PERFORMANCE-BASED RESEARCH-ORIENTED HUMAN RESOURCES DEVELOPMENT AT EUROPEAN UNIVERSITIES OF APPLIED SCIENCES

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ABSTRACT

In recent years the importance of research-oriented human resources development (HRD) at Universities of Applied Sciences (UASs) in Europe has been increasing. Today and in the future only those organizations which have realized that the most important asset is their human resources have the chance for further sustainable development. This area of research is relatively well developed for businesses, but the European UASs show some particular deficits. This paper aims to highlight the "notion" and importance of research-oriented HRD at UASs and to analyze in particular the Austrian system of UASs in this context. The contribution of this research is two-fold: first, it summarizes the crucial issues concerning R&D in an academic context, and secondly, it sheds light on research-oriented HRD at Austrian and German UASs.

Keywords: human-resources development, universities, Austria

INTRODUCTION: INNOVATIONS AND INFORMATION EXPLOSION AS THE MAIN FORCES FOR R&D

Science is not static, everything changes very quickly; and professors and scientific staff should be able to overcome all these difficulties and to follow the innovations in science. It is a profession of lifelong learning, and this is one of the requirements of the quality assurance system in education. Moreover, information explosion in the 21st century shows great results. Figure 1 shows the information explosion in figures.

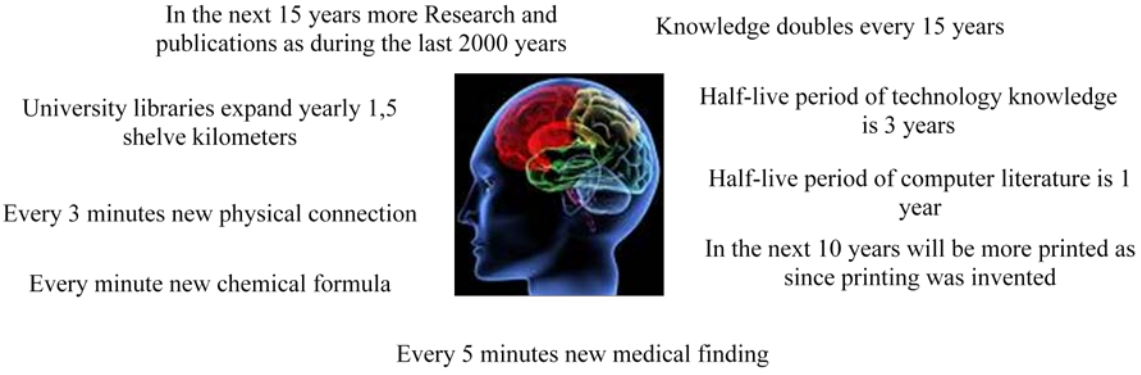

Figure 1. Information explosion [6]

Furthermore, business and society face more and more rapid changes: globalisation, technical development, available knowledge, etc. (Figure 2). Today it is evident that other dimensions than market share, market position or potential growth of the industry should be included in the strategic management of a company. These other dimensions are closely connected with the strategic use of innovations.

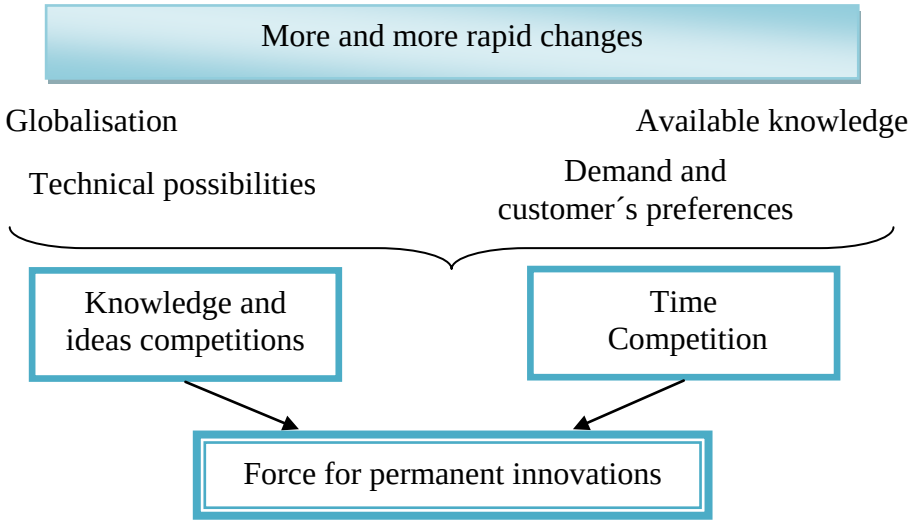

Figure 2. Force for innovations
Source: adapted from [17, p.2]

