

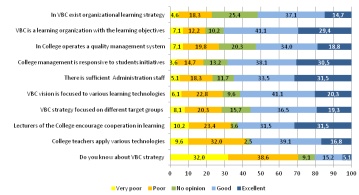
**INNOVATIVE INFOTECHNOLOGIES
FOR SCIENCE, BUSINESS AND EDUCATION
Vol. 2(21) 2016**

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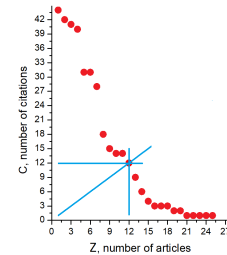
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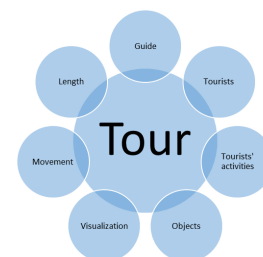
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Technology Enhanced Learning Integration: VBC Case Analysis

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Received 10 December 2016, accepted 30 December 2016

Abstract. The article describes the theoretical aspects of Technology Enhanced Learning (TEL) in organization and determines possibilities of TEL application in educational organizations. Research, based on seven sets of quality criteria, was designed to assess the readiness of TEL integration in educational organization, explores TEL situation in Vilnius Business College.

Citations: Gintaras Arbutavičius, Gitana Čechamirienė, Eglė Stankevičienė, Violeta Jadzgevičienė. Technology enhanced learning integration: VBC case analysis – *Innovative Infotechnologies for Science, Business and Education*, ISSN 2029-1035 – **2(21)** 2016 – Pp. 3-11.

Keywords: Technology Enhanced Learning; TEL; information and communications technology.

Short title: Technology enhanced learning.

Introduction

Various documents published by the European Commission emphasize the establishment of more open learning environment, more effective and qualitative educational service at European educational institutions. The European Commission promotes the use of new learning methods, development of digital skills; it also aims to increase the role of digital technologies in educational institutions etc. These policies are supported by scientists, who agree that technology enhanced learning develops teaching and education, provides new opportunities dealing with arising new learning needs, increases learning accessibility to all learners.

Internationally the emphasis is placed on higher education and business cooperation, looking for mutual benefit and integrity of science, research and innovation. This is especially emphasized by the European Union, the Organization for Economic Co-operation and Development (OECD) and the World Bank. Higher education institutions can contribute to business development and growth offering businesses the necessary studies [1].

People often use terms *virtual learning*, *distance learning*, *e-learning*, *collaborative learning*. But nowadays scientists use new term which defines all of the previous terms – *Technology Enhanced Learning* (TEL).

The research is based on a problem that even in science and education, as well as educational and business organizations technologies have been applied either by using standardized technology enhanced learning environments and systems, or with no regard to the organization's specific features. TEL is not implemented according to the needs of target groups; there is no assessment of the impact of the learning on the organization's innovation activity. Therefore, good practice experience cannot be directly transferred to new organizations due to the different contextual conditions. TEL

integration depends significantly upon very rapid development of services and information communication technologies themselves.

On one hand, curriculum quality and availability, cost-effectiveness of new technologies, support systems, development of the Internet, the spread of open educational resources and increasing competition in the education and business promote the integration of TEL in the organizations.

On the other hand, temperance of employees when using new learning technologies, lack of investment into education from organizations, mismatch between university and labor market requirements, the lack of the Internet bandwidth and access prevent organizations from using these technologies.

The notion of technology enhanced learning is described in the theoretical part as well as possibilities to apply TEL in educational organizations.

The empiric research aims to determine obstacles that VBC lecturers and learners, who use technologies for learning purposes, endure. The research seeks to find out whether technology enhanced learning is well organized and whether it meets the criteria of TEL in organizations. It also suggests solutions to the problems that were pointed out, also to the problems that TEL did not solve. Apart from solutions it provides recommendations. The object of the research is technology enhanced learning.

The aim of the research – to determine the situation of technology enhanced learning organization at Vilnius Business College:

- 1) to describe the theoretical aspects of technology enhanced learning in organization;
- 2) to determine possibilities of technology enhanced learning application in educational organizations;
- 3) to explore technology enhanced learning situation in Vilnius Business College.

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1. Theoretical aspects of TEL in organization

Technology Enhanced Learning (TEL) is not a new concept. Mentioned term (TEL) is used to describe the application of information and communication technologies to teaching and learning. Term *Technology Enhanced Learning* is often used as a synonym for e-learning but can also be used to refer to technology enhanced classrooms and learning with technology, rather than just through technology.

According to Koller et al [2], during new technology development the concept of eLearning, distance learning terms expanded. In all definitions can be identified commonalities: all forms of learning takes place between two parts (a learner and a teacher), learning can be carried out at different times in different locations, using various forms of learning materials. Moreover, TEL uses methodologies that teachers and students can't be separated geographically and learning can be carried out with participants at the same place. In TEL methodologies mentioned that technology plays a secondary role and can be used to supplement traditional learning [2].

According to Kirkwood and Price [3], the term *Technology enhanced learning* is used to describe the usage of information and communication technology in teaching and learning, also to describe broad view to usage of technology in processes of teaching and learning. These authors state that a clear statement on how this concept is understood is rare and there is no evidence that a common understanding has been developed in higher education institutions in order to enhance students' learning experience [3].

Koller et al [2] propose the use of widespread definition, which TEL is learning using TEL content, electronic technology, the Internet, an intranet, satellite broadcasts, audio and video tapes, video and audio conferencing, web conferencing, chat rooms, e-mail. Bulletin boards, web casts, computer training and various memos. TEL aims to design, develop, test technological innovations that contribute to enhance learning opportunities to learners themselves, as well as organizations [4].

In this article estimating TEL definitions traits and characteristics TEL is understood as learning/ teaching form adapted to learning/ teaching at a distance, by electronic, virtual or other means by employing technologies in order to organize the learning/ teaching and to perform other learning/ teaching related actions on the internet. TEL is the broadest concept, which encompasses distance, virtual, electronic, mobile learning as well as learning through social networks [5].

Technology enhanced learning is one of lifelong learning means [6]. According to Koller et al [2], TEL changes teaching and education, offers new technological capabilities to deal with current learning needs. When highlighting this Lucas [6] argues that technology enhanced learning has the potential to transform education and raise the level of education all over the world. Learning by employing various technologies (ICT, the Internet, intranet, social networking, etc.) has become a global phenomenon [7]. According to Casanova et al. [8], ICT in education can be used in different contexts, for different purposes and forms. Use of technologies should be well planned, designed, considered and tested [8].

TEL is penetrating into education systems by replacing tra-

ditional (traditional learning is the way of learning in the classroom when the teacher gives a lecture on specified time and location) learning [9-10]. There is a new generation of learners with different work experience, particular education levels, various learning needs, which join the learning communities using social networking tools [11-12].

2. Possibilities of TEL application in educational organizations

Williams [13] learning culture and organizational learning infrastructure identifies as the key characteristics of a learning organization. Learning culture contributes to a constructive response to new information; adapting it on the basis of successful and unsuccessful experiences, and becoming a stronger, more effective. The learning culture encourages employee's strategic interest in new information and an alternative point of view, develop abilities to resolve conflicts successfully, that successfully developed planning can change according to the development factors. Learning has become a permanent strategic objective. Organizations must have learning support systems at several levels: through leadership, programs or projects. Especially important support comes from senior managers, who are responsible for learning and adaptation processes [13].

Schweizer [14] identifies a number of factors why TEL contributes to the effective education strategy:

- i) TEL is well organized;
- ii) different types of learning materials (texts, sounds, images, games, video conferencing, etc.);
- iii) interactivity learning;
- iv) the teacher becomes a facilitator.

Schweizer [14] states that teachers should be trained to provide training by TEL: become assistants for learners; communicate effectively, personalize the learning environment, lead discussions and administer training course.

TEL provides wide opportunities of social exclusion or reduction of the insulation on the Internet. According to Schweizer [14] for that can be used private sites of learners, team building tasks, learning activities for collaboration, interactive communication between teachers and learners, and learners themselves communication with each other through e-mail or other communication ways [14].

Beer et al. [15] argues that organizations should consider nine major aspects of TEL integration as presented below.

1. The identification of training needs and objectives.
2. Developed and adapted learning content.
3. The time factor combined with learning form.
4. TEL should be accepted positively by employees, they must be included in it.
5. TEL designed and combined with the traditional learning.
6. Interactivity.
7. Timely support from instructors or tutors.
8. An appropriate infrastructure.
9. The return on investment and cost evaluation.

According to Arnold [16], Aceto, Delrio and Dondi [17], Oliver [18], main advantages of TEL are learning independence of time and space, which makes it possible to have a

very flexible learning opportunities and learning more adapted to personal possibilities.

ICT is an essential factor in the modern education system. TEL integration in educational, business or other organizations cannot be imagined without appropriate infrastructure as presented in Ref. [15].

Raza and Allsop [19] describe TEL as an appropriate tool for skills development. In their view, the main TEL advantages: broader possibilities than traditional learning, cost-effectiveness, availability of learning for different types of learners, existing and expanding infrastructure to provide such learning. The authors believe that one of the factors of the spread of TEL - the potential of used technology. These technologies can overcome the shortcomings of existing education systems: quality and different access possibilities to learning systems [19].

