proposed curriculum development of six levels (Discipline – based Content design, Parallel Discipline Design, Complementary Disciplines courses, Interdisciplinary courses, Integrated-Day Model, Complete program). Fogarty and Pete (2009) single out 10 levels of curriculum development in dealing with the improvement of integrated curriculum. Beginning within single disciplines (the fragmented, connected and nested models), author continuing with models that integrate across several disciplines (the sequenced, shared, webbed, threaded and integrated models) and closed this line with the immersed and networked models (Fogarty, Pete, 2009). Harden (2000) described the models of curriculum development, implementation and assessment as stairs consisting of 11 steps. In the first four steps (called Isolation, Awareness, Harmonization, Nesting) study disciplines and modules are specified. While rising up along other six steps (Temporal coordination, Sharing, Correlation, Complementary, Multidisciplinary, Interdisciplinary), integration of several individual subjects is stressed and interdisciplinary connections are intensified. When on the last, i.e. the eleventh step, referred to as the Transdisciplinary step, the students take greater responsibility for the integration process, the resources for implementation being provided. In this case the learning focus is the field of knowledge as exemplified in the real world. This idea is supported by Drake (2007), who argues that "students develop life skills as they apply interdisciplinary and disciplinary skills in a real-life context". According to Loepp (1999), there exist three most popular integrated curriculum models applied in higher schools. The first is the so-called interdisciplinary model. Another model was named as a "problem-based" model, the core of which is the posed problem (i.e. economic, social or technological) dealt with by integrating several disciplines. In the third, theme-based model, several different subjects or themes occur through the entire curriculum and are addressed integrally. The importance of such models is recognized by Meeth (1978). The author suggests that "Interdisciplinary integration is the practice of connecting several disciplines to one problem, issue, or theme from life". Interdisciplinary integration involves relating whole to part, part to whole, and part to part. The main characteristics of these models are represented in Table 1.

Table 1. Characteristics of integrated curriculum models (prepared by the authors, 2021)

Multidisciplinary Integration	Interdisciplinary Integration	Transdisciplinary Integration
Aim of the curriculum is to acquire knowledge in individual subjects without integration.	Aim of the curriculum is to develop holistic thinking and to integrate knowledge in several disciplines.	Aim of the curriculum is to abandon disciplinary approach and step beyond the borders of not only disciplines but also beyond those of science fields.
Disciplines are paralleled.	Equal disciplines are integrated.	Individual disciplines disappear.
The themes of individual subjects are used to deal	Complex problems are analyzed.	Situations of the real world of work are used in the study process.

with the problem to be analyzed.		
Students deal with individual themes in several subjects.	Students are motivated to see relations and connections across individual disciplines.	Students integrate knowledge and seek goals by means of individual techniques and personal abilities.
Teachers use this approach organizing standards from the disciplines around a theme.	Teachers organize the curriculum around common learnings across disciplines and emphasize students' interdisciplinary skills and concepts.	Teachers organize curriculum around student questions and concerns and use main teaching and learning method project-based learning.

Multidisciplinary approach can be defined as coexistence of disciplines, when a common problem is addressed; however, different disciplines fail to really influence one another, the acquired knowledge and methods remaining within the framework of individual disciplines. Interdisciplinary integration makes itself evident as an interaction and integration of equal disciplines created in research and studies by means of active cooperation between researchers and teachers to deal with complex problems while acquiring a holistic understanding of those problems. In transdisciplinary integration the disciplines tend to merge, fundamental and practical knowledge is combined, representatives of different disciplines and members of non-academic community cooperate to deal with complex problems of business and/or society.

The core and preferential treatment of integrated curriculum lie in the fact that they are theme-based and reflect the requirements of the labor market. They are "thorny", problem-based, the problems being routinely dealt with by professionals. Being authentic, the problems of the real world are transferred to the classes of the academic environment, individual works and team-based situational training. The example of participation in the debates on the relation between fast food consumption and obesity can serve as an example of the model of a concrete integrated curriculum, the problem being discussed in the classes of biology, a foreign language, marketing, consumers' behavior or business economics. The theme gains a new meaning and relevance when the students understand that they themselves can be involved in the problem mentioned. There is a need to actively show students how different subject areas influence their lives, and it is critical that students realize the strength of each discipline perspective in a connected way.

Conception and Models of Curriculum analysis revealed that the integrated curriculum provides opportunities for students to explore not only the content of the subject, but also to identify links between individual subjects and themes, to develop their capacity of thinking and promote imagination and creativity. Employers keep saying that they prefer specialists who are innovative, creative, with aptitude for critical thinking and with collaboration skills. These skills, according to Meeth (1978), are developed in integrated curriculum-based studies. When it comes to fostering those skills in the classroom, integrated study is an extremely effective approach, helping students develop multifaceted expertise and grasp the important role interrelationships can play in the real world. According to the opinion of the authors of this paper, the integrated curriculum in social sciences should be problem-based and seeking learning outcomes as well as developing extensive competences. The model chosen by the model developers is not of the greatest importance; however, it is very important that the goals set by the curriculum and the complex learning outcomes are achieved.

Implementation of the Integrated Curriculum

Integration is one of the core of educational strategies in modern studies. In the discussions on practical application of integrated curriculum, however, the authors fall into two opposing groups: some are in favor of the integrated curriculum and work hard for their implementation, while others oppose integrated curriculum, thus giving priority to conventional subject-based study

programs. According to the authors, the problem occurs due to the fact that both, the program developers and their implementers, are not really aware of the program conceptions and stages of their design. They have not performed a thorough analysis of the integrated curriculum models. Shifting to the integrated curriculum calls for a systemic reform. Naturally, development and realization of the integrated curriculum involve a lot of academic preparation, i.e. the schools have to get to know the stages of the integrated curriculum brought forward by the researchers, analyze the models, assess the teachers' competences and discuss the set learning outcomes and etc. The integrated curriculum should be implemented by studying multiple areas in units which can be combined according to themes or practical assignments. The techniques, however, following which the integration is carried out, are varied. Bloom (2006) proposes moving from a very rigid program towards a flexible individualized one. Figure 2 represents the process of curriculum implementation and a degree of integration (darkened area). A conceptual approach to integration implies further combination of different subjects as well as a declining influence of teachers and growing influence of students on the ongoing integration processes.

