Human Resources and Optimization of Evaluation Processes as the Basis of the Quality Management System

Pavel Krpálek¹ Dipl. Ing., Ph.D.; Katarína Krpálková-Krelová² Dipl. Ing.,
Ph.D. University College of Business in Prague, Czech Republic¹;
University of Economics in Prague, Czech Republic²

krpalek@vso-praha.eu¹; katarina.krelova@gmail.com²

Abstract: Quality in education is determined by the human factor, in particular the level of motivation of all involved and the degree of sophistication of management processes. Tertiary education in the Czech Republic has undergone a major systemic change in the approach to monitoring and evaluation of the quality of education and the associated accreditation procedures in 2016 after the adoption of the new Tertiary Education Law. Universities and colleges must establish an internal system of quality assurance and assessment of educational, creative and related activities. Thus quality management systems, which are a prerequisite for functional evaluation mechanisms, are getting more important. The authors deal with this topic in the framework of the scientific project of the Grant Agency of the Academic Alliance reg. number GA/2016/9 ‘Self-Evaluation Framework and Evaluation Culture as a Science-Based Foundation of Educational Communication in the Quality Management System in Terms of Professionally Oriented College’ and they present basic assumptions, procedures and addressing the issue, seeking to build a modern authentic evaluation culture as the fundamental assumption for an effective and demonstrable assurance and quality management system in tertiary education. Concerning methods, the research is based on the findings of cognitive psychological theories of education (social constructivism) in combination with Access Technology Education (instructional design) and a reflection of contemporary competency models (competence-based learning and teaching) with emphasis on the elements of integration and educational communication (self-responsible learning). The result is the innovation of a self-evaluation framework and efficiency of evaluation processes in the tertiary environment, using tools based on 360° feedback, benchlearning and other modern methods.

Keywords: Human Resources, Evaluation, Quality Assurance, Management, University Education.

Introduction

Human resources are the core of quality management systems, and this is true especially for those subjects where the processes are associated with the provision of services. Tertiary education is a typical example of where sustainability and success depend on creating and maintaining a good reputation, quality, originality and penetrability of study programmes, satisfaction of teachers, students and graduates, scientific and research potential, the level of interconnection of study and practice and other soft elements (Hrmo, Krištofiaková, 2015). Therefore, it is necessary to build an evaluation culture, identify the relevant processes and expectations of the involved ones, analyze the consistency and the results, reveal reserves and eliminate shortcomings, incorporate the desired changes and examine them in the PDCA cycle (Plan - Do - Check - Act) to achieve continuous improvement leading up to certification ENQA (European Association for Quality Assurance in Higher Education). Rated processes are based on three roles of universities: education, science and research (creative) and so called third role (third mission), consisting of communication with the social partners, graduates and their employers, businesses and institutions in general, the world of labour (Krpálek, Kadaňová, 2014, 78 - 79).

The implementation and maintenance of management system and internal evaluation of the quality of educational, research and related activities are required from universities or colleges by the current legislative conditions in the Czech Republic. This paper aims to spread knowledge and experience in solving inter-university scientific project of the Grant Agency Academic Alliance no. reg. GA/2016/9 ‘Self-Evaluation Framework and Evaluation Culture as a Science-Based Foundation of Educational Communication in the Quality Management System in Terms of Professionally Oriented College’ in which the University College of Business in Prague (UCB) and the University of Economics in Prague participate in the research period of 2016 to 2017. The subject of research is with respect to the knowledge of conditions the UCB, what is the main researching institution of the project. Researchers intend to follow the above mentioned project in September 2017 by the Project of the European Social Fund no. reg. CZ.02.2.69/0.0/0.0/16_015/0002368 "Optimizing of Human Resources Processes and
Quality Management System at the University College of Business in Prague” with the key activity in “Creating of Internal Quality Assurance Systems and the Implementation of External Evaluation for Quality Improvement”, it means the application of results to full operational implementation of evaluation tools for ensuring quality, support of the preparatory processes for obtaining accreditation, operational setting of quality monitoring to continual improvement and external certification of a system recognized by a certification authority. The result will be a comprehensive quality management system of educational, creative and other activities related to college that will lead to achieving and maintaining high standards of quality acceptable by the National Accreditation Authority for universities or colleges. Such a model of Total Quality Management (TQM) could become an example of good practice for medium-sized colleges with professionally oriented degree programmes and contribute to building a culture of evaluation. The aim of the paper is to spread knowledge and experience in solving inter-university scientific project about human resources and optimization of evaluation processes as the basis of the Quality Management System in professionally oriented college.