Schweizer [14] in accordance with Russell [19-20] argues that TEL quality does not differ from traditional learning. In addition, that the TEL courses would be more efficient, while using high-quality learning opportunities, you need to understand what the important role in TEL environment plays a teacher [14], who, according to Cowan [22] must understand and apply the following strategies:

- a) understand the technology, training programs and education reforms;
- b) know appropriate use of a computer;
- c) refer to researches;
- d) create a detailed plan;
- e) plan alternative assessment;
- f) use already created learning resources (as an example, Open Educational Resources).

Koller, Harvey, Magnotta [2] distinguish five main TEL advantages compared to traditional learning:

- i) availability, learning available anywhere, anytime;
- ii) self-paced learning and alignment to the needs of the learner;
- iii) accessibility for a large number of learners;
- iv) timely updated information;
- v) simplified and efficient providing of learning.

Kahiigi, Danielson, Hansson Ekenberg [23] emphasize that usage of technology in itself does not improve the quality of education, and for the successful development of TEL needed a good understanding of pedagogy and its interaction with technology [23]. These scientists do not support self-learning training and researches, because they believe students are only focused on how to successfully pass the tests and exams.

Bauer, Derntl, Motschnig-Pitrik and Tausch [24] argue that technology in the integration of TEL can enhance learning, only if teachers (preferably helpers, consultants) are "creative people" corresponded to certain interpersonal conditions. Learning atmosphere, explicit communication just depends on them.

According to Blanco et al [25], it is necessary to solve a number of didactic and organizational issues in order to increase the TEL experience in organizations as presented below.

1. **A safe learning environment.** Learners must have a safe environment where they are free to ask questions or contact the teacher and other learners.
2. **Easy learning / using environment.** Learners and education experts among the major challenges for learners mentioned mental fatigue and time pressure. According Govindasamy [26], Technology Enhanced Learning (TEL) should be created from smaller pieces, known as learning objects, short instructions.
3. **Thoughtfully designed learning.** This includes a flexible learning environment, which can use students with different learning styles. Different learning styles can be used to provide miscellaneous learning materials, such as text, video and audio information. Learners often lack information about their own learning process, so providing of different types of learning materials helps them to find out what type of information is the most effective for them.
4. **Feedback and counseling during all learning period.** Good teacher feedback in Technology Enhanced Learning (TEL) course helps learners develop meta-cognitive skills. Additional support for new learners is more effective than a completely self-directed learning. Support levels may be reduced so that the student's competency level rises. Timely established contact with the learner gives him the necessary support.
5. **The possibilities of self-evaluation.** The possibilities of self-evaluation develop the learners' meta-cognitive skills, which increases their independence and autonomy of learning. Regular self-examination leads to better learning outcomes. Self-assessment can be used at various stages of learning and may include computer-based testing, practical exercises and peer review.
6. **Collaborative learning.** Collaborative learning has a positive effect on learning motivation. Different forms of cooperation, such as synchronous (chat and video conferencing) and asynchronous (discussion groups, forums) and the promotion of small-group tasks allow learners to freely ask, answer, and otherwise contribute to the topic.
7. **Time management.** Time management has a positive contribution to the time control, job satisfaction and health. The specific objectives of the course emphasizes the important issues, assess the time required for submission of assignments, course calendar helps to increase learning time control. In Technology Enhanced Learning (TEL) environment students need to manage their own learning pace and tasks. Adults tend to have better-developed time management skills than their younger counterparts [27], but the lack of time is still common problem for adult learners.
8. **Motivation.** For maintenance of motivation various or all previously mentioned methods (creating a sense of community, learning effort recognition of real research examples of cases presentation etc) are employed.

Technology Enhanced Learning (TEL) seeks to improve the student learning experience by following options:

- a) aiding student engagement, satisfaction and retention;

- b) helping to produce enterprising graduates with the skills required to compete in the global business environment;
- c) encouraging inspirational and innovative teaching;
- d) personalizing learning that promotes reflection;
- e) delivering and supporting CPD and internationalization.

3. Research Methodology

We used a mixed research methodology: quantitative (questionnaire) and qualitative (case study) researches. This research is based on seven sets of quality criteria, designed to assess the readiness of TEL integration in educational organization by A.Volungevičienė et al [28]. All questions of qualitative and of quantitative studies were divided into seven criteria groups.

1. Strategy and management.
2. ICT and infrastructure.
3. TEL content (curriculum).
4. Continuing professional development.
5. TEL support system.
6. Quality assurance.
7. Marketing and entrepreneurship.

The goal of the researches is to determine possibilities of application of TEL in Vilnius Business College. Having distinguished the key variables, a quantitative questionnaire was designed and placed on the VBC Intranet. The link was sent to all VBC students. 197 students answered our questionnaire. The data was collected in the period of September – October 2016.

Internal consistency. Internal consistency was estimated by calculating Cronbach α value. The total $\alpha=0,919$ –

which show a very high internal consistency indicator appropriate for the analysis. To check the additional consistency of the questionnaire, a method of split-half was employed: for part one $\alpha=0,905$, of part two $\alpha=0,811$. Mutual correlation of parts equals to 0,730. Guttman split-half coefficient equals to 0,843 (good consistency is indicated by value higher than 0,8).

Respondents. The youngest respondent is 18 years old. The oldest is 51 years old. The average age was 23,42 (standard deviation 4,98). Most of the research participants had secondary education - 165 (83,8%), higher – 20 (10,2%) and vocational – 12 (6,1%). Distribution according to sex contains 129 (65,5%) males and 68 (34,5%) females.

4. Results of empirical researches

4.1. Strategy and management criteria group

Many world-famous universities (Edinburgh, West of England, Bristol, etc.) have developed their own technology enhanced learning strategies that are freely available online. In the strategies presented TEL development plans, discussed the current and future opportunities TEL, strategic plans, etc.

The research indicated that not all statements identifying the strategy are valued equally by the respondents. The responses show that VBC is learning organization with the learning objectives (70,5%) and College management is responsive to student’s initiatives (68,6%) – about 70% of the respondents agree to these criteria (see Fig. 1).

However, the highest numbers of the respondents do not know about VBC strategy (70,6%). Also the respondents have difficulty in recognizing that College teachers apply various technologies (41,6%).

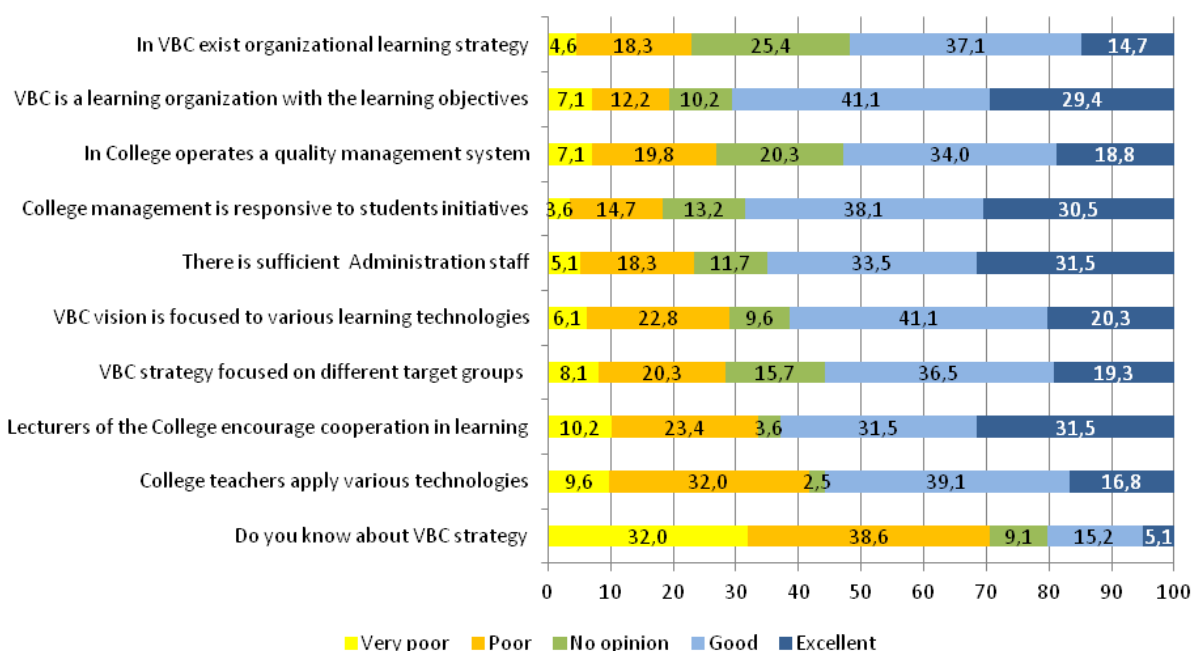


Fig. 1. Expression of each criterion within Strategy and management criteria group.