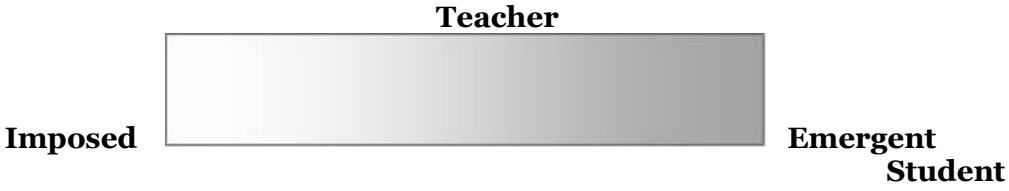

Fig. 1. A curricular continuum from imposed (mandated) to emergent (Bloom, 2006)

Implementation of integrated curriculum is a complicated process. Naturally, the question arises: what is the use of the integrated teaching/learning and what are the preconditions for successful implementation? The precondition of success is, above all, the awareness of learning philosophy, smart methodology as well as a comprehensible implementation strategy. The developers of the programs themselves have to understand the sense of the integrated curriculum, to study specific features of design and only then engage the teachers in the planning process. It is easier to increase the number of integrated modules gradually, when there is an agreement on the study aims, the resources, volume, the time and when teaching materials for the program are provided.

Another precondition for implementation is improvement of the teachers' competence. The teacher's improvement is to precede the student's "growth". Improvement should be holistic, integral, experience-based and engaging the teachers and students in interactive dialogues, teaching and learning workshops. Such engagement combines the potential of both teachers and students and is supposed to form a solid foundation for efficient improvement of teachers' competences. In implementing the integrated student-centered curriculum, development of the staff's competence is necessary (Clark, 1997). Realization of the integrated curriculum is a challenge for both teachers and students, because it involves the highest level of understanding integration and connections with the labor market. Thus, the role and class work of the teacher change, i.e. he/she shifts from the "central" figure into a person "showing the way" (Clayton et al., 2010; Cook, 2009). These changes in the first place cause some difficulties for the teachers. They have to engage the students in in-depth studies and enable them to make connections between subject areas and topics. Jacobs (1989) states that "the interdisciplinary model of teaching enables students to see the links between subject areas (e.g. the relationship between literature and history or mathematics and science". Some teachers tend to oppose the programs and the change, because they lack understanding of their conception and are not really interested in the core of those programs. Some teachers have delivered the same subjects for years and prepared a lot of practical assignments, consequently, they are not ready for fundamental change. Constantly they tend to identify themselves with their subjects and are not willing to cross the borders of their comfort. The reason for this behavior is the lack of knowledge of the innovative teaching approaches and fear that the students will gain less, compared to studying different subjects separately. A great many of teachers fail to understand the very essence of the integrated curriculum; also, they are not comfortable enough to combine different subjects to implement the integrated curriculum. They need to be stimulated for collaborative work to develop models and get prepared for work.

To implement the curriculum, support from the academic community is absolutely necessary. A couple of enthusiastic teachers are not able to achieve good results. The move in one classroom or with one single module may come to nothing. Change is necessary in all the culture of the academic institution. The philosophy of any innovation should be thoroughly analyzed and spread over all learning community in various forms, i.e. in formal meetings, forums or informal discussions. According to Cook (2009), implementation of the integrated curriculum calls for not only competent teachers, but also for a strong devoted leader. The main role of the leader is to provide conditions to develop leadership ideas and give impetus for their realization. The leader alone, however, cannot make essential changes without the assistance of the positively thinking academic community open to systemic transformations.

With the mentioned characteristics provided in the theoretical part, Kaunas University of Applied Sciences was one of the first to implement an integrated curriculum for the field of management in 2011. The aims of those programs were the following:

- to integrate the aim, content and learning outcomes of the curriculum;
- to modernize the study process;
- to recognize different teaching/learning styles;
- to create partnership between teachers, students and employers;
- to motivate students for individual work and for taking over some share of responsibility.

The integrated curriculum of the field of management science at the University is implemented in stages. In the first stage the developers of the curriculum got acquainted with the curriculum conceptions and international practice of application. In the second stage the teachers took part in the refresher courses of developing integrated curriculum and shared experience with the employers. In the third stage, integrated individual assignments for several disciplines were developed in three curriculum of the field of management (business management, sales management and food business management). Methodological aids for students to deal with integrated tasks were prepared. In the fourth stage, following the piloted practical implementation of integrated studies, the Faculty of Business established project groups and in collaboration with the employers worked out two integrated curricula, i.e. Sports Management and Logistics. Later on it was prepared and implemented in others study programs, such as International Business, Sales and Marketing and etc. The University teachers and students, who are engaged in the curriculum, claim that the studies are interesting and attractive because the tasks can be performed creatively, the knowledge acquired from different subjects can be integrated and the problems can be solved by means of innovative measures. The involvement of several teachers in estimating integrated assignments often cause interesting and fruitful discussions leading to innovative solutions. This experience revealed that combining academic subjects can result in in-depth learning and a better understanding of interrelationship between them. The ability to integrate knowledge in different subjects is exhibited in preparing independent integrated courses and final projects, which address economic, management and socio-cultural problems of business enterprises. The integrated curriculum is favored by the university teachers and students.