Methodology

Model University College of Business in Prague (UCB) has been more than ten years on the market, has trained more than 3,000 students who chose a unique, professionally oriented degree programmes (5 of bachelor’s and two master's degrees), focused on tourism, air transport and human resources. Research questions: Which factors are crucial in terms of construction quality management model? When implementing the model can these factors be operationalized into the model of functional quality management system? What is the role of evaluation, shared vision and consensus of participants in education in this process? Methodologically the project is conceived as a mixed of research with a predominance of qualitative research. In the initial phase of the project, content analysis was conducted, the fond of available knowledge, experience in process and useful case studies was collected and analyzed. Empirical research was conducted using research tools: analysis of primary and secondary data, observation analysis (observation), interviews and in-depth structured interviews, process and SWOT analysis, experiment in natural conditions - modelling and piloting a model self-evaluation framework and evaluation tools 360-degree feedback with participants of educational processes, benchmarking.

Literature review

The segment of private universities in the Czech Republic is highly competitive. The situation is further intensified by the adverse demographic trends, because cohorts of individuals entering tertiary education show a steady decline. Competitive pressure is multiplied by competitors and they build a competitive advantage based on the quality of the models of excellence European Foundation for Quality Management (EFQM) and Total Quality Management - TQM (Lakatoš, Aujeszky, 2004) perceived and recognized by clients. Basic principles of TQM include customer orientation, process orientation, the principle of decisive leadership roles in quality management, the principle of developing the knowledge and involvement of every employee, the principle of teamwork and cooperation, the principle of permanent improvement and innovation (Krpáľková-Krelová, 2016).

The introduction of quality management system should be a strategic decision of the school. An important aspect is to document interaction between educational and support processes (Lukšů, 2010). The introduction of quality management system leads to precise specification of powers and responsibilities to better organization of activities inside the school, forcing the examination and meeting of real needs of partners, to cost saving and in particular to the improvement of the educational process (Hutyra, 2008). Priorities of each school should be identified by expectations, needs, desires of students and social partners from the world of labour, especially potential employers, which requires a systematic feedback - survey of attitudes to learning process and schools from students, graduates and systematic market research - knowledge of expectations and needs of future employers (Vavrcěčka, Mezuláník, 2016). According to M. Tribus (1994) there is no need to use only external motivation (rewards, praise, awards), each employee should regularly evaluate their work mainly alone, because the quality can only be achieved by autoevaluation. In quality organizations leading officials trust employees at all levels so that they evaluate their work and this trust leads to quality (Bacík, 1998, 284). Therefore, self-evaluation in quality management plays a vital role (Chromý, 2006). The objectives of self-evaluation are to identify strengths, weaknesses, opportunities and risks, performance and critical areas, to view
opportunities to improve, to improve performance and the quality processes of schools, to 'report back' to customers, the founder, to provide evidence that "he or she listens" to the voice of customers and that respects their needs, wants, demands, plans their activities to improve the quality and uses reserves (Turek, Hrmo, 2006). An effective approach to the assessment seems to be the method of 360-degree employee evaluation, which evaluates various work site of employees through certain points or classification. Information concerning their performance is collected from a superior, subordinate, co-workers, but also by external and internal partners. Employees assess themselves (Armstrong, 2002, 433-435). The main reason for using this method of assessment was already described by W. W. Turnow in 1993 by these words: "360 degree activities are usually based on two main assumptions: awareness of any disagreement between how we see ourselves and how others see us, increases awareness (knowledge) of ourselves; increased awareness (knowledge) of ourselves is the key to maximise the performance in the role of the leading employee and the cornerstone of the development programmes in the area of people’s management and leadership" (Armstrong, 2002, 434).

