

Cultivating Applied Competences Through Mission-Based Learning

Bistra Vassileva

University of Economics -Varna, Bulgaria
bistravas@ue-varna.bg

Abstract: The aim of this paper is to explore the implementation of a business-oriented and experience-based learning environment and its effects on cultivating responsibility among students in the field of economics. The main proposition states that by providing students the opportunity to experience different professional skills as data collectors, researchers and decision-makers could establish a solid background for raising their responsibility. Our intention is to offer a coherent framework that is student-oriented and makes use of active-based learning with implementation of research methods to support academics in encouraging student active participation. To meet these goals, a longitudinal study was conducted. The results were used to identify the layers and the structure of the Reference Framework for Applied Competences (REFRAC). The background layer which correspondes to carrer-sustaining curriculum planning level was tested using different learning methodologies.

Keywords: higher education, responsibility, applied competences, REFRAC

1 Competences, responsibility and learning: is it possible to integrate them in a coherent framework?

This paper begins by outlining the importance of development education through experience-based learning environment within Higher Education (HE). The author's primary goal is to develop a methodological business-oriented and evidence-based learning environment which will provide students the opportunity to experience different professional skills as data collectors, researchers and decision-makers. The overall intention is to offer a coherent framework that is student-oriented and makes use of active-based learning with research methods implementation to support academics in encouraging student active participation. To meet these goals, a longitudinal study was conducted. The results were used to identify the layers and the structure of the Reference Framework for Applied

Competences (REFRAC). The background layer which correspondes to carrer-sustaining curriculum planning level was tested using different learning methodologies.

1.1 Defining competence and competency

There are many definitions of competence and competency depending on how the concepts are used and the context where they are used. Indeed, early on in the defining of competence, it was believed that clearly defined competences would systematically insure effective performance [1]. In fact, many different definitions have been proposed resulting in a wide range of frameworks and definitions in the literature of various fields. For instance, Mirabile [2: 74] defined competency as “a knowledge, skill, ability, or characteristic associated with high performance on a job, such as problem solving, analytical thinking, or leadership”. Some definitions of competency include motives, beliefs, and values. Competencies that reflect motives, beliefs, and values can turn into a list made up of personality traits and deeply held values, and imply a selection strategy, not an education strategy [3]. Parry [4] expanded on this by stating that identifying certain traits and characteristics might be helpful to recruiters and interviewers, but it is not the trainer’s job to assess or develop them. The debate around competence vs competency continues but it is out of the scope of present paper. As a result of a previous research work [5] the author defines “applied competences” as a synergetic combinations of 1/ socially responsible market behaviour of the managers 2/ based on the implementation of professional knowledge, skills and experience which are 3/ affected by social relationships, values and attitudes.

1.2 Experience-based learning

In terms of education, there is increasing consensus [6, 7, 8] that beyond knowledge and skills training, learning process should emphasise on the following: (1) developing a mindset which is global; (2) working through a model of cross-cultural reconciliation; and (3) emphasizing “relational” skills. This involves, in the filed of economics education: (1) providing knowledge about other cultures and the value assumptions which underlie their business practices; (2) concentrating on the context of business today, which is the pressures, constraints, and opportunities of doing business in global markets; (3) at the individual level, assessing the extent to which the individual is sufficiently flexible, adaptable, and open to “other ways of doing things” besides those of his own culture. Under these conditions teaching is not merely a way of “covering the curriculum” or transferring the knowledge directly from the ‘expert’ to the learner but a way of encouraging innovative thinking, creativity and responsibility for the decisions which are taken.

During the years several learning methodologies have been developed to support more student centered way of teaching. They have different names but in fact are based on a similar approaches such as participative learning methodology (PLM), peer teaching, active learning, group work, co-operative and collaborative learning to mention a few [9]. Active involvement of the student in almost every activity of the education process could be outlined as their common feature. These methodologies share core values and approaches such as equalitative and inclusive learning, student centered methods, development of critical thinking and interpersonal skills, linking of concepts and ideas with 'real life' situations and independent and life-long learning. However, students are not keen to be actively involved into the learning process as participants. Many of them prefer to be viewers. Cutts et. al [10] report that students often share the 'Didactic Mindset' with their teachers expecting that "in-lecture material simply needs to be covered by the teacher and their role is one of transcription". This situation reflects the traditional teaching model which has positioned students as passive receptors into which teachers deposit concepts and information.