2. Methodology

In regard to the problems discussed in the paper, the empirical research was carried out to measure the efficiency of the integrated curriculum in Kaunas University of Applied Sciences. The relevance of the research is determined by the opportunities of improving the content of the study program and the quality of its implementation at the University of Applied Sciences in order to achieve good quality results. For the empirical study, questionnaire survey was chosen as a research method, which is flexible for gathering quantitative data. The method was applied in order to investigate more respondents in a short time. Collection of quantitative and qualitative data and reversibility assurance of submitted questionnaires were also important factors. Moreover, for the assessments of the integrated study programs, the questionnaires were based on theoretical concepts analyzed in a theoretical part of the study (Appendix Table 1, Table 2). The assessments were performed in two research stages according to four criteria: 1) structure and content of the curriculum, 2) organization of the study process, 3) quality of integrated projects and 4) assessment of students' academic achievements. The questionnaires included closed-ended,

open-ended questions and Likert scale questions (first stage – Appendix Table 1, second stage – Appendix Table 2).

According to the development of integrated curriculum in different study programs in Kaunas University of Applied Sciences, the empirical data was collected in two research stages. The first assessment was organized in 2016, collecting data from Sports Management, which was the first program, where integrated curriculum was applied. Therefore, the respondents of the survey were second-third-course students (total n=27, second course n=19, third course n=8). The questionnaire of the first survey is provided in Table 2. It is necessary to point out that the first survey was carried out in order to assess the programs, where integrated curriculum was applied. Subsequently, the second assessment of programs was organized on a wider scale in 2019, involving the programs, where integrated curriculum was applied later (first-second year students of Logistics (first course n=41), Sports Management (second course n=16), Food Industry Business Management (first course n=18), Sales and Marketing (total n=28, first course n=15, second course n=13), Business Management (total n=69, first course n=32, second course n=37)). Therefore, the amount of respondents increased.

Comparing the first and the second research stages, the questionnaire in the second assessment was developed and extended by additional questions, but the main criteria remained the same. The results of the assessment are presented in four charts according to set criteria: 1) assessment of structure and content of the curriculum, 2) assessment of study process organization, 3) assessment of integrated projects content and 4) assessment of students' academic achievements. To assess the research results, a five-score scale (1 is the lowest score, 5 – the highest) was used.

Statistical analysis was conducted in two different ways. The analysis of the first survey was performed by using IBM SPSS Statistics 21 software. Mean, Standard Error (SE), Standard Deviation (SD) and 95 % Confidence Intervals (95 % CI) were found by using Descriptive Statistics function (Explore).

It is necessary to point out that in this study CI is chosen to confidence level set at 95 %. Taking into consideration that CI is <*... a range of values for a variable of interest constructed so that this range has a 95 % probability of including the true value of the variable...*>, therefore, 95 % CI corresponds to hypothesis testing with $P<0.05$ (Gupta, 2012).

The analysis of the second survey (secondary data) was carried out from aggregated averages of the courses assuming a single distribution. Weighted averages were computed accounting for different sample sizes in a data set. First, for each questionnaire item SE was assumed to be represented by SD of sampling distribution of different courses' averages and was computed by using STDEV.S function in MS Excel, while SD for each sample (course) for a given questionnaire item was found using SE formula (SE = standard error, s = the standard deviation for your sample and n is the number of items in your sample):

$$SE = \frac{\sigma}{\sqrt{n}}$$

In the second stage, for the total aggregated sample the combined SD was counted by using the formula:

$$s = \sqrt{\frac{(n_1-1)s_1^2+(n_2-1)s_2^2+n_1(\bar{y}_1-\bar{y})^2+n_2(\bar{y}_2-\bar{y})^2}{n_1+n_2-1}}$$

Confidence Intervals (95 % CI) were found by using formula: Mean ± (1.96) x (SE).

Appendix Table 3 presents the results of the first survey. Appendix Tables 4 and 5 present the results of the second survey.

3. Results

Results of Empirical Study in Kaunas University of Applied Sciences

The results of the first research stage (2016) revealed that the students, involved in the assessment of the integrated curriculum (Figure 2), gave the highest score to the following aspects. The most positive rating was received in 1.1 concerning integrated curriculum as a provision of better preparation for professional activity (M=3.67, 95 % CI [3.25, 4.08]). The integrated assignments, which promote more comprehensive study of combined general and special subjects

(1.4.), was rated with a score of 3.41, 95 % CI [2.98, 3.84]. The utility of disciplines (1.5.) was assessed by 3.32, 95 % CI [2.89, 3.56]. The question about mutually agreed subjects (1.3.) in the course received the lowest average score, M=2.96, 95 % CI [2.57, 3.35]. The result could be argued because of the novelty of integrated curriculum implementation.

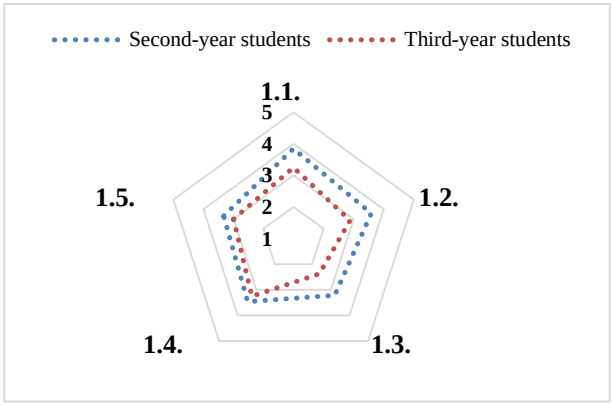

Fig. 2. Assessment of structure and content of the curriculum (prepared by the authors, 2016)

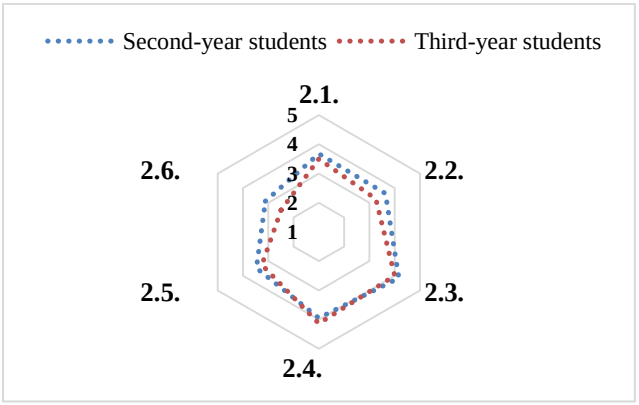

Fig. 3. Assessment of study process organization (prepared by the authors, 2016)