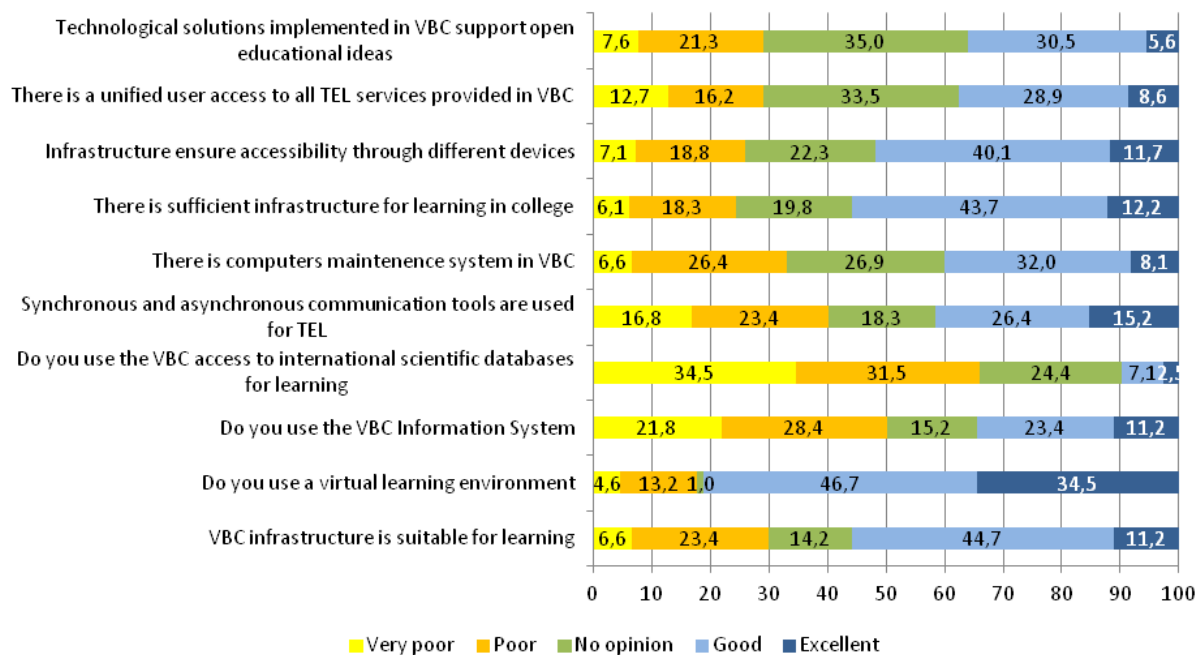


Fig. 2. Expression of each criterion within ICT and infrastructure criteria group.

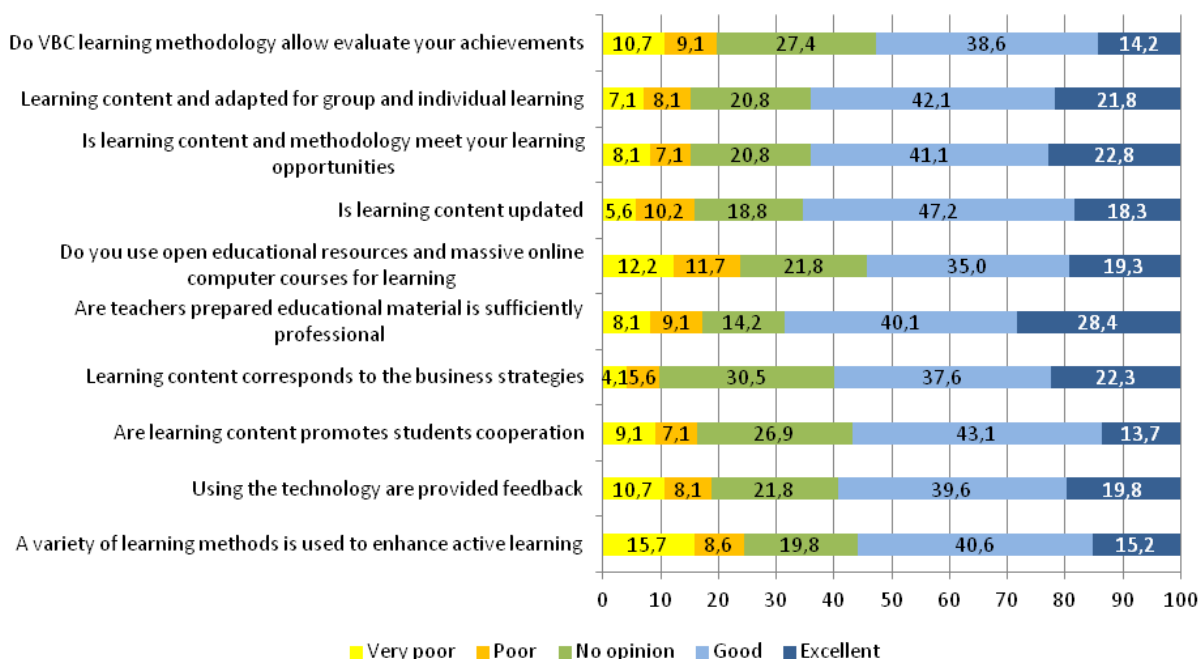


Fig. 3. Expression of each criterion within TEL content (curriculum) criteria group.

4.2. ICT and infrastructure criteria group

In this criteria group we also have differently valued statements (Fig. 2). 81,2% respondents state that they use virtual learning environment. More than 50% of the respondents agree to the statements that VBC infrastructure is suitable for learning (55,8%), there is sufficient infrastructure for learning in college (55,8%) and that infrastructure ensures accessibility through different devices (51,8%). However, 66% of the respondents do not use the VBC access to internation-

al scientific databases for learning and 50,3% do not use the VBC Information System.

4.3. TEL content (curriculum) criteria group

In TEL content (curriculum) criteria group all positive estimates are more than 50% (Fig. 3). Even 68,5% of the respondents state that teachers prepared educational material is sufficiently professional and 65,5 agree that learning content is updated constantly.

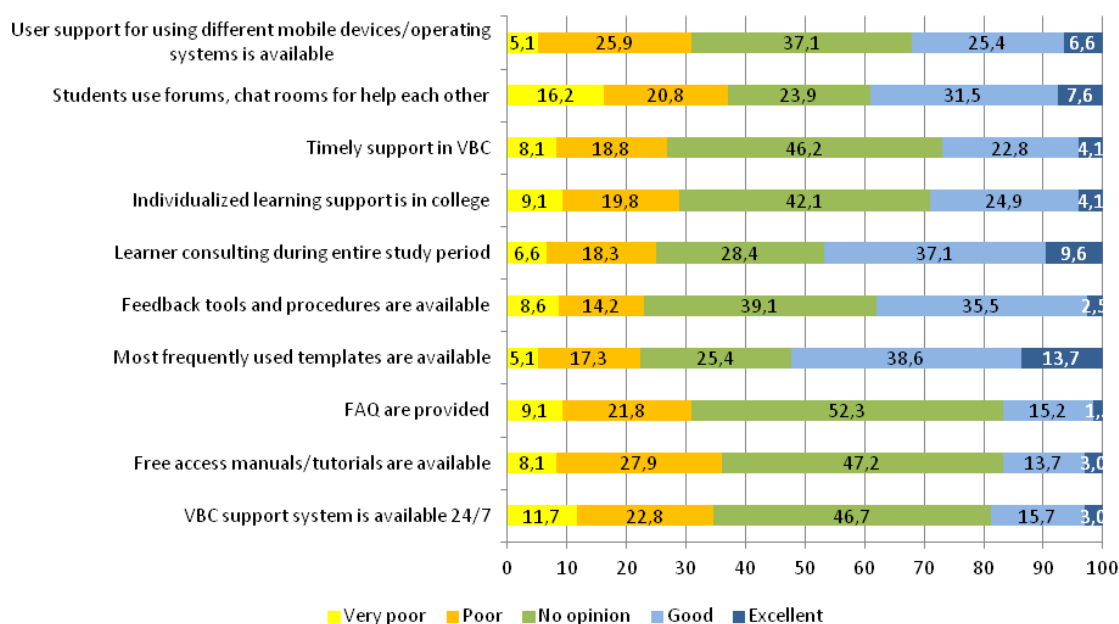


Fig. 4. Expression of each criterion within TEL support system criteria group.