As an example of good practice we can cite a study that was conducted in two regions of Spain. The aim was to analyze the impact of the introduction of quality management system with two key components in each educational organization: Communication and External Relations. The analysis was carried out through 32-item questionnaire, which was considered to be reliable (Cronbach's alpha = 0.955). The authors carried out a detailed description of responses to gaps analysis for each item based on the individual categories of variables such as type of school, the number of years that the quality management system implemented, the position in the school (teacher and member of the management team) and the number of students in school. The results confirmed that the quality management systems had a significantly positive impact on communication and external relations at schools (Diaz, Mantilla, 2016). S. Taut and K. Rakoczyb (2016) dealt with the quality of the diagnostic information of the selected model evaluation system in Germany. The results showed that the structure of the empirical observation instruments did not correspond to the original normative model and did not provide the feedback on the five-factor model designed as commonly recommended in bibliography (way of class management, two aspects of the orientation of the student, cognitive activation and class assessment). Obviously models must be based on local conditions and need to be carefully piloted. Seven years earlier for example F. Lipowsky and his team carried out factor analysis in Germany (Lipowsky, Rakoczy, 2009) based on ten video evaluation of quality and found out that the quality assessment could be reduced to just three factors called classroom management, supportive climate and cognitive activation. And it worked. A significant shift in the process of quality improvement was demonstrated by implementation of the PDCA cycle at Midwestern University, USA in evaluating the relationship between faculty development and student assessment. The results showed that when students rated teacher as an excellent teacher, teacher was evaluating their skills in self-assessment at a higher level. Based on the results of the research it was recommended to prepare a training for teachers about the learning management system and emphasis was placed on the effective use of technology in teaching (Merillat, Scheibmeir, 2016). Receiving and evaluating feedback from students has become normal part of self-reflection of university teachers, allowing to adapt to teaching style preferences of students. In Sweden, the University of Gothenburg conducted interesting study with teachers of School of Business, Economics and Law in order to establish the principles of operation of the feedback student - teacher. The study found out that feedback "student is perceived positively by university teacher" has a great impact on the effectiveness of teaching and helps to improve the courses. Feedback is pushing to reduce teaching lectures and prefer more consultations, workshops and case studies. The great majority of teachers showed a high level of professional pride and integrity, and responded to impulses from students (Flodén, 2016).

Results and discussion

In the Czech tertiary education the approaches to create quality management systems are differenciated. Traditional large public universities have an ambition to prepare for the institutional accreditation in 2019 using foreign Certification Authorities (CAs). Private colleges with professionally oriented study programmes are in a different situation, it is not always realistic for them to reach the horizon of 2019 with institutional accreditation and they rather focus on the accreditation of degree programmes. This situation is also due to the fact that the National Accreditation Authority for tertiary education is at the beginning of its activity, evaluation standards will be published, and the same applies to the definition of recognized CAs.
Management system of providing and internal quality assurance (Quality Management System) at the model school of UCB was conceived and constructed based on the D. L. Kirkpatrick (2006) model. Self-evaluation framework projections were based on 360-degree feedback. First, the situation analysis has been carried out and internal regulations and school authorities have been amended and supplemented.

The Council for internal evaluation was established as well as the Disciplinary Committee and the Career and Development Centre. Subsequently, an action plan of the implementation of quality management systems in relation to the business plan based on the mission and vision of previously adopted strategic document Rector Vision 2017+ has emerged.

The original approach of UCB is further graphically represented and analyzed, including evaluation of selected clinical impact in the phase of piloting and implementation of the model. Table 1 shows clearly the result of input SWOT analysis.