The assessment of study process (Figure 3) proved the success in study process organization, which became more interesting (2.3.) (M=4.11, 95 % CI [3.79, 4.43], and diverse (2.4.) (M=4,95 % CI [3.71, 4.29]). According to the students, the integrated curriculum provides higher motivation for good results, the studies tend to become more advantageous and attractive, when real situations and problems from the labor market are addressed. However, from students' perspective, the lowest score was identified in works' distribution throughout the semester (2.6.), M=2.93 points, 95 % CI [2.52, 3.34]. It is necessary to point out that students tend to believe that integrated curriculum contributes more to better students understanding about different subjects (2.2.) (M=3.52, 95 % CI [3.17, 3.87]). The results differed in assessing the motivation to study (2.5.) – the second-year students gave 3.47 points, 95 % CI [2.89, 3.97], when the third-year students – 3.25 points, 95 % CI [2.66, 3.84].

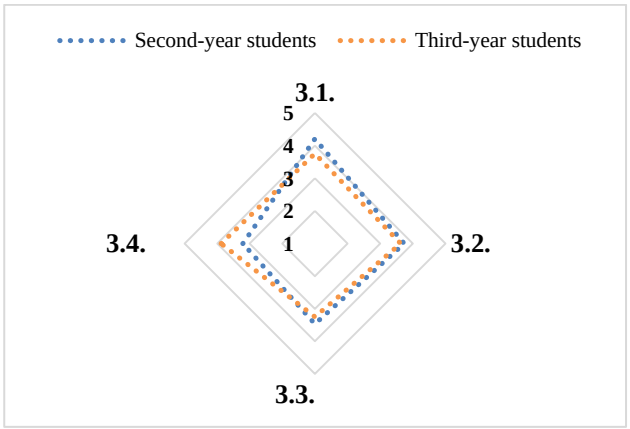

Fig. 4. Assessment of integrated projects content (prepared by the authors, 2016)

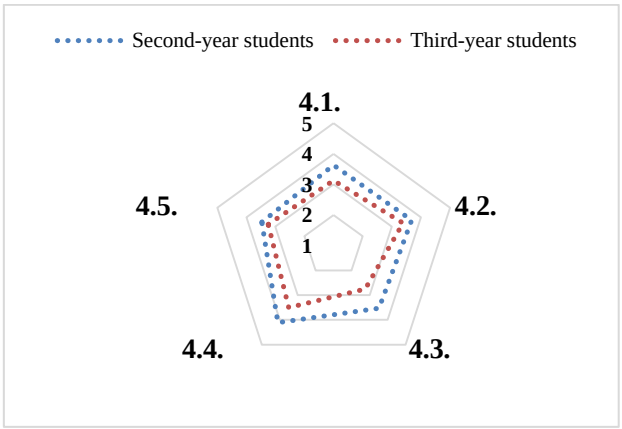

Fig. 5. Assessment of students' academic achievements (prepared by the authors, 2016)

In assessing integrated projects (Figure 4), the question concerning preparation of integrated projects (3.2.), which promotes more systemic studies, was assessed by 3.70, 95 % CI [3.42, 3.99]. In other cases, the opinions differed again. The assumption that integrated programs produce higher quality of works (3.1.), was assessed by 4.21 points, 95 % CI [3.95, 4.47] by the second-year students, while the third-year students' assessment was 3.75 points, 95 % CI [2.88, 4.62]. A great

many students noted that in studying integrated subjects the interest for integrated projects was promoted (3.4.) (M= 3.40, 95 % CI [2.98, 3.84]). The respondents were also positive about the other two program areas, i.e. the study process and the student achievements. In the final part – assessment of students' academic achievements (Figure 5) – students agreed that the knowledge and skills are assessed in a complex way (4.1.) (M= 3.48, 95 % CI [3.21, 3.76]) and positive evaluations encourage consistent studies during a semester (4.4.) (M=3.93, 95 % CI [3.58, 4.27]). However, it is important to note that third-year students were less satisfied with integrated curricular implementation at the University than second-year students.

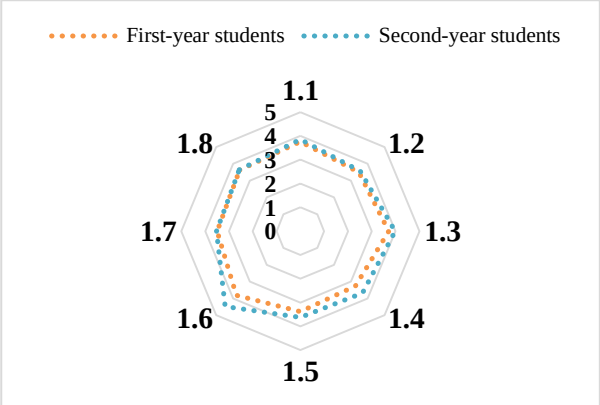

Fig. 6. Assessment of structure and content of the curriculum (prepared by the authors, 2019)

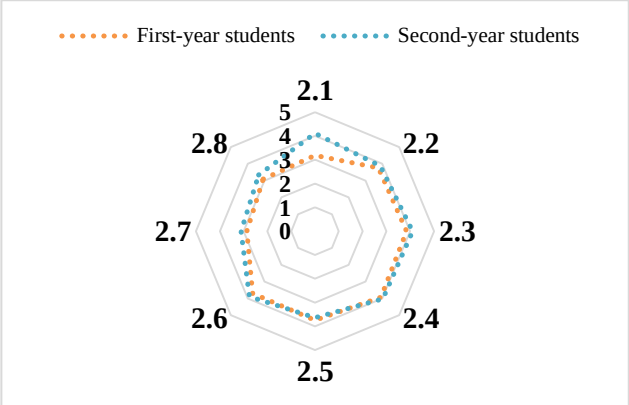

Fig. 7. Assessment of study process organization (prepared by the authors, 2019)