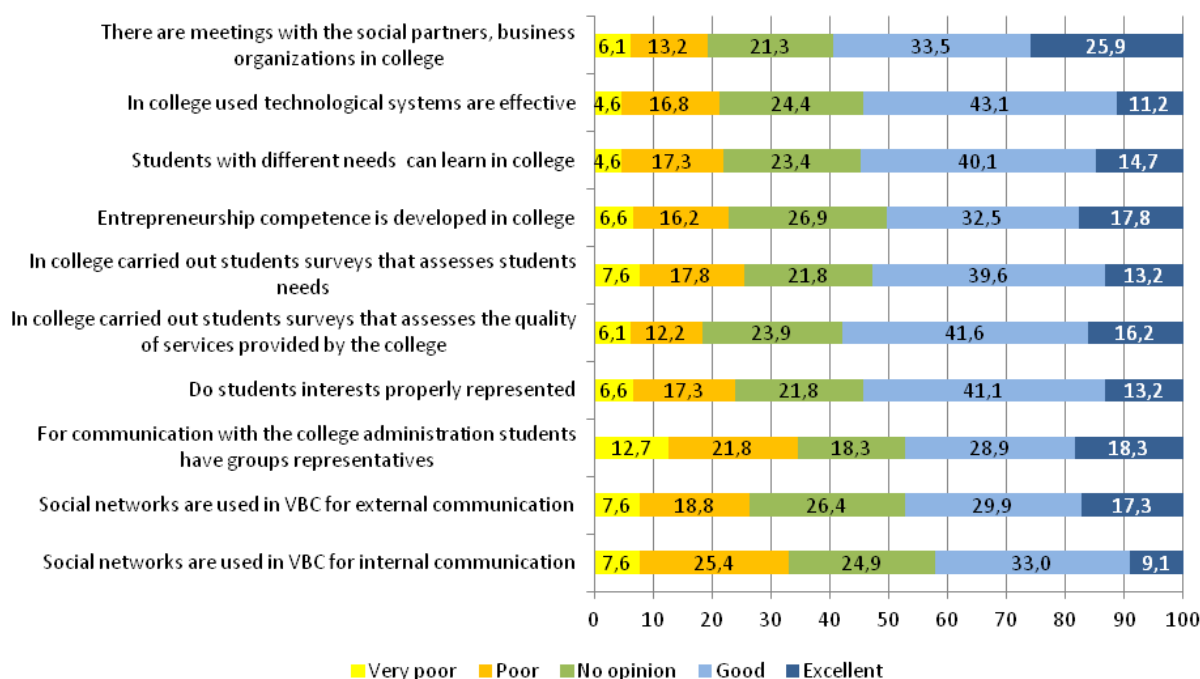


Fig. 5. Expression of each criterion within Marketing and entrepreneurship criteria group.

4.3. TEL support system criteria group

In TEL support system criteria group, mainly students did not know how to answer the questions and selected answer *No opinion* (see Fig. 4). Only one statement is rated more than 50%. Most frequently used templates are available (52,3%). The respondents have difficulty in recognizing that use forums, chat rooms for help each other (37,1%) and that free access manuals or tutorials are available (36%).

59,4% of the respondents state that there are meetings with the social partners, business organizations in college and 57,9% state that in college carried out students’ surveys that assesses the quality of services provided by the college. But 34,5% do not agree that students have groups representatives for communication with the college administration and 33% of the respondents do not agree that social networks are used in VBC for internal communication.

Table 1. Short summary of the research.

N	Option	N	Option
1.	Vision of organization encourages TEL implementation.	16.	Learning content is adapted for group (individual) learning.
2.	TEL policy is focused on the learners.	17.	There are requirements for teachers (for all staff).
3.	Promotion of organizational learning; cooperative learning.	18.	OER accessibility.
4.	TEL strategy focused on different target groups and stakeholders.	19.	Planning of staff training.
5.	Top-level executives reacting to the initiatives raised by employees and students.	20.	Institutional recognition of learning outcomes.
6.	Use of TEL environment.	21.	Learners consulting during entire study period.
7.	Investment in ICT and infrastructure are planned.	22.	Individualized support system.
8.	Protection of IT system (resources).	23.	Support for many operating systems, different devices users.
9.	There is ICT support staff.	24.	Assessment of TEL content quality.
10.	Infrastructure ensures learning accesses, using different equipment.	25.	Internal and external evaluation of TEL content in organizations.
11.	The constructivist approach to learning.	26.	Quality assurance procedures of TEL content.
12.	Usage of social networking for learning.	27.	Quality management system.
13.	Different learning content.	28.	Participation in social networking.
14.	Usage of Open educational resources.	29.	Assessment of the effectiveness of communication.
15.	Learning content and workload is based on the ECTS / or competencies.	30.	The organization's marketing strategy, marketing plans.

5. Qualitative research

Case study was employed to analyze TEL peculiarities of Vilnius Business College. VBC was founded in 1989 as one of the first non-governmental higher education institutions. In 2001 it was granted the status of non-university / college higher education institution and the right to provide students with the higher education diploma. Since 2007 Vilnius Business College is a higher education accredited school that provides occupational Bachelor's degree in the fields of humanities, social and physical sciences.

Data for the case study was collected in several ways:

- a) semi-structured interviews with the College Director, Deputy Director and 3 heads of departments;
- b) examination of organization documents (statutes, management programmes and monitoring plan and records, programs of management system objectives implementation, the management manual).

The case study was carried out from October to November in 2016. The research was carried out within 3 days in the premises of VBC. The average recording time was about one and a half hour.

This case study is significant because it allowed to perform a detailed examination of peculiarities of technology enhanced learning integration in VBC. Here we can present only short basics findings - see Table 1.

Conclusions and recommendations

To achieve TEL integration in organizations successfully, it is vital to combine relevant learning content, suitable learning ways, collaboration of employees, lecturers and students, and estimation of learning process results.

TEL provides great opportunities for learners: to choose the place to study, the perfect timing and way to gain knowledge quickly, it also allows using various learning materials, reducing social disjuncture or isolation on the internet.

Advantages of TEL could be formulated as follow:

- i) individualization of learning;
- ii) greater opportunities compared with traditional learning;
- iii) cost efficiency;
- iv) accessibility to learning material for various types of learners;
- v) simplified and efficient provision of learning.

For the successful integration of TEL in educational organization it is necessary to create a safe, easy-to-use learning environment, to design carefully the learning process, to ensure a feedback and consulting during the learning period as well as self-assessment possibilities, to use the collaborative learning and to enhance the learning motivation. Furthermore, during the period of integration it is essential to pay attention to the problems of TEL determined by some scientists and the ways to solve those problems as follows: a) problem due to a big amount of early school leavers; b) integration of TEL regardless of plans and strategies; c) needs for staff and heads; d) absence of investments into education; e) lack of appropriate material and software as well as computer literacy; f) inappropriate ICT infrastructure.

During the period of TEL integration an educational organization should follow some recommendations.

1. It should be analyzed TEL criteria and planned implementation.
2. It should be evaluated the application of TEL integration criteria in each criteria group. Accordingly, the organization should review the strategic documents, the

- requirements of ICT infrastructure, staff professional development, learning content, support system, quality assurance and marketing.
3. Executives of organization should prepare the detailed integration guidelines for TEL integration criteria in the organization.
 4. If an organization uses TEL, it is recommended to appoint a responsible person who would investigate if the TEL integration criteria are being observed and would plan the ways to eliminate the determined drawbacks.

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Zipf and Related Scaling Laws.

3. Literature Overview of Multidisciplinary Applications (from Informational Aspects to Energetic Aspects)

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Received 22 October 2016, accepted 30 December 2016

Abstract. Review of the most significant application of scaling laws in communications and natural sciences is presented. Nine themes are observed: human as well as non-human communications, bibliometric impacting problems, website distributions, social activity (including sport and music), physics, geology, geography, chemistry, biological systems.

Citations: Giedrė Būdienė, Alytis Gruodis. Zipf and related scaling laws. 3. Literature overview of multidisciplinary applications (from informational aspects to energetic aspects) – *Innovative Infotechnologies for Science, Business and Education*, ISSN 2029-1035 – **2(21)** 2016 – Pp. 12-19.

Keywords: Zipf law; power law; H-index.

Short title: Zipf law - multidisciplinary - 3.

Introduction

Zipf law belongs to the well-known class of power law which are significant in modelling the communicating as well as economic human activity. Based on the ranked distribution of certain items in the finite set, power law allows estimating the artificial or natural character of the item sequence (informational assumption) or energetically quantized distribution (physical assumption). In our previous review publications [1-2], scaling laws in economics (including urbanistic) and quantitative linguistics (natural and artificial languages) were observed. This review discloses the analysis of the most significant application of scaling laws in communications and natural sciences.

1. Informational vs physical approaches of item sets

In 1949 George Zipf found out word frequency dependence on word rank [3], which, in its simplest case, represents hyperbolic function. Zipfian distribution relates frequency $f(r)$ of item occurrence in finite corpus to item rank $r(w)$ according to Eq. (1).

$$f(r) = \frac{\alpha}{r^\gamma} \quad (1)$$

Benoit Mandelbrot [4] proposed the generalized expression of Zipf distribution as a discrete probability distribution:

$$f(r) = \frac{\alpha}{(1 + \beta r)^\gamma} \quad (2)$$

Adjustable parameters α , β , γ are different for different languages. For finite English corpus, $\alpha \approx 0.1$, $\gamma \approx 1$.

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Table 1 represents Zipf and related scaling laws in different applications. There are many fields in informatics as well as in natural sciences where power law distributions are significant in modelling the complex system. By observing the statistical distribution in social studies, Zipf law originally describes the relationship between size and rank of discrete item.

Zipf law represents a variant of Pareto law (1927) known as the 80/20 rule (roughly 80% of the effects come from 20% of the causes, see Ref. [1] for details). Many ranked distributions could be fitted using power law with exception at the tail (long tail problem). Naumis et al [5] investigated this problem to create a general mechanism. Using the concept of macro states, the discrete probability distributions could be treated as complex distributions containing stretched exponential like frequency-rank functions. Tomita et al [6] investigated the random multiplicative process (RMP) which can generate a power law distribution. They have been established that RMP distribution contains two profiles: at head a log-normal distribution and the tail a power law distribution.