As shown in Figure 2, globalisation, technical development, etc. cause competition between enterprises which is the main incentive for innovation. Thus, excellent research and radical innovations are the basics for guidance positions. Although technical inventions are often the basis for innovations, it is not always enough for their market success. Schumpeter defined innovation as "a process of finding economical implications of inventions". [9] Klaus Fischer, executive stockholder of the Fischer Group, argued that "the managers concentrated only on figures and analyses, on strategies and performances will achieve no success in the future. Human resources play the determining role and only taking them into consideration innovations can be implemented." [9]

The main objective of HRD is to qualify the employees, to enable them to accomplish all standards and requirements. Thus, investments in research-oriented human resources development are especially significant for the academic sphere.

As mentioned above, the main goal of the underlying paper is to summarize the main crucial issues concerning research-oriented HRD (based on the Austrian System of UASs as an example). In order to achieve this purpose, the work at hand will be structured as follows: the first part will be devoted to the system of UASs in Austria (just briefly). According to the Austrian law, UASs must conduct research. In this regard, sustainable research-oriented human resources development is very important. For this reason, the state of R&D at the UASs will be analysed. In this case cooperation between UASs and business is very important. This option will be discussed in detail: the strengths and weaknesses of R&D made by Austrian UASs; their positioning in Austria (compared with "classical" universities); trends of R&D in Austrian UASs. Finally, conclusions will be summed up, and necessity for systematic research-oriented HRD will be highlighted.

THE SYSTEM OF UNIVERSITIES OF APPLIED SCIENCES IN GERMAN-SPEAKING COUNTRIES AND RESEARCH AND DEVELOPMENT AT AUSTRIAN UASs

As mentioned above, one of the great opportunities for business is conducting R&D in cooperation with UASs. Before switching to this issue, the system of UASs will be briefly analyzed here.

The major difficulty in this context is a problem with human resources (lack of their number and competence). [9] On the one hand, the work at UAS requires professional work experience (because of practical education), but on the other hand, professors should be able to conduct basic and applied research. Thus, the lectures must meet not only the requirements of the practical experience but also know about the newest state of scientific research. Presently, the lack of accordingly certified Austrian professors in conjunction with the quick growth of this UAS sector leads to the necessity to recruit more and more teachers from abroad.

A further difficulty of the Austrian Universities of Applied Sciences is quality assurance. The most important element in this context is human resources and their sustainable development.

First, the state of Research and Development at UASs should be analysed. In this case, the second possibility – the cooperation between UASs and practise (business) – is very important.

We would like to continue this paragraph with the words of Johannes Hahn, former Austrian minister for science and research: „Just in times of economic insecurity a high-carat education is always the best precaution. The UASs plays the main role in the protection of the Austrian location. Crises come and go. However, against the intellectual capital of a country, its best heads and ideas you can have nothing!“ [19, p.3]

An interesting question that will be answered in this paragraph is: why do the UASs conduct research? First of all, as pointed out earlier, this is done because of legal issues. In order to acquire the title University of Applied Sciences in Austria, at least the following conditions have to be fulfilled [14]:

- offering (setting up) of at least two approved bachelor's degree programmes with the Master degree programmes based thereon or two approved diploma degree programmes,

- development of a plan which allows to reach a minimum of 1000 students within 5 years plausible,

- founding of a UAS´s Council which is responsible for quality assurance (teaching processes and examinations).

According to §16(6) FHStG UASs are liable to conduct research: „Der Erhalter einer Fachhochschule hat dafür zu sorgen, dass das Lehr- und Forschungspersonal an anwendungsbezogenen Forschungs- und Entwicklungsarbeiten teilnimmt. Dies kann in der eigenen Einrichtung oder durch Kooperation mit anderen Forschungs- und Entwicklungseinrichtungen geschehen.“ [18]

Further arguments for R&D at the UASs are:

- ✓ Contacts with businesses;
- ✓ Quality assurance of study processes;
- ✓ The integration of the students in R&D projects;

- ✓ *Research-oriented HRD;*
- ✓ The R&D supports the profile education of the UASs and the marketing.

The current situation of R&D at Austrian UASs has the following trends:

- ➢ Austrian UASs (at least 16) actively conduct practice-oriented research;
- ➢ There are many