After the first results, the analyzed study programs were developed and integrated curriculum was applied to other study programs. Accordingly, the second research stage of the assessment was carried out in 2019. The assessment of integrated project content revealed that students felt positive about the structure and content of integrated curricular programs (Figure 6). Integrated curriculum was appreciated the most due to the optimal structure of 4 study subjects (1.6.), M=4.09, 95 % CI [4.04, 4.14]. Modular study programs, which were more interesting (1.3.) (M=3.81, 95 % CI [3.80, 3.83]) and help better prepare for professional activities (1.1.) (M=3.79, 95 % CI [3.76, 3.82]), also received high average scores. Moreover, both groups – first-year and second-year students – agreed that while studying in such programs they acquired broader competences (1.8.) (M= 3.60, 95 % CI [3.58, 3.62]) and felt more motivated to achieve learning outcomes (1.2.) (M=3,56, 95 % CI [3.54, 3.58]). The results of the second process organization assessment (Figure 7) proved the usefulness of understanding different subjects (2.2.) (M=3,83, 95 % CI [3.81, 3.86]) and diversity of study subjects (2.4.) (M=3.95, 95 % CI [3.93, 3.97]). However, there was a difference in comparing students' opinions about teaching. First-year students agreed less with the statement about unified lecturers team (2.7.) (M=2.97, 95 % CI [2.32, 3.63]) and the amount of optimal teaching courses (2.1.) (M=3.29, 95 % CI [2.61, 3.97]) than third-year students (2.7. (M=3.12, 95 % CI [2.82, 3.42]); 2.1. (M=4.09, 95 % CI [3.73, 4.45]). Other aspects, which include motivation to study (2.5.) and ECTS (2.6.), received over the 3.6 points from both groups.

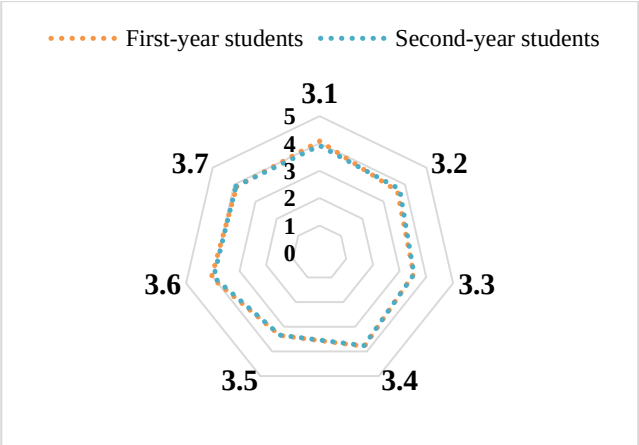

Fig. 8. Assessment of integrated projects content (prepared by the authors, 2019)

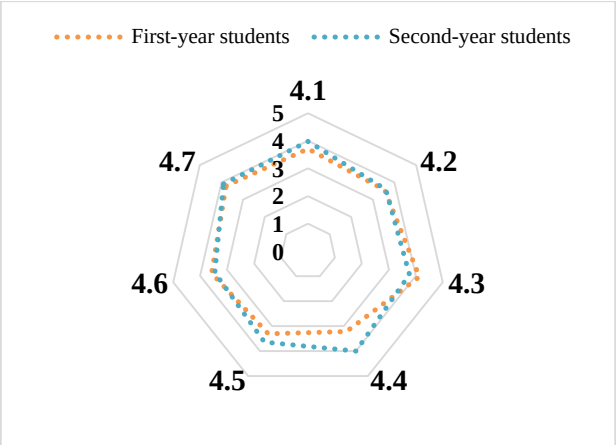

Fig. 9. Assessment of students' academic achievements (prepared by the authors, 2019)

The results of integrated projects assessment were very similar comparing the first-year and the second-year students' answers (Figure 8). Students strongly agreed that integrated projects could be prepared in higher quality because of reduced number of independent works (3.1.), M=4.02, 95 % CI [4.00, 4.03]. It is also closely linked to the responsibility for final results and working in a team (3.6.) (M=4.04, 95 % CI [4.02, 4.06]), planning (3.7.) (M=3.92, 95 % CI [3.91, 3.93]) skills development and creativity (3.4.) (M=3.81, 95 % CI [3.79, 3.82]). In assessing the final criteria of achievements, students preferred integrated project, as a final work, more than exams (4.3.), M=3.98, 95 % CI [3.96, 4.01] (Figure 9). It is necessary to point out that the most critical aspect in the assessment of this fourth criteria was the optimal size of the integrated project group (4.4.), M=3.54, 95 % CI [3.51, 3.57]. According to the results, second-year students agreed that three students in a group is an optimal number (M=4, 95 % CI [3.66, 4.34]), when first-year students were more critical about the number (M=3.26, 95 % CI [2.67, 3.85]). Moreover, students gave 3.91 points (95 % CI 3.87, 3.94]) to complexity (4.1.) and 3.82 points (95 % CI [3.80, 3.85]) to objectivity of the assessment (4.7.). Also, students felt more positive than negative about a clear evaluation system (4.5.) (M=3.49, 95 % CI [3.44, 3.53]), which encouraged consistent working throughout the semester (4.6.) (M=3.58, 95 % CI [3.56, 3.60]).

In addition, the two research stages of integrated curriculum assessment in Kaunas University of Applied Sciences revealed more positive students' opinion about their study programs. It is necessary to point out that none of the assessed aspects of the criteria received the highest score of 5 as well as the lowest – 1. In the second research stage results increased. The difference could be determined by many reasons. After discussing the results of the first assessment, which helped to identify the issues in the Sports Management Program, other study programs were improved. The structures of the courses were more harmonized (subjects were integrated into them), the definite structure of the final assessment of courses was created and presented to the students, more practical tasks, related to the labor market, were integrated into integrated projects. In addition, students of the Logistics study program, which was the most popular among students in Lithuania in the Universities of Applied Science, found the integrated study program much more interesting (encouraging students to work independently, developing teamwork skills, helping students prepare more systematically for professional activities than students of other programs). The most positive answers received from the second-year students in both surveys, however, the third-year students' were less satisfied about integrated curriculum. During the first survey, the structure and content of curriculum and students' academic achievements received the lowest average scores. The second stage revealed more positive results in these criteria, which were developed after receiving the results of the first survey.