Research suggests that students must do more than just listen: They must read, write, discuss or be engaged in solving problems [11]. Further, students must be engaged in such higher-order thinking tasks as analysis, synthesis, and evaluation, to be actively involved. Thus strategies promoting activities that involve students in doing things and thinking about what they are doing may be called active learning. Performing these activities especially in a team environment forces students to take a responsibility for their decisions.

The distinguishing feature of experience-based learning (or experiential learning) is that the experience of the learner occupies central place in all considerations of teaching and learning. This experience may comprise earlier events in the life of the learner, current life events, or those arising from the learner's participation in activities implemented by teachers and facilitators. A key element of experience-based learning (EBL) is that learners analyse their experience by reflecting, evaluating and reconstructing it (sometimes individually, sometimes collectively, sometimes both) in order to draw meaning from it in the light of prior experience [12]. This review of their experience may lead to further action. Boud, Cohen and Walker [13] identified the following set of assumptions which are fundamental for EBL: 1/ Experience is the foundation of, and the stimulus for, learning; 2/ Learners actively construct their own experience; 3/ Learning is a holistic process; 4/ Learning is socially and culturally constructed; 5/ Learning is influenced by the socio-emotional context in which it occurs. EBL appears to demand that the following three factors must be operating at some level. First, the involvement of the whole person, incl. his/her intellect, feelings and senses. Second, recognition and active use of all the learner's relevant life experiences and learning experiences. Third, continued reflection upon earlier experiences in order to add to and transform them into deeper understanding.

1.3 The concept of Reference Framework of Applied Competences (REFRAC)

The author started to develop REFRAC (Reference Framework of Applied Competences) based on the following concepts and models: learning through relationships, experience-based learning, education as a transformational system and the paradigm for educational quality as a professional-creative process. The concept of REFRAC was built on the assumption of education as a transformative process with its three particular outputs (knowledge, skills and values) which, when linked together, lead to sustainable competence in any professional setting. None is independent of the others, and it is the interaction among these that leads to sustainability of learning within the profession and competence development. Each domain is, of course, a major field of professional enquiry and action, and its details and form vary from profession to profession.

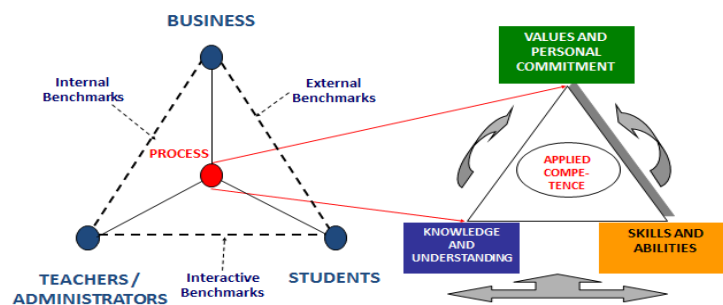


Figure 1
REFRAC conceptual model: static view

As a whole system the three different perspectives on the learning process (teachers and administrators, students, and audience such as policymakers, parents, communities) have their own benefits and standings and also interact with one other continuously. The three major components of this transformative process (presented by the red spot in the middle of the pyramid on Figure 1) are (i) inputs to the system, (ii) the system itself, and (iii) the outputs to the system.

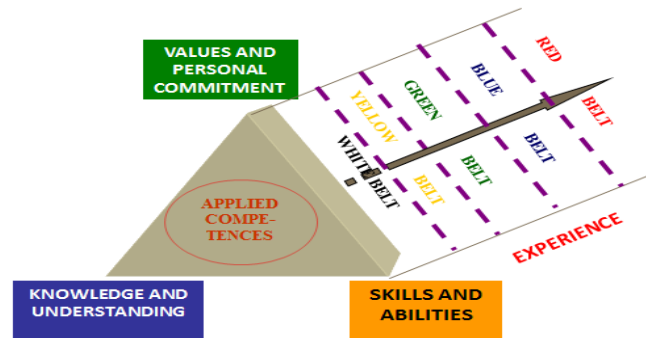


Figure 2
REFRAC conceptual model: dynamic view

The inputs to the system are the students, faculty and staff, funding, facilities and the goals of the university. These could be grouped further as human, physical, and financial resources. The system itself is created and controlled entirely by the elements that compose the system, regardless of the inputs, with some measurable points within; namely, training of personnel, teaching methods, learning, advising, counseling, tutoring, evaluations, infrastructure, etc. The system outputs refer to the product that is generated within the system which include tangible outcomes, intangible outcomes and values.