Traditionally, power law functions are applicable for growing systems. Ree [7] described the model containing N elements. Main rule of interactions could be formulated as follows: conservative two-body collisions are only allowed (sum of quantities is conserved). This model exhibits the scaling behaviour for some parameter ranges, when the growth of system is not expected. As Ree claims, presented power-law distribution model is useful for generation of scale-free networks when only rewiring is allowed.

Table 1. Zipf and related scaling laws in different applications.

Nr.	Name	Exponent	Ranked distribution	Source
1.	Zipf law	≈ 1	frequency of words (items)	[1,2]
2.	Zipf-Mandelbrott law	≈ 1	frequency of words (items)	[1,2]
3.	Heaps law	$0.4 \div 0.6$	vocabulary	[2]
4.	Herdan law	< 1	signal systems	[2]
5.	Lotka law	2	frequency of publications by authors	[2]
6.	Benford's law	≈ 1	reference search in scientific databases	this
7.	Bradford law	≈ 1	search in science journals	this
8.	Piotrowski law	≈ 1	processes of language changes	[2]
9.	Gibrat law	≈ 1	grow of cities and firms	[1]
10.	Pareto law	≈ 1	relationship between effect and cause	[1]
11.	Robert law	≈ 1	executive compensation	[]
12.	Lognormal law	-	probability and statistics	[2]
13.	Weibul distribution	-	probability and statistics	[2]
14.	Manserath-Altman law	-	influence of constituents	[2]
15.	Aren law	-	process modelling	[2]
16.	Yule law	≈ 1	probability and statistics	[2]
17.	Stefan-Boltzmann law	4	thermodynamic distribution	this
18.	Gutenberg-Richter law	≈ 1	magnitude and frequency of earthquakes	this
19.	Steven power law	≈ 1	distribution of magnitude of physical stimuli	-
20.	Barabasi-Albert law	≈ 1	network theory	-
21.	Kleiber law	0.75	metabolic parameter of animals on their mass	this
22.	Gompertz Makeham law	≈ 1	mortality	-

Bashkirov [8] described the possibility to use the equilibrium distributions of probabilities, which was derived from the maximum entropy principle (MEP) for the Renyi and Tsallis entropies. Renyi entropy $H_\alpha(X)$ of order α generalizes the Shannon entropy with estimating of randomness of a system [9]:

$$H_\alpha(X) = \frac{1}{1 - \alpha} \left[\sum_{i=1}^n p_i^\alpha \right] \quad (3)$$

Limitations of order α could be described as follow: $\alpha \geq 0$; $\alpha \neq 1$.

Tsallis entropy [10] allows estimating the degree of disorders in the multifractals. Let us assume the existing of a discrete set of probabilities p_i with the condition

$$\sum_i p_i = 1 \quad (4)$$

and q (any real number) represents an entropic index. Tsallis entropy S_q is defined as

$$S_q(p_i) = \frac{k}{q - 1} \left[1 - \sum_{i=1}^n p_i^q \right] \quad (5)$$

For $q \rightarrow 1$, Eq.(5) transforms to Boltzmann-Gibbs entropy expressed by Eq.(6):

$$S_{BG} = S(p) = -k \sum_{i=1}^n [p_i \log p_i] \quad (6)$$

Bashkirov [8] found that the maximum is realized for q within the range $[0.25 \div 0.5]$ and the exponent is present in interval $[1.3 \div 2]$.

Question about similarity of advanced aspects of linguistics and natural sciences has been quite old and unanswered until now. Firstly, mathematical approach allows to simulate the distribution by means of hyperbolic, exponential or power law functions to create dictionaries according to frequency principle. Secondly, statistical approach of items (philology, informatics) or events (physics, geology) allows to establish the sequence of cause-consequence with following law making. Due to such circumstances, item ranking distribution related to the certain natural language must be analysed from the statistical point of view.

2. Human communications

By choosing the model, Piantadosi [11] starts from realising the empirical phenomena in several fields including human via machine communication: random typing, organization of any semantic systems, optimization of certain communications, operating systems for computers. In many cases, several levels of organization must be formulated. Aitchison et al [12] provided with intuitive explanation of Zipf's law (explanation applies to a particular dataset).

For human communication, language must be treated as a macrosystem which consists of microsystems. Yoon Mi Oh [13] presented several linguistic microsystems as phonology, morphology, syntax, and semantics) and the meso-systemic interaction between these microsystems. Multi-scale approach requires recognising the phenomenon of self-organization (through existence of scaling laws) by means of macro-, meso-, and microsystemic levels [14]. Cognitive as-

pects of the language learning can be defined in two following statements.

Firstly, Erman et al [15] provided corpus analysis to determine the communication type. They found out the occurrence of prefabricated sequences even though "open choice" among all available words from known dictionary were possible. This fact must be treated like some sort of optimisation of conversation through clusterization.

Secondly, in the time-domain scale, different fused item derivatives could be fixed. Historical changes in vocabulary could be estimated by analysing patterns of co-occurrence. Sentence of Joan Bybee, that "items that are used together fuse together", cited in Ref. [16], expresses the behaviour of a modern language to accumulate all forms originated in the fusion process.

3. Non-human communications

Ferrer-i-Cancho et al [17] investigated the dolphin whistle types to be used in specific behavioural contexts. To establish hypothesis about dolphin whistle as meaning (communicating approach), the presence of Zipf law in dolphin whistle types was found. Suzuki et al [18] investigated the whistle type communication of animals such as bottlenose dolphin - *Tursiops truncatus*. Authors postulate that Zipf-based technique is methodologically inappropriate for investigation the features of human language in the nonhuman communication of animals.

McCowan et al [19, 20] analysed the complexity of nonhuman animal communication systems in comparison with human language. Whistle vocalizations of bottlenose dolphin - *Tursiops truncatus* were classified through the first-order entropic relation in a Zipf-type diagram. Estimation of internal informational structure of animal vocal repertoires using slope of Shannon entropies allows comparing and predicting the organizational complexity of "speech" system across the diversity of species. In terms of behavioural ecology, McCowan discussed the main statements about predictions on the structure and organization of animal communication systems. Presence or changes in n -gram structure in a signalling data set [21] play the main role in noncoded natural communication systems. In that case, by fitting the item dependence using power law, Zipf slope (with exponent of ≈ 1) must be treated as the main condition for recognising the human languages.

4. Bibliometric classification (including impacting)

The impact factor represents a parameter as frequency with which the certain article has been cited in a certain year. Impact factor depends on scientific weight of the journal and allows estimating the importance or rank of a journal in time-dependent scale. In generally, the impact factor dependen-

Table 2. Distribution of leading digits $P(n)$

n	$P(n)$
1	0.301
2	0.176
3	0.125
...	...
8	0.051
9	0.046

cies are related to the power-law.

Bradford's law (or Bradford's law of scattering) describes the distribution of objects (items, text concepts, words, etc) in the finite opus [22]. In 1934 Bradford described the grouping of journals into three groups when the number of journals in each group (C_1, C_2, C_3) is proportional to powered numbers:

$$C_1 : C_2 : C_3 = 1 : n : n^2 \tag{7}$$

$$C_1 : C_2 : C_3 = n^0 : n^1 : n^2 \tag{8}$$

Numbers $1:n:n^2$ are called Bradford numbers. Due to clasterization of such type, Bradford expressed the idea of "core" group. Nowadays, different researchers in different fields have different numbers of core journals, and different Bradford multipliers.

Benford's law [23] (or first digit law) expresses the frequency distribution $P(n)$ of leading digits on n . For in set of numerical data $n \in \{1,2,3,4,5,6,7,8,9\}$, the distribution is presented in Table 2.

$$P(n) = \log_{10} \left[\frac{n+1}{n} \right] = \log_{10} \left[1 + \frac{1}{n} \right] \tag{9}$$

$$P(n) = \log_{10}[n+1] - \log_{10}[n] \tag{10}$$

Benford law satisfies many functions - especially functions constructed as the result of mathematical production of numbers: e.g. quantity multiplied by price, transaction data of sales, etc.

In 2005, Jorge E. Hirsch [24] presented a tool for estimating of productivity and relative quality in are of theoretical physics. So called Hirsch-index (or H-index) allows measuring the citation impact of the publications of a scientist. As an example, let us take a scientist after 20 years of academic carrier. After having published Z papers each of which has been cited in other papers at least C times, carrier of mentioned academic will be estimated with H -index:

$$H_1 = z_1 = c_1 \tag{11}$$

in case if $z_1=c_1$. Fig. 1 represents the situation when $H_1=12$. While comparing the scientific activities of scientists working in the same field, this routine works properly.