Moreover, the research results confirmed that the integrated curriculum responds to the innovative requirements of 21st century education and best meets the students' expectations. Here, the students' abilities of making connections, adapting to changes and knowing how to learn are

developed. Transdisciplinary learning in developing projects or carrying out integrated independent assignments lead to the students' preparedness for practical application of knowledge. Modern graduates need knowledge of working in a team and ability to collaborate on a local and global scale. Also, it is necessary to develop the necessity of long-life learning, thus experiencing the joy of self-awareness.

4. Conclusion

The integrated curriculum responds to the provisions of the Bologna Process 2020. Their implementation leads to changes in the educational process reflected in the transition from teaching towards student-centred learning. The education paradigm should be transferred from what is taught to what the student is to learn. The problem-based integrated curriculum pursuing learning outcomes set by the program and training specialists with various competences is a response to the modernization of education. The preconditions for successful implementation of the integrated curriculum are awareness of the teaching philosophy, a solid methodology as well as a clear-cut program implementation strategy. Overall changes in the academic culture of the institution are necessary. All academic community of the institution and representatives of the business community are to be engaged in the development and implementation of the integrated curriculum. The empirical study revealed that integrated curricular is favorable for students. It is characterized by flexibility, which creates opportunities for assessment (weaknesses identification), development and renewal. The results of empirical study also proved the fact that it is necessary to ensure a constant assessment of integrated curriculum programs in order to identify problematic areas, according to the set criteria, and develop programs in the most appropriate way.

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Appendix

Table 1. The statements for integrated curricular assessment based on four selected criteria: the first stage (prepared by the authors, 2016)

1.	**Structure and content of the curriculum**	2.	**Organization of the study process**
1.1	Modular study program helps students to better prepare for professional activities.	2.1	Teaching of two modules per semester is optimal.
1.2	The structure of the course is understandable.	2.2	By studying the modules, students have a better understanding of the usefulness of different subjects.
1.3	The course consists of mutually agreed subjects.	2.3	The study process is more interesting.
1.4	Integrated tasks encourage more in-depth study of combined general and professional subjects.	2.4	The study process is more diverse.

1.5	In a modular study program, the usefulness of different subjects is more noticeable.	2.5	The modular system is more motivating to study.
		2.6	In the modular study program, the integrated projects are evenly distributed throughout the semester.
3.	**Quality of integrated project**	**4.**	**Students' academic achievements**
3.1	The reduced number of independent works in the modular system allows to prepare higher quality course works.	4.1	In the modular system, students' knowledge and skills are assessed in a complex way.
3.2	The preparation of integrated projects forces a more systematic study of subjects.	4.2	Theoretical knowledge is assessed by studying individual subjects in the module.
3.3	The preparation of integrated, multi-subject projects improves the theoretical material.	4.3	A clear system for evaluating a course work performed in the module.
3.4	There is a growing interest in working independently.	4.4	The requirement to receive positive evaluations from all subjects in the module encourages a consistent study of the module throughout the semester.
		4.5	The participation of all lecturers teaching the module in the assessment of integrated work ensures an objective assessment of study achievements.

Table 2. The statements for integrated curricular assessment based on four selected criteria: the second stage (prepared by the authors, 2019)

1.	**Structure and content of the curriculum**	**2.**	**Organization of the study process**
1.1	Modular study program helps students to better prepare for professional activities.	2.1	Teaching of two modules per semester is optimal.
1.2	Modular study program helps students to better achieve learning outcomes.	2.2	By studying the modules, students have a better understanding of the usefulness of different subjects.
1.3	The modular study program is unusual but interesting.	2.3	The study process is more interesting.
1.4	The structure of the course is clear and understandable.	2.4	The study process is more diverse.
1.5	The course consists of mutually coordinated study subjects.	2.5	The modular system is more motivating to study.
		2.6	15 ECTS per course is optimal.
1.6	The optimal structure of the course consists of a maximum of 4 study subjects.	2.7	In modular study programs lecturers work as a unified team.
1.7	Developed integrated tasks encourage more in-depth study of combined general and professional subjects.	2.8	In the modular study program, the course works are evenly distributed throughout the semester.
1.8	Integrated curriculum studies help students to acquire broader competencies, which are necessary for the labor market.		

3.	Quality of integrated project	4.	Students' academic achievements
3.1	The reduced number of independent works in the modular system allows to prepare higher quality course works.	4.1	In the modular system, students' knowledge and skills are assessed in a complex way.
3.2	The preparation of integrated projects forces a more systematic study of subjects.	4.2	Theoretical knowledge is assessed by studying individual subjects in the course.
3.3	The preparation of integrated, multi-subject projects improves the theoretical material.	4.3	Assessment of the course in the preparation of integrated projects is more effective than passing the exam.
3.4	The preparation of integrated project encourages students' creativity.	4.4	There should be no more than 3 students in the group of integrated project.
3.5	There is a growing interest in working independently.	4.5	A clear system for evaluating a course work performed in the module.
3.6	While studying the course, students develop team skills and responsibility for work results.	4.6	The requirement to receive positive evaluations from all subjects in the module encourages a consistent study of the module throughout the semester.
3.7	While studying the course, students develop their planning skills.	4.7	The participation of all lecturers teaching the module in the assessment of integrated project ensures an objective assessment of study achievements.