2 Research methodology

The research is longitudinal by its nature. It is conducted every academic year starting from 2009 using similar research tools but in a broader scope. Both qualitative and quantitative methods were employed. The field work for present study was done for the North-Eastern Planning Region in Bulgaria both for companies and for the HEIs during the academic year 2013-14.

2.1 Qualitative stage

The qualitative analysis is based on the law of requisite holism [6] and the Senge's concept for learning organisation [14]. Dialectical systems theory was applied to REFRAC in order to find out the interrelations between different actors and stakeholders in education process in the field of economics as well as to identify their contribution to the learning process. TQM tools such as 6 sigma approach and 5S method were applied during the process of REFRAC development and validation.

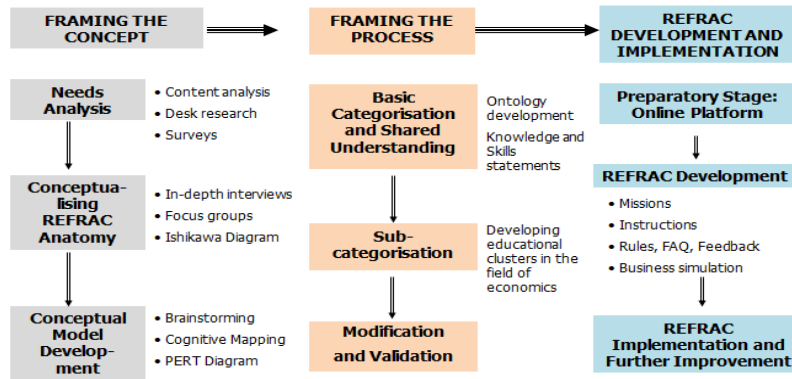


Figure 3
 Research methodology

The qualitative study involved in-depth interviews with experts, marketing managers and CEOs, focus group discussions with students, and content analysis to identify the key areas for professional capacity building. Ten in-depth interviews were conducted with experts from the National Network for Competencies Evaluation. Five in-depth interviews with marketing managers and CEOs were conducted followed by two sessions of brainstorming. Four focus groups were undertaken with students. Two groups were used for students participating in the Marketing Bachelor programme at the University of Economics-Varna, and the other two groups were facilitated with Master students at the same university. Content analysis was performed for job announcements in specialised press and online job market. As a result a draft conceptual model in a form of Ishikawa diagram was constructed. The model has been “fine-tuned” during a series of workshops with academic teachers, students, business representatives from different industries and experts (Labour Associations, Industry Associations, etc.). During the workshops it became clear that one of the major obstacles to the integration of experience-based and business-oriented education into the higher education curricula was the issue of passive reflection-based teaching approach.

2.2 Quantitative stage

Presented research is a part of a longitudinal study conducted during the period 2006 – 2014. The longitudinal study was planned as a 3-staged research process with a goal to develop a completed QMS framework for the University of Economics-Varna. The accomplishment of the first two stages gave as a result a draft of the university QMS. The research goal of the stage next to the last was to provide a framework which permits to embed research and business activities

within learning outcomes as well as to test it for the students studying marketing speciality. Two types of questionnaires were developed. The goal of the pre-measurement stage was to evaluate students' expectations and attitudes toward learning process. The aim of post-measurement stage was two-fold depending of the year of study. For the 2nd and 3rd year students the objective was to evaluate their perception and satisfaction from the teaching tools and assessment methods as well. The research goal for the graduates was to determine the perceived importance of achieved marketing competences and the level of acquired marketing knowledge and skills [15]. The last stage included two surveys conducted in the North-Eastern Planning Region in Bulgaria both for companies and for the higher education institutions (HEIs). A quota sampling method was used. The 'business' sample size included 107 companies. The 'HEIs' sample size included 511 students. The study was administered as an online survey.