Egghe [25] presented critical analysis of experimental data of Mansilla [26]. Mansila found out that rank distribution of the logarithm of these impact factors has a typical S-shape: first a convex decrease, followed by a concave decrease. Egghe tied to explain the S-shape using additional perturbations. These distributions are valid for any type of im-

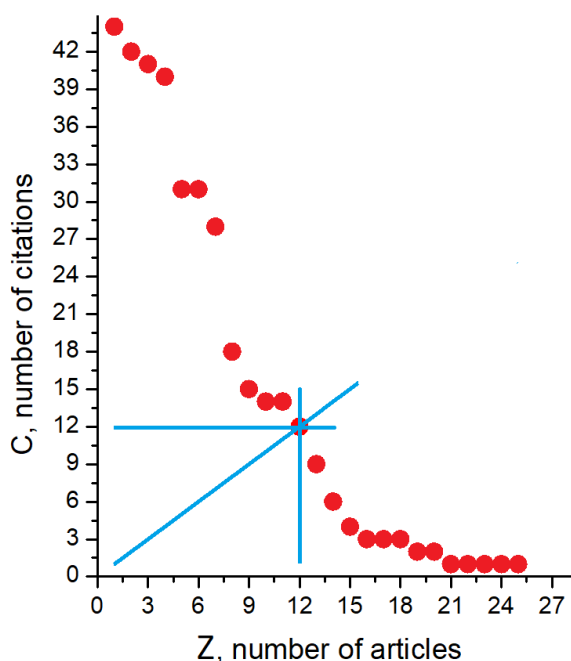


Fig.1. Distribution of article citation frequency C on ranked number of published articles Z : data of certain scientist. $H_1=12$ (in case if $z_1=c_1=12$).

pact factor (any publication period and any citation period). This means that some psychological factors are significant in selecting the citation behaviour. Egghe [27] also investigated the power law transformations when Lotkaian system is transformed into another Lotkaian system, described by a new Lotka exponent.

De Solla Price [28] critically reinvestigated the empirical results of citation frequency analysis using appropriate underlying probabilistic theory for the Bradford Law, the Lotka Law, the Pareto and Zipf Distributions. The advantages of Beta Function were presented and discussed.

Beirlant et al [29] criticized the usual routines for statistical impacting. They presented the rescaling of journal impact factors on a macro level which requires to categorize the objects into a standardized distribution (in quite different areas of research). Also, Beirant presented an alternative way to estimate the impacting in opposite to the Hirsch index [24]. In many cases, citation distributions could be fitted by Lotkaian-Zipf-Pareto behaviour. Extreme value index can be interpreted as the slope in a Pareto-Zipf quantile plot. Beirlant index, in contrast to the Hirsch index, is not influenced by the number of publications but stresses the decline of the statistical tail of citation counts. It appears to be much less sensitive to the science field than the Hirsch index.

Wallace et al [30] investigated the distribution on not cited papers or of highly cited papers, with respect to the bulk of publications. Over the 1900÷2006 period, data base contains $25 \cdot 10^6$ papers and $600 \cdot 10^6$ references from the Web of Science.

Wallace established several statements that the proportion of cited papers is a function of: i) the number of articles avail-

able (the competing papers); ii) the number of citing papers; iii) the number of references they contain. Wallace demonstrates the citation distributions over the 20th century in form of the stretched-exponential function and a form of the Tsallis q -exponential function. Both approaches are empirically differently from power-law fits.

Silagadze [31] described a curious observation with the rank statistics. Ranked scientific citation numbers follows Zipf-Mandelbrot's law in the same manner as some simple random citation models. This means that peculiar characters of the complex process are absent - due to the stochastic nature.

5. Website distribution

Adamic et al [32] analysed the web caching strategies, which are formulated by means of Zipf distribution in the number of requests for web pages. Krashakov et al [33] investigated the logs collected several web caches in Russian academic networks. Several statistical parameters such as duration of data collection, geographical location of the cache server collecting data, and the year of data collection - were analysed. Two-parameter function of the Zipf law type was used for popularity estimation of web site. Krashakov concluded that popularity must be treated as the universal property of Internet. Cattuto et al [34] analysed the social annotation system using the concepts borrowed from statistical physics, such as random walks (RWs), and complex networks theory. Lambiotte et al [35] analysed the word statistics as word occurrences and of the waiting times between such occurrences in Blogs. Consideration of two limiting cases such as the dilute limit the dense limit for frequent word) allows allow to estimate the distribution of waiting times as stretched exponential function.

Levene et al [36] tried to explain the empirically discovered power-law distributions (with exponent >2) for Web evolution. They proposed the extended evolutionary model of the Web to analyse the stochastic processes: a) the distribution of incoming links; b) the distribution of outgoing links; c) the distribution of pages in a Web site; and d) the distribution of visitors to a Web site. This work represents the formal proof of the convergence of the standard stochastic model.

Ebel et al [37] studied the topology of e-mail networks with e-mail addresses. A scale-free link distribution represents the resulting network like small-world in other social networks. Due to established circumstances of random architectures, it is possible to estimate the spreading of e-mail viruses.

6. Social activity

Cox et al [38] examine the commercial success in the popular recorded-music industry, as measured by gold-record output. For the number of artists with one gold record, Lotka's law distribution is not valid due to overestimation. However, for

all measures of "successful" records, the fit is excellent. Beltran del Rio et al [39] analysed the power law fit for more than 1800 musical compositions including classical, jazz and rock music. Distribution of notes for each octave and its relationship with the ranking of the notes was estimated as an object for future investigations.

Blasius et al [40] analysed extensive chess databases. They concluded that the frequencies of opening moves are distributed in accordance to the power law. Exponent depends on the game depth. Pooled distribution of all opening weights follows Zipf's law with universal exponent. Blasius found out that in the case of hierarchical fragmentation, the scaling is truly universal and independent from the generating mechanism.

Malacarne et al [41] analyse the goal distributions by goal-players and by games (in football championships). Goal distributions are well adjusted by the Zipf-Mandelbrot law.

7. Physics

In physics, there are many distributions of particles on energy parameters. One of best known **Stefan - Boltzmann law** describes the peculiarities of black-body radiation. Black-body radiant emittance j (as radiated energy E per unit time t per unit surface area A) is directly proportional to the fourth power of absolute temperature T :

$$j = \frac{E}{At} = \sigma \cdot T^4 \quad (12)$$

σ represents Stefan-Boltzmann constant. Stefan - Boltzmann law is derived theoretically from Planck distribution as the first assumption for the ideal black objects only. For real objects (grey bodies), grey-factor must be included. Stefan-Boltzmann law is valid approximately as the second assumption.

Kristiansen et al [42] studied a dynamical few-body system made up of micrometer-sized plastic spheres dispersed in a ferroliquid driven by external magnetic fields. Dynamics of a of microparticles was described by mathematical braid theory. Rank-ordering statistics shows a large power-law region in consistency with the Zipf-Mandelbrot relation.

Hernando et al [43] investigated model system through systems' thermal properties. Considering the non-interacting scenario, scale-free ideal gases (SFIGs) model is successful for modelling of distribution such disparate systems as electoral results, city populations and total citations in Physics journals, that seem to indicate that SFIGs do exist. Zipf's law can be understood in a thermodynamic context as the surface of a finite system. Kaniadakis [44] investigated the relationships between the Boltzmann-Shannon entropy and the Maxwell-Boltzmann distribution. He pointed out that Maxwell-Boltzmann distribution (expressed in terms of the exponential function) is obtained by maximizing the Boltzmann-Shannon entropy under proper constraints.

8. Geology

Gutenberg - Richter law, GR law expresses most important relationship in seismology. Let us assume the existence of any seismic active region. Total number of earthquakes N at finite time interval is related to the magnitude of earthquake M :

$$N = 10^{\alpha - \beta * M} \quad (13)$$

$$\log_{10} N = \alpha - \beta * M \quad (14)$$

Values of α and β may be different for different regions and can vary over time due to physical activity of Earth core. In seismic active region, $\beta \approx 1$. α value represents the total seismicity rate N_{tot} typical for selected region. Derived from basic Eq.(13), number of events N characterized by given magnitude M is expressed by Eq.(15), where total number of events N_{tot} and probability of those events p takes place.

$$N = 10^\alpha 10^{\beta * M} = N_{tot} * p \quad (15)$$

$$N_{tot} = 10^\alpha \quad (16)$$

$$p = 10^{\beta * M} \quad (17)$$

Crampin et al [45] have reviewed the recent status of seismology related to the applications of Gutenberg - Richter law. Data of earthquakes in Earth and Moon were used to recognize the type of events. Full implications of the GR linearity are not generally recognised. Authors claim that the underlying physics is non-linear and not purely elastic. Any new suggestions are necessary, for example, fluid-rock deformations arise the fluid-saturated micro-cracks. The observation of linear GR dependence in moonquakes suggests that residual fluids exist in depth of the Moon.

Bhattacharyya et al [46] derived common model for two different objects. Firstly, ideal gas-like market model was used for the distribution of money among the agents with random-saving propensities (Pareto law). Secondly, fractal-overlap model for earthquakes was used for distribution of overlaps (GR law). Authors conclude that the power law appears as the asymptotic forms of ever-widening log-normal distributions in both cases.

Analysis of distribution of the calm times (time intervals between successive earthquakes) on arbitrary values of magnitude was done by Abe et al [47] using statistics of seismic time series data in California and Japan. Nature of the earthquake phenomenon was studied in the framework of the Zipf-Mandelbrot power law. Long tail of the distribution does not allow the statistical estimation of calm times.

Nagumo et al [48] investigated the lunar surface area being damaged by collisions of meteorites. The crater size-frequency distribution could be approximated by power law with one exception: at abscise interval about 4 km in diameter, the bending point is present. The above mentioned irregularity could be explained by effects of secondary craters (collision after the primary collision) and/or size-frequency distribution of the impactors.