### Table 3

**STRENGTHS (% relevance)**
- Location at one place in the centre of Prague (30%)
- Uniqueness and attractiveness of study programmes (25%)
- Part of the educational holding Academic Holding
- Clear history, ethical school’s credit (20%)
- Information system UIS (10%)
- Experienced, stabilized management (10%)
- Competitive, relatively low tuition (5%)

**WEAKNESSES (% relevance)**
- Internal communication and processes (30%)
- Gaining projects in fundamental research (20%)
- Narrow portfolio of study programmes (20%)
- Authoritative, little-client approach of some teachers to students (20%)
- Penetrability of study programmes from the bachelor's to master's degree (10%)

**OPPORTUNITIES (% relevance)**
- The introduction of quality management system (20%)
- Acquired status of research organization (20%)
- Synergy of Academic holding (20%)
- The motivation of academic staff for improving the quality of the teaching and involvement in research (15%)
- Development of international relations and cooperation in education and research (15%)
- Attracting foreign students (5%)
- Study programmes in English (5%)

**THREATS (% relevance)**
- New legislative conditions for accreditation (30%)
- Identification of academics with an innovative strategy of schools, the adoption of quality management system (30%)
- Development of the demographic curve (30%)
- Competitive pressure from a large number of other competitors on the education market (10%)

Source: internal research of UCB, interpretation of authors

Building of evaluation tools and evaluation culture at UCB came out of the major identified weakness: weak level of internal communication and processes. Because these aspects are one of the main attributes of quality management, the introduction of the system was one of the largest reserves of the school. Currently, these aspects are already under control and do not appear as weakness. The same can be applied to research activities in support of which two internal grant agencies were established at UCB: The Fund for Development of Science and The Research Centre. The product of synergy of Academic Holding, which belongs to UCB is Grant Agency of Academic Alliance, which supports fundamental and applied research. Calls for submitting of proposals take place twice a year, and thanks to them the number of submitted and solved scientific external projects has significantly been increased at UCB. Previously, it was possible to carry out fundamental research almost exclusively through the Grant Agency of the Czech Republic, where the tendered grant is extremely difficult and not very hopeful.

There has been positive progress in the field of creative activity, increased publishing activity and involvement in research projects, up by more than 3% a year. After adopting of the Quality Management
System monitoring indicator for creative activity of a 5% annual increase in output of creative activity has been included into the Business Plan. This optimism is based on a sophisticated incentive system for monitoring and valuating the results of research activity “Electronic Publishing” (EP), piloted in 2016, and subsequently since the academic year 2017/2018 it will start operation at UCB. The system includes traditional outcomes of research and publication activities, while integrating parameters of the third role of universities, memberships in scientific societies, think tanks, cooperation with the practice. Researcher has established the access to the EP and shall be supplementing it with data. The items have the score (importance) set beforehand, which is subsequently summarized for individuals and departments, but it remains available in analytical form and gives an instant overview of the performance and relevance of research activity of individual employees and departments. Scoring is based on the evaluation criteria of research organizations in the government Register of Information on Results (RIV) and the evaluation of the importance of activities for school development. To illustrate the variance of scores ranging from 60 points for impacted articles in scientific journals to around 1 point for a conference or seminar of local importance. At the end of the academic year, the data is checked, cleared, scoring results are converted into credits and counted in the variable part of salaries. Replaceability of criteria is designed so that the ‘softer’ scoring activity in areas C and D are only counted up to priority areas of A and B in summarizing the results. This creates a highly motivating environment for publishing reports and solutions of research projects relevant from the point of view of the evaluation of the research organization. The structure of criteria as a basis for the evaluation of research activities is as following.

Area A: Scientific research activities internationally
- The scientific monographs, chapters in monographs, studies in journals and collections in the characteristics of scientific monographs published in reputable foreign publishing houses
- Scientific papers in international journals registered in the Web of Science with a positive impact factor, without IF or in Scopus, ERH +, EBSCOhost, ProQuest
- Reviewed papers at international conferences, sent to indexation to the Web of Science or Scopus and scientific work in scientific collections which are not related to conferences
- University textbooks (or chapters in them) published in foreign publishing houses
- Scientific work in foreign reviewed scientific journals without IF / Scopus
- Citations in foreign publications on Web of Science / Scopus and other