3 Results and discussion

3.1 Perceived importance and perceived possession of knowledge, skills and personal traits

The qualification of the personnel is considered to be a key factor for business development by 84.8% of the respondents (answers from 7 to 10, the scale range is from 0=unimportant to 10=extremely important). When hiring their personnel managers require certain skills, followed by knowledge, and evidences for educational level (Table 1).

Requirements for job specifications	%	Rank
Specific skills	89.4	1
Specific knowledge	86.4	2
Particular educational level	80.3	3
Specific certificates	47.0	4

Table 1
Hiring requirements

Criteria sought in graduating students by business and students' perceptions about their possession are slightly different. The criteria which were assessed during the study were divided into three groups: knowledge, skills and personal traits and values (Table 2).

Knowledge / Skills	Managers			Students		
	Mode	%	Rank	Mode	%	Rank
KNOWLEDGE						
Basic knowledge in economics	5; 6	23.6	15	7	24.5	12
Knowledge in specific area of economics	7	25.8	14	8	23.7	10
Knowledge about specific industry / industry sector	8	22.5	12	8	21.1	11
Knowledge about Bulgarian market	6	19.1	16	7	20.5	14
Knowledge about international markets	3	14.6	18	5	19.1	15
Specific knowledge (metrics, formulas, etc.)	5	19.1	17	5	16.4	16
SKILLS						
Communication skills	10	29.2	7	10	37.4	3
Analytical skills	9	27.0	11	7	22.7	13
Organisational skills	9; 10	28.1	9	10	21.3	8
Leadership	7	27.0	13	8	21.7	11
Skills for problem identification and solving	10	25.8	9	8	23.1	10
Technology skills	10	40.4	2	10	28.6	6
Written and spoken English language proficiency	10	36.0	5	10	27.2	7
PERSONAL TRAITS AND VALUES						
Self-esteem	7	27.0	13	8	26.2	9
Ability for realistic self-assessment	10	31.5	6	10	36.6	4
Willingness for continuous self-development	10	42.7	1	10	33.1	5
Creativity	9	31.5	8	7	22.5	13
Discipline	10	42.7	1	10	39.7	2
Ethics	10	39.3	3	10	51.1	1
Capability for adaptation	10	38.2	4	10	37.2	3

Table 2

Perceived importance of knowledge, skills and personal traits vs their perceived possession

Note: COMPANIES: The scale range is from 0=unimportant to 10=extremely important. Sample size = 89 respondents. STUDENTS: The scale range is from 0=low level to 10=high level. Sample size = 511 respondents.

The importance given by business to discipline, self-development, ethics, communication skills, analytical thinking, the capacity to make decisions and to solve problems raises questions as to how well equipped graduates are to fulfil these expectations. Need for graduates who are fluent in English could be explained with specifics of Bulgarian market which, on one hand, is quite small and companies are mainly export-oriented. On the other hand, many Western companies target Bulgaria as an outsourcing opportunity because of the cheap labour. The vast majority of Bulgarian companies are micro- and small enterprises. They need managers who are multiskilled and capable of taking greater responsibility and initiative. Additionally, graduate students are expected to enter the workplace equipped not only with the necessary functional knowledge and skills but, also, with adequate communication, interpersonal and team capabilities. Similar conclusions and recommendations can be found in related work of Walker et al.[16].

3.2 The anatomy of REFRAC

When developing the anatomy of REFRAC, the author applied established design elements known to influence high-quality learning, such as active-based learning, cross-debate, research activities, perceptual mapping, field work. REFRAC is designed as a multilayered process-based system. The structure of each level is similar and it is divided into several missions (from five to seven) depending on

the content of the course. Mission is defined as an assignment which requires a practical completion of a task or a sequence of tasks based on a certain knowledge. Missions must be accompanied by clear instructions and a feedback form. The feedback form is used for validation and it serves as an assessment tool thus providing transparency and creating a competitive environment among students. Depending on the level of formalisation missions could be divided into CAM (computer-assisted missions) and HAM (human-assisted missions). Missions are logically incorporated to fit to the course content. The proposed design is scheduled for a semester of 15 weeks. Our final goal was to create a coherent and consistent combination of traditional teaching methods and evidence-based research interventions performed by students in business environment. As many authors suggest, success in learning relates as much to the design of individual components as it does to the consistency and fit of those components within the course as a whole [17, 18].