Table 3. Mean rates, Standard Error (SE), Standard Deviation (SD), 95 % Confidence Interval (95 % CI) of the first survey questions (Q) of Sports Management (SM) second (n=19) and third (n=8) year students (prepared by the authors, 2021)

Q.	The second-year students of SM (n=19)				The third-year students of SM (n=8)				Total (n=27)			
	Mean	SE	SD	95 % CI	Mean	SE	SD	95 % CI	Mean	SE	SD	95 % CI
1.1.	3.84	0.245	1.068	3.33 4.36	3.25	0.313	0.886	2.51 3.99	3.67	0.199	1.037	3.25 4.08
1.2.	3.58	0.116	0.507	3,33 3.82	2.88	0.227	0.641	2.34 3.41	3.37	0.121	0.693	3.12 3.32
1.3.	3.21	0.181	0.787	2.83 3.59	2.38	0.420	1.188	1.38 3.37	2.96	0.189	0.979	2.57 3.35
1.4.	3.47	0.258	1.124	2.93 4.02	3.25	0.366	1.035	2.38 4.12	3.41	0.209	1.083	2.78 3.8
1.5.	3.32	0.217	0.946	2.86 3.77	3.00	0.189	0.535	2.55 3.45	3.32	0.163	0.847	2.89 3.56
2.1.	3.68	0.265	1.157	3.13 4.24	3.50	0.327	0.926	2.73 4.27	3.63	0.208	1.079	3.20 4.06
2.2.	3.63	0.232	1.012	3.14 4.12	3.25	0.164	0.463	2.86 3.64	3.52	0.172	0.893	3.17 3.87
2.3.	4.16	0.191	0.834	3.76 4.56	4.00	0.267	0.756	3.37 4.63	4.11	0.154	0.801	3.79 4.43
2.4.	3.95	0.195	0.848	3.54 4.36	4.13	0.125	0.354	3.83 4.42	4	0.141	0.734	3.71 4.29
2.5.	3.47	0.234	1.020	2.98 3.97	3.25	0.250	0.707	2.66 3.84	3.41	0.179	0.931	3.04 3.78
2.6.	3.11	0.252	1.100	2.57 3.64	2.50	0.267	0.756	1.87 3.13	2.93	0.199	1.035	2.52 3.34
3.1.	4.21	0.123	0.535	3.95 4.47	3.75	0.366	1.035	2.88 4.62	4.07	0.141	0.729	3.79 4.36
3.2.	3.74	0.185	0.806	3.35 4.13	3.63	0.183	0.518	3.19 4.06	3.70	0.139	0.724	3.42 3.99
3.3.	3.47	0.208	0.905	3.04	3.25	0.164	0.463	2.86	3.40	0.153	0.797	3.09

				3.91				3.64				3.72
3.4.	3.21	0.271	1.182	2.64 3.78	3.88	0.227	0.641	3.34 4.41	3.40	0.209	1.083	2.98 3.84
4.1.	3.63	0.157	0.684	3.30 3.96	3.13	0.227	0.641	2.59 3.66	3.48	0.135	0.700	3.21 3.76
4.2.	3.68	0.134	0.582	3.40 3.96	3.38	0.183	0.518	2.94 3.81	3.59	0.110	0.572	3.37 3.82
4.3.	3.53	0.177	0.772	3.15 3.90	2.75	0.491	1.389	1.59 3.91	3.3	0.198	1.031	2.89 3.70
4.4.	4.11	0.215	0.937	3.65 4.56	3.50	0.189	0.535	3.05 3.95	3,93	0.168	0.874	3.58 4.27
4.5.	3.47	0.177	0.772	3.10 3.85	3.25	0.491	1.389	2.09 4.41	3.41	0.187	0.971	3.02 3.79

Table 4. Weighted mean rates, Standard Error (SE), Standard Deviation (SD), 95 % Confidence Interval (95 % CI) of the second survey questions (Q) of the first (n=106) (LO – logistics, FIBM – Food Industry Business Management, SaM – Sales and Marketing, BM – Business Management) and second (n=66) year students (prepared by the authors, 2021)

Q.	**Means on the first-year students (n=106)**				**Total (n=106)**				**Means of the second-year students (n=66)**			**Total (n=66)**			
	LO (n=41)	**FIBM (n=18)**	**SaM (n=15)**	**BM (n=32)**	**Weighted mean**	**SE**	**SD**	**95 % CI**	**SaM (n=13)**	**SM (n=16)**	**BM (n=37)**	**Weighted mean**	**SE**	**SD**	**95 % CI**
1.1.	3.88	3.44	4	3.72	3.77	0.242	2.494	3.30 4.25	4.23	3.5	3.81	3.82	0.366	2.976	3.10 4.54
1.2.	3.68	3.22	3.47	3.56	3.54	0.195	2.008	3.15 3.92	3.54	3.5	3.65	3.59	0.078	0.631	3.44 3.74
1.3.	3.63	3.72	3.8	3.72	3.70	0.069	0.715	3.56 3.83	4.15	3.75	4.05	4.00	0.208	1.691	3.59 4.40
1.4.	3.46	2.72	3.33	3.56	3.35	0.377	3.881	2.61 4.08	3.54	3.81	3.7	3.70	0.136	1.103	3.43 3.96
1.5.	3.66	2.22	4	3.62	3.45	0.789	8.120	1.91 5.00	3.69	3.44	3.73	3.65	0.157	1.277	3.34 3.96
1.6.	3.88	3.06	4.01	4.28	3.88	0.525	5.410	2.85 4.91	4.54	4.56	4.32	4.42	0.133	1.082	4.16 4.68