Merriam et al [49] described the problem of success in resource assessment of mining and petroleum. Distributions of oil- and gas-field size in Kansas, the occurrence of historic earthquakes that affected the state, were estimated by means of Zipf law. Some limits of Zipf law are discussed too.

9. Geography

Primo et al [50] investigated the application of Zipf law in climatology. Usage of the exponential functions derived from the resulting scaling laws allows characterizing the rainfall temporal aggregation patterns. Authors proposed an original model related to the coding of precipitation as a discrete variable with four states. According to the item conception in linguistics, each weekly symbolic sequence of observed precipitation was encoded as "word" or set of items, and each local station defines a "own language" characterized by the observed "words" in the representative period. For "language" characterization, exponents were derived from the Zipf law. Different scaling behaviours for different subclimates (for humid tropical climates and polar climates) were received.

Holmes et al [51] investigated the application of the generalized Pareto distribution (GPD) for the statistical analysis of extreme wind speeds. The GPD is closely related to the generalized extreme value distribution (GEVD) and can be used to determine the appropriate value of shape factor.

Mitchell et al [52] analysed the seascape topology. High-resolution vertical profiles were estimated through Zipf analysis. Zipf exponents ranged within the interval $[0.043 \div 0.83]$.

10. Chemistry

Benz et al [53] described the power-law distributions in cheminformatics. The classification objects are rigid segments and ring systems, the distributions of molecular paths and circular substructures, and the sizes of molecular similarity clusters. The characteristic exponents of the power-laws lie in the interval $[1.5 \div 3]$. Several unique features also follow Heaps laws. Prediction of the growth of available data in large chemical databases could be estimated using Heaps law. Optimal allocation of experimental or computational resources follows the 80/20 - Pareto rule (see Ref. [1]).

Furusawa et al [54] studied the evolutionary origin of general statistics in a biochemical reaction network. They used cell models with catalytic reaction networks. By analysing the power-law distribution of reaction links and the power-law distribution of chemical abundance, it was concluded that inhomogeneity in chemical abundance is related to the higher growth rates of cells.

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11. Biological systems

Mora et al [55] claim that all biological systems are working at a special thermodynamical state, the critical point. Due to that, explanation for Zipf's law is related to the distribution over states of an equilibrium system (Boltzmann statistics).

Kleiber's law [56] claims that metabolic rate of animals q is proportional to the γ power of animal mass M . For animals, $\gamma=0.75$, for plants, $\gamma \approx 1$.

$$q \approx M^\gamma \quad (18)$$

Seuront et al [57] used Zipf and Pareto methods as data analysis methods to classify space-time patterns in marine ecology for identifying and classifying the certain structure in their data sets. Analysis of characteristic shapes according to Zipf's law allows recognising the specific components in mixing processes involving non-interacting and interacting species, for example, phytoplankton growth processes.

Alvarez-Ramirez et al [58] investigated the dependencies related to the world track records (WTR). They concluded that Zipf-Mandelbrot scaling law is useful for accurate fitting. During the race, the human energy release dynamics is limited by metabolic energy balances through several hierarchical relaxation processes. This is the main reason for existing of power-law behaviour of WTR.

Fontanelli et al [59] presented novel probability distribution function containing two fitting parameters a and b and normalization factor C . Authors suggested that parameter a is associated with the behaviour which leads to the power law, whereas b is associated with the fluctuation in noise. Distribution parameter X represents the ranked set, when rank r and N - maximum rank.

$$X = C * \frac{(N + 1 - r)^b}{r^a} \quad (19)$$

Fontanelli claims that Eq.(19) (so called LaValette distribution) is a good alternative for non-zipfian distributions - when usage of Zipf's law is inaccurate.

Conclusions

1. Power function dependence in Zipf law realization allows us to conclude that popular regularities in natural science (physics, chemistry, geology, biology) can have the common stochastic origin.
2. In communications, power law represents influence of human behaviour where language as a communication tool can be used. Zipfian and lotkaian dependencies are useful for information search and clustering purposes.

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Theoretical Assumptions Regarding a Tour as a Social Phenomenon

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Received 10 November 2016, accepted 25 November 2016

Abstract. The article based on meta-analysis of scientific and methodical literature examines a tour as a social phenomenon as well as highlights its main assumptions. This work also presents the tour structure with respect to the change of the concept as well as its main components and functions.

Citations: Romas Prakapas, Dalia Prakapienė. Theoretical Assumptions Regarding a Tour as a Social Phenomenon – *Innovative Infotechnologies for Science, Business and Education*, ISSN 2029-1035 – **2(21)** 2016 – Pp. 20-23.

Keywords: tour; guide; tourist.

Short title: Tour as Social Phenomenon.

Introduction

The Amended Law of the Republic of Lithuania on Tourism [1] states that a tour is visiting objects or areas by a planned route in the presence of a guide that is less than a day long. Similarly, a relatively succinct description given in general Lithuanian dictionaries [2-4] is often repeated by Lithuanian authors. Most of the publications in Lithuanian [5-8] are primarily intended for practitioners and students studying tourism business. Only a few Lithuanian authors [6, 9-13] try to look at this phenomenon from an academic perspective, analyzing its separate components.

Looking at it from a more global aspect, we can see that both: tours as well as their participants, i.e. guides and tourists, are analyzed from various scientific aspects. English-speaking authors [14-15] barely analyze the phenomenon compared with the attention it gets from the scientists in Russia and Russian-speaking countries [16-20]. However, having analyzed existing scientific, methodological and legal literature on tourism business and a tour as one of its components, it is clear that a tour as a social phenomenon is analyzed rather fragmentarily.

The problem is the lack of focus in the scientific discourse on the phenomenon of a tour is mostly attributed to practice rather than scientific area. The aim is to reveal the main theoretical assumptions regarding a tour as a social phenomenon. The article was prepared using the methods of meta-analysis, comparison, and generalization of scientific and methodological literature.

1. The Change of the Tour Concept

Journeys which are aimed to get to know the surrounding world often in order to conquer it, had been widely described

by various Antique authors. Journeys on foot, horses, carriages, ships when the rich purposefully would travel to Egypt and Greece bathing waters, sea resorts as well as holy places were often mentioned in various literature sources. As it is well known, the ancient Rome is associated with the appearance of the first hotels (or their prototype). In 476 after the collapse of the Roman Empire the demand for the trips and, therefore, accommodation declined.

Travelling revived only in the Middle Ages when trading and pilgrimage became more active. According to Svetikienė [21], at that time the number of religious trips increased - people would go to bow to the Christian and Muslim shrines. The Renaissance and the Enlightenment, however, revealed a new motif of travelling - individual trips for educational purposes. The society believed that only the ancient world had what was useful and graceful to a man. Quite often at that time, following the traditions of the nobles, education of a young man would be completed with a large tour around Europe in order to successfully launch a professional and political career in the country.

One of the most striking examples of the Grand Tour that survived up to these days and has become a classical example of epistolary prose, is the correspondence between the famous British politician F. D. Stanhope and his illegitimate son while on the latter's Grand Tour around Europe [22].

In the XVIII century there was an increase in trips for medical purposes. People were attracted by mineral springs with unique healing properties, thus creating or expanding cities there, building health resorts as well as nursing homes. Naturally, along with the treatment, there was a need for a variety of entertainment. As a result, special organizers offering various leisure activities began to emerge.

A bit later, at the end of the XIX century and the beginning

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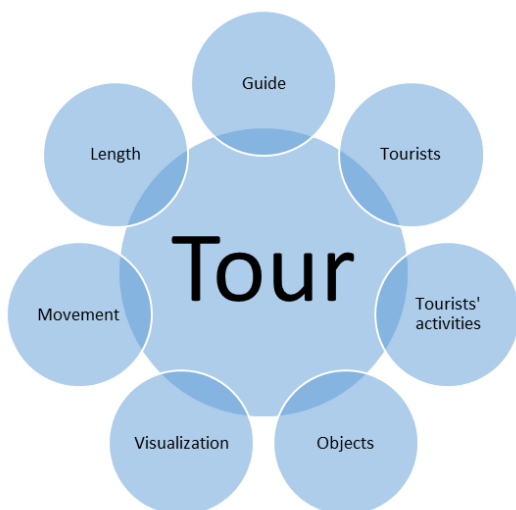


Fig. 1. Key Tour Features.

of the XX one, especially after World War II, mass tourism began to develop. It is claimed that during this period the real tourism business was formed, keeping pace with the other industries in terms of its scope, network of institutions and organizations, product diversity, organization management methods. At that time, a wider range of travel motives and objectives, i.e. recreational-therapeutic, business, sightseeing, scientific, etc., were formed as well.

Tour as a term translated from Latin means an attack. *Current Lithuanian Dictionary* [4] describes it as an outing while *Glossary of Tourism Terms* [3] states that a tour is visiting objects or areas by a planned route in the presence of a guide that is less than a day long. It should be noted that a wide range of definitions can be found in various literature sources [16, 10] which essentially focus on several major components of a tour as a social phenomenon, i.e. outing and visiting the objects. Also, the definitions highlight a purposefully acting professional, i.e. guide.