Two layers of REFRAC has been already developed and tested. The first layer (Figure 4) emphasizes on data collection and research methods. To respond to the need for student to feel independent to make his/her own decisions, research tasks were developed to be flexible for modifications. All activities provide some level of choice thus stimulating students to assess alternatives, to take risk and to be responsible for his/her decisions. The focus of second layer (yellow belt) of REFRAC is placed on innovative and creative thinking development. It is implemented through the so called academic accelerator “Brand Idea”. Students are stimulated to plan and to implement a communication or social campaign targeted at different audiences. The assignments are provided by different companies, organisations or institutions. The education process is split into separate missions as described above. Students participate as virtual agencies and compete between each other since one assignment is given to three or up to five teams. The final assessment consists of two parts. The first part is the result of independent survey among university students which measures the awareness level and attitude toward virtual agencies and their projects. The second part is a presentation which is evaluated by a jury (mainly business representatives). Brand Idea competition was launched in 2011 as a part of the education of the students who study Marketing. Now it is open for everyone (www.brand-idea.net). For the next year “Brand Idea” is planned to be transformed into a start-up accelerator.

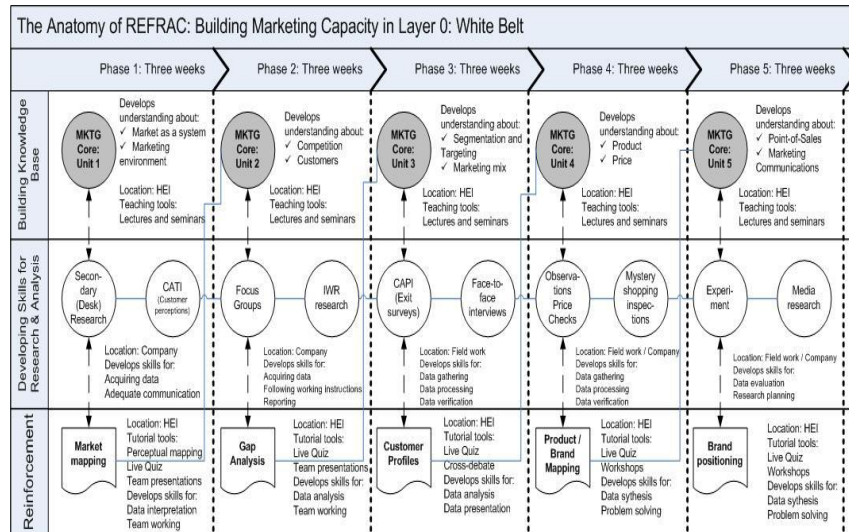


Figure 4
The anatomy of REFRAC: white belt layer

The internship programme forms the REFRAC prerequisite level which main goal is to develop employability and job-survival skills and concepts, including discipline, work ethics, personal appearance, and general business behavior.

4 Conclusions

The proposed framework of applied competences in the field of economics (REFRAC) provide an opportunity for the HEIs to transform the education process into experience-based learning which stimulates active participation of students. Its main objectives include: 1/ stimulating creative and innovative (out-of-the-box) thinking, 2/ developing business-related skills at different levels (the basic level comprises business survival skills), 3/ stimulating entrepreneurial attitudes and activities of students by small projects implementation, incl. social innovations. REFRAC could be used as a tool to re-engineer the process of higher education using as a background the concept of business models. When applying REFRAC in a constant and systematic manner in higher education process students can gain personal experience through engaging in various business and research activities related to the theoretical background of the disciplines and academic curricula. These experiences were designed to provide students with additional tools stimulating them to learn and reflect on their study. The main barriers during the process of REFRAC development could be summarised as follows: 1/ Administrative barriers due to the restrictive internal rules of the HEI;

2/ Misunderstanding of the concept both from the management body of the HEI and lecturers (teachers). Such kind of activities require different type of management and high level of engagement of the teaching staff. 3/ Bureaucratic procedures embedded within the educational system which prolong the process of changes and modifications of teaching materials and the process of learning. 4/ Extremely low level of administrative flexibility. The author will continue to develop the next layers of REFRAC in order to accomplish it as a business simulator, incl. to be applied for distance learning.

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