Area B: Scientific research activities domestically (in the CR)
- Scientific monographs published in reputable domestic publishing houses, regular publishing houses or chapters in scientific monographs, studies in journals and collections with characteristics of scientific monographs published in domestic publishing houses and other scientific or professional monographs published in domestic publishing houses
- Scientific work in domestic journals registered in the Web of Science with a positive impact factor, without IF or in Scopus, ERH +, EBSCOhost, ProQuest, the List of reviewed non-impact journals Council for Research, Development and Innovation (RVVI) and outside this framework
- Reviewed papers in domestic academic conferences, sent to indexation to the Web of Science or Scopus and without indexation, or even non-reviewed papers from seminars
- University textbooks (or chapters in them) published in domestic publishing houses
- Citations in domestic publications on Web of Science / Scopus or other indices
- Submitting / obtaining a scientific research grant in the basic or applied research as the main researcher / co-researcher

Area C: Professional and expert activity
- Organization of a scientific conference / training seminar
- Submitting / obtaining of development or professional project as a researcher / co-researcher
- Membership in the prestigious scientific organizations, foreign and domestic
- Membership in the programme committee of international or national scientific conferences
- Membership in the editorial board of a publishing house/ editorial board of reviewed scientific journal
- Membership in government advisory bodies, scientific boards of universities
- Membership in habilitation commissions and committees for appointment of professors
- Professional review, peer review and expert activity, requested lectures
Area D: Professional activity - activities aimed at school development
- Organization of professionally-oriented or otherwise student-oriented activities
- Organization of activities to give promotion to the school or department
- Organization of cooperation with external entities
- Preparation of documents for the accreditation of degree programmes (specialization)
- Preparation of study materials, scripts, handouts, study guides, and other tools for learning
- Preparation and implementation of a pilot project or activities fulfilling the aims of the school

As follows from the above-mentioned structure of the evaluation system of creative activity, the area D (primarily focused on the third role of universities) covers part of the evaluation of teaching, direct educational activity is designed specifically based on the above mentioned D. L. Kirkpatrick’s (2006) four-level model of evaluation of educational programmes and 360-degree feedback.

This concept is clear from Table 2 and Figure 1.

### Table 2
**Evaluation instruments of learning activities according to D. L. Kirkpatrick’s four-level model**

<table>
<thead>
<tr>
<th>Level of Evaluation</th>
<th>Description of Functionality</th>
<th>Methods and Techniques of Measuring Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. The immediate reaction to the educational action (action evaluation)</td>
<td>observation with a qualified analysis of the level of education participation (attendance) and the views of participants on teaching unit which have just taken place</td>
<td>observations checking attendance survey structured interviews</td>
</tr>
<tr>
<td>II. Assessment of learning outcomes in subjects (ongoing evaluation)</td>
<td>opinion of the students after completion of the course performance measurement – students’ performance at exams Head of the Departments’ assessment (evaluation of students’ participation in education, including results of opinion polls)</td>
<td>students’ opinion poll exams (testing) analysis of the course</td>
</tr>
<tr>
<td>III. Target behaviour and student achievement on output (subsequent evaluation)</td>
<td>success of students at the final state exams level of bachelor’s /master’s thesis penetrability of study programmes opinions on the study in the final phase of studies</td>
<td>exams (testing) analysis of aggregate results at final phase of studies survey structured interviews</td>
</tr>
<tr>
<td>IV. Results of graduates in relation to their future profession (ex post evaluation)</td>
<td>Impacts to the sphere of practice: the employment rate of graduates career and success of graduates evaluation of employers curriculum in compliance with practice</td>
<td>media analysis analysis of available statistics surveys structured interviews analysis of compliance</td>
</tr>
</tbody>
</table>

Source: research of authors by the D. L. Kirkpatrick’s (2006) four-level model of evaluation

First level assessment is focused on immediate finding by immediate monitoring of educational actions, they are planned and organized by the heads of departments, their part is not just the observation of teaching by observers with subsequent analysis, but at the end of teaching the observers carry out surveys on quality of teaching in the form of distributing questionnaires for teachers and students, structured sufficiently finely based on the Lickert scale so that the range to be evaluated to what extent is education positively perceived from the perspective of teachers and students, the questionnaire items are built so that both views can intersect. Observer at the same time conducts a short structured interview with students, pointing to the causes of evaluation, the same with the teacher. It is rises the rate of
analyticity. Evaluating students' participation in education seems to be a formal criterion, but it has its value, lectures are optional, and students attend them according to how the teachers are able to attract them. So the presence of students at a lecture in connection with evaluation of questionnaires will complete the picture of the level of teaching.

At the assessment level II. except performance measurement (study results in subjects) there are students’ opinion polls, in which students express their opinions on teachers and subjects at the end of the term. The opinion poll is anonymous and students fill it electronically into the university system UIS. It is an instrument for orientation, the information value is only in combination with other instruments. It is primarily intended for self-evaluation of teachers. Until 2015 students’ opinion polls were filled up by 30% of students on average at non-standardized conditions, therefore in 2016 there were revised in the content and didactically optimized, combined with the motivation of students, the rate of participation in polls almost doubled.

Figure 1: Factors influencing the formation of 360-degree evaluation model.
Source: Authors’ research model

The questionnaire method is used then still at the end of study in the evaluation level III. for recapping opinions of students on the overall course of their education. Using of the university electronic study system UIS comprehensively combines and evaluates the performance characteristics (overall study results, results at the final state exams, topic selection of theses, assessment of advisor and reviewer). Teachers are evaluated not only by the number of hours of direct teaching, but also in relation to the qualitative characteristics. For example, the number of supervised theses is limited to a maximum of 10 per one teacher and at the evaluation the advisor’s evaluation of the thesis as well as the reviewer’s (including of the degree of conformity assessment) is followed, the result of the defense, the recognition of thesis at school or out of school and practical usability. The aim is to connect theses with real work experience and to get real experts in the field to participate in the evaluation process.

In the level of evaluation IV. the role of the Centre of Careers and further development, the contact with graduates, employers and decision-makers is established and developed to obtain data for such a metric system which depicts the employability of graduates, the speed of career progress and the compliance with the requirements of practice. In the future, this model will be complemented by two more levels: the evaluation of changes in the school’s evaluation culture and connection with the evaluation of economic efficiency.
Conclusions

Within the framework of the project GA/2016/9 'Self-Evaluation Framework and Evaluation Culture as a Science-Based Foundation of Educational Communication in the Quality Management System in Terms of Professionally Oriented College' innovative model of assurance and internal quality assessment came into existence. Evaluation module of research activity represented by a system of Electronic Publications has been successfully piloted and is fully functional and effective. Module of pedagogical activities based on 360-degree evaluation model is comprehensively designed, piloting is currently underway, and the results so far are promising. The key things of the teaching module are questionnaires, observations, and continuous and subsequent monitoring of study results with regard to expectations and experience of all participants of education and professional field. Selected evaluation tools have been proven and confirmed as relevant for creating of self-evaluation framework. The module fulfills its function like EP-system, only with not so much experience yet. At the same time with referring to discussions with other authors and implementers according to the results of Benchlearning it is possible to say that self-evaluation framework is widely recognized as the foundation of assurance and internal quality assessment before introducing certified comprehensive quality management system (Total Quality Management), as the evaluation culture and school climate make fundamental assumptions for synergy of participants in education and conditions for the success of the implementating strategy. Evaluation processes, and on their basis projected evaluation tools, are only the technical assumption for success; the identification of all participants with a new evaluation culture as a presumption for informal ethos and positive school climate will play a determinative role.

The article was written with the support of project GA AA no. reg. GA/2016/9 'Self-Evaluation Framework and Evaluation Culture as a Science-Based Foundation of Educational Communication in the Quality Management System in Terms of Professionally Oriented College', and as an output of the Internal Grant of University of Economics in Prague IGS F1/31/2015 and within the framework of institutional support of The University of Economics in Prague IP100040.

Bibliography