2. Key Tour Features

A tour is defined by specific features that connect or separate phenomena and objects from each other (see Fig. 1). The latter (often their groups), obviously, give a sense to the state of individual social phenomena, helping to recognize and deal with the phenomenon contextually and holistically. According to many authors, lack of one of those general features results in the fact that the activity cannot be called a tour. It should be also noted that, in addition to the mentioned general features, specific characteristics are assigned to each tour type (e.g. bus tours need a vehicle (e.g. a bus); museum tours introduce tourists to exhibitions (e.g. in museums); technological tours demonstrate operating objects (e.g. machines, equipment, etc.).

The relationship between the tourist and the guide, their collaboration is very important in any tour. Qualitatively performed the communicative function helps to achieve the

ultimate aim; therefore, guides get the most important role of the tour. According to Chuskonen and Glushanok [18], during a tour they are the people who help tourists to see the objects, who unveil the theme, learn the necessary information about these objects, experience the historical value or cultural context of an event or an object, gain practical skills of observation and analysis (emphasis on the ability to see and value, see Fig. 2).

Tourists' ability to see depends on how interestingly and expressively information is provided by a guide as well as on their interest in the tour theme. For example, in order to see architecture they need to be able to understand architectural details, colors, lines, their coordination as well as dependence on the angle of perspective, light, weather conditions and viewing. To be able to understand the historical context of the architectural object tourists need to understand the cultural stratification, timeline chronology, have the knowledge of the object's history. Tour objects along with purposefully formulated and targeted information professionally managed by a guide provide tourists with the opportunity not only to see, hear, feel, observe or analyze the object, but also to reflect and evaluate. As a result, a tourist then becomes an active participant.

3. Tour Structure

From the thematic perspective, all tours are different. While choosing the theme, things such as: who the participants of the tour will be, what phenomenon, object or event a guide will try to reveal, the purpose of the tour, etc. are always taken into account. However, regardless of the type, themes, the form of their conduction, all tours are similar. They include the introduction, main part and the end - see Fig. 3.

The introductory part of a tour is for making contact between the guide and the tourists as well as solving organizational issues (e.g. getting acquainted with the group, establishing rules of conduct, etc). Usually, along with this, information regarding the tour (brief presentation of the theme, the duration of the tour, etc.) is provided. However, it should be noted that the introductory part is not linked to specific

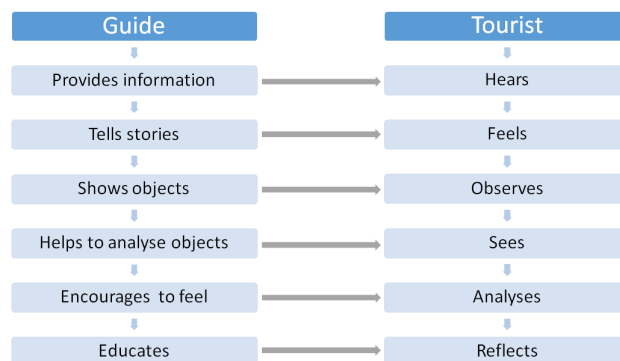


Fig. 2. The Process of a Tour

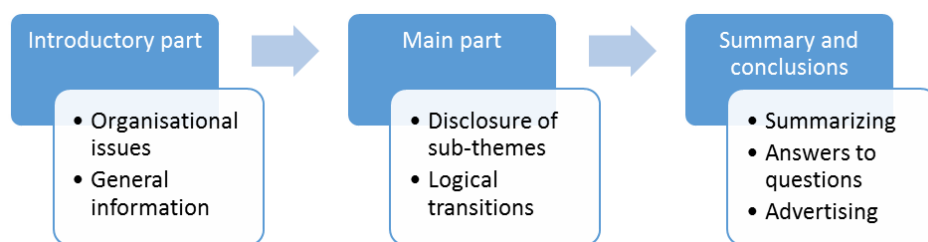


Fig. 3. Tour Structure

tour objects and most often takes place during the meeting with the tourists.

The main part is developed from a combination of showing specific tour objects and telling more about them. Its content consists of several sub-themes which are realized in order to reveal the general theme and show the objects. Usually, there are from 5 to 12 of them. As a result, it is important, while developing a tour, to select such objects that will help to reveal the content of its theme. Managing time effectively is also of uttermost importance. This part is for showing the objects, telling stories about them through the use of visual aids in an organized way.

The final part, as the introduction, is not related to tour objects. It takes 5-7 minutes and consists of 2 parts, i.e. summary of the tour (answers to tourists questions and conclusions) and promotional information on the other tours (e.g. which can expand and deepen the knowledge gained during the tour).

4. Tour Functions

Various dictionaries (Current Lithuanian Dictionary, Dictionary of International Words) define function as the purpose of an object or work forms as well as duties and the field of activity. To function means to act, to work, to accomplish some purpose. As is known, a tour is joint activities of a guide and tourists; therefore, the former help the latter to see objects through which the theme is revealed as well as to get the most important information, to understand an event or an object, etc. that helps to acquire practical skills to observe and analyze tour objects.

As it has been pointed out by many authors [11, 17], the main tour functions despite having common features are unique in terms of their purpose (see Fig. 4). For example, the scientific function is special because information provided on tours is based on the scientific potential. The content of a tour, therefore, is formed with regard to modern science, the latest technological achievements, new knowledge. As a result, accurate, verified and relevant scientific facts regarding politics, philosophy, science, art, etc. are selected and shared on the basis of the tour theme and its aims. The function of linking theory and life shows links between the tour material and life, the reality and practices.

The informative function says that every tour provides spe-

cific knowledge on the achievements in history, medicine or biology as well as on archaeological discoveries and the nation's achievements in the cultural life. Comparing the media, i.e. newspapers, radio, television, with tours, visualization is much bigger in the latter.

The recreational function refers to the fact that all tours focus very specifically on leisure, i.e. time after the working day which everyone can spend according to their needs for self-education purposes. A tour, however, is not only some kind of rest, but also intellectual work which requires tourists' concentration and thinking. Tours educate people culturally, expanding their general cultural knowledge as tour participants receive knowledge about history, art, architecture, literature, etc. According to Emelyanov [17], a tour is a synthesis of several cultural forms. This may include fragments from artistic, scientific or documentary films, testimonies of witness or researchers, listening to various pieces of music and so on.

The function of forming people's interests says that the tour objective is to give the audience some knowledge as well as arouse their interest in a particular area. Thus, a tour can be a reason for further interest in one or another topic. For instance, after a literary or historical tour a person shows interest in the life of a particular literary or historical character, his/her work and, perhaps, might start analyzing the peculiarities of a certain period or historical event, its reasons and consequences.

By giving certain criteria, Bodytė-Garbačiauskienė and Stulpinaitė [23] draw attention to the effect tours might have on a tourist:

- tour is the ability to create and use knowledge;
- tour is a new way of understanding the value of knowledge;
- tour opens a path to human cultural socialization;
- tour forms cognitive competencies;
- tour is educational and improves communication.

All things considered, it can be seen that each specific tour has a range of possibilities which can help to realize one or several distinct functions. This, however, primarily depends on the type of tourists. For example, tours for children and teenagers usually perform the cultural recreational function although sometimes they can fulfil the educational and educative one as opposed to tours for a group of foreigners which would serve the informative function.

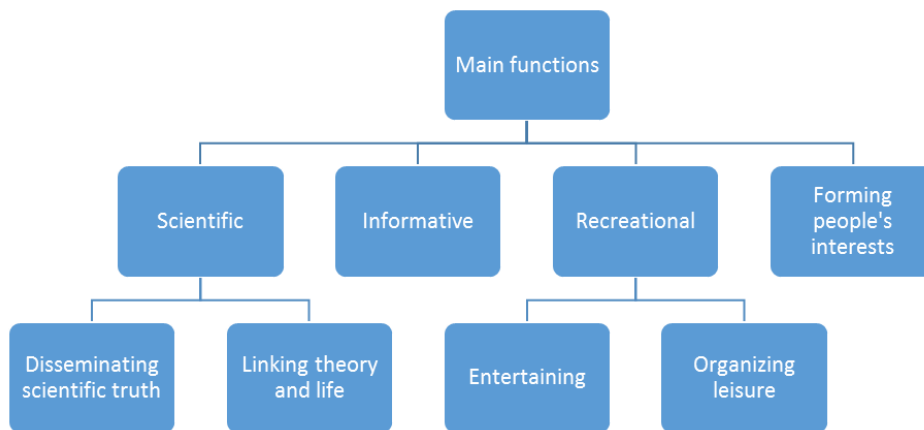


Fig. 4. Main Tour Functions

Conclusions

Learning about tours as a social phenomenon begins with distinguishing the components of the concept in order to gain scientific knowledge. The definitions given in the scientific and methodological literature highlight a few very important features - guide, tourist, outing and visiting objects. The analysis of each of them helps to have better insights into a tour as a social phenomenon.

From the thematic perspective, all tours are different, but, regardless of the type, topic, and the form of conducting them, structure-wise all of them are the same. They include the introduction, the main part and the end.

Each specific tour has a range of possibilities which can help to realize one or several distinct functions. This, primarily, depends on the kind of tourist group and has to fulfill their expectations.

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