3.2.	**3.1.**	**2.8.**	**2.7.**	**2.6.**	**2.5.**	**2.4.**	**2.3.**	**2.2.**	**2.1.**	**1.8.**	**1.7.**
3.51	4.02	3.12	3.2	3.85	3.39	3.85	3.8	3.76	3.51	3.59	3.61
3.83	4.28	2.83	2.5	3.39	3.72	3.72	3.61	3.39	2.78	3.39	3.17
3.6	4	3.07	2.67	3.73	4.13	4.13	4.2	4	3.01	3.93	3.8
3.59	4.06	3.31	3.09	3.84	3.72	4	3.78	3.91	3.43	3.56	3.4
3.60	4.07	3.12	2.97	3.75	3.65	3.91	3.82	3.78	3.29	3.60	3.50
0.138	0.129	0.198	0.334	0.215	0.303	0.178	0.250	0.269	0.347	0.226	0.271
1.418	1.329	2.034	3.436	2.217	3.119	1.835	2.574	2.768	3.568	2.329	2.794
3.33 3.87	3.82 4.33	2.73 3.51	2.32 3.63	3.33 4.17	3.06 4.24	3.56 4.26	3.33 4.31	3.25 4.30	2.61 3.97	3.15 4.04	2.97 4.03
3.85	4	3.77	3.23	4	3.85	4.23	4.23	3.92	4.3	3.85	3.62
3.56	3.81	2.88	2.94	3.94	3.5	3.81	3.94	3.69	3.94	3.5	3.31
3.81	3.95	3.38	3.16	3.73	3.57	4.03	4.14	4.03	4.08	3.57	3.62
3.76	3.93	3.34	3.12	3.83	3.61	4.02	4.11	3.93	4.09	3.61	3.54
0.157	0.098	0.446	0.151	0.142	0.185	0.210	0.148	0.173	0.181	0.185	0.179
1.277	0.800	3.624	1.229	1.152	1.505	1.707	1.206	1.409	1.474	1.505	1.454
3.45 4.07	3.73 4.12	2.46 4.21	2.82 3.42	3.56 4.11	3.25 3.97	3.60 4.43	3.82 4.40	3.59 4.27	3.73 4.45	3.25 3.97	3.19 3.90

4.7.	4.6.	4.5.	4.4.	4.3.	4.2.	4.1.	3.7.	3.6.	3.5.	3.4.	3.3.
3.98	3.76	3.54	3.61	3.83	3.78	4.07	3.9	4.05	3.37	3.8	3.51
3.83	3.33	3.56	3.17	4.28	3.56	3.67	3.78	3.83	3.39	3.83	3.5
3.6	3.6	2.6	3.2	4.27	3.33	3.27	3.8	4.13	3.2	3.73	3.4
3.78	3.63	3.53	2.88	4.16	3.56	3.84	4.03	4.22	3.44	3.78	3.69
3.84	3.63	3.41	3.26	4.07	3.61	3.82	3.90	4.08	3.37	3.79	3.55
0.157	0.181	0.472	0.300	0.210	0.184	0.337	0.114	0.167	0.104	0.042	0.121
1.613	1.859	4.858	3.092	2.167	1.892	3.475	1.178	1.717	1.073	0.433	1.243
3.53 4.15	3.27 3.98	2.48 4.33	2.67 3.85	3.66 4.48	3.25 3.97	3.16 4.48	3.68 4.13	3.75 4.40	3.17 3.57	3.71 3.87	3.31 3.78
4.15	3.23	3.85	3.85	3.54	3.38	3.92	3.92	3.85	3	3.62	3.46
4	3.56	3.44	4.19	3.75	3.63	3.81	3.81	4.06	3.56	3.69	3.38
3.59	3.57	3.62	3.97	4	3.78	4.19	4	4	3.46	3.97	3.78
3.80	3.50	3.62	4.00	3.85	3.66	4.04	3.94	3.99	3.39	3.83	3.62
0.290	0.193	0.206	0.172	0.230	0.202	0.196	0.095	0.108	0.299	0.185	0.212
2.355	1.572	1.670	1.401	1.871	1.642	1.589	0.775	0.879	2.426	1.505	1.720
3.23 4.37	3.12 3.88	3.22 4.02	3.66 4.34	3.40 4.30	3.27 4.06	3.66 4.43	3.75 4.13	3.77 4.20	2.81 3.98	3.47 4.20	3.21 4.03

Table 5. Total weighted mean rates, Standard Error (SE), Standard Deviation (SD), 95 % Confidence Interval (95 % CI) of the second survey questions (Q) (n=172) (prepared by the authors, 2021)

O.	Total weighted mean of the second survey (n=172)	SE	SD	95% CI
1.1.	3.79	0.016	0.205	3.76 3.82
1.2.	3.56	0.009	0.124	3.54 3.58
1.3.	3.81	0.007	0.091	3.80 3.83
1.4.	3.48	0.018	0.239	3.44 3.52
1.5.	3.53	0.037	0.490	3.46 3.60
1.6.	4.09	0.025	0.329	4.04 4.14
1.7.	3.52	0.014	0.181	3.49 3.54
1.8.	3.60	0.012	0.157	3.58 3.62
2.1.	3.60	0.017	0.227	3.56 3.63
2.2.	3.83	0.014	0.179	3.81 3.86
2.3.	3.93	0.013	0.165	3.91 3.55
2.4.	3.95	0.010	0.136	3.93 3.97
2.5.	3.63	0.015	0.200	3.60 3.66
2.6.	3.78	0.011	0.144	3.76 3.80
2.7.	3.03	0.016	0.214	3.00 3.06
2.8.	3.20	0.016	0.210	3.17 3.23
3.1.	4.02	0.007	0.088	4.00 4.03
3.2.	3.66	0.008	0.104	3.65 3.68
3.3.	3.58	0.008	0.110	3.56 3.59
3.4.	3.81	0.006	0.076	3.79 3.82
3.5.	3.38	0.010	0.131	3.36 3.40
3.6.	4.04	0.008	0.111	4.02 4.06
3.7.	3.92	0.006	0.079	3.91 3.93

4.1.	3.91	0.017	0.221	3.87 3.94
4.2.	3.63	0.010	0.137	3.61 3.65
4.3.	3.98	0.012	0.157	3.96 4.01
4.4.	3.54	0.015	0.199	3.51 3.57
4.5.	3.49	0.023	0.302	3.44 3.53
4.6.	3.58	0.010	0.134	3.56 3.60
4.7.	3.82	0.011	0.147	3.80 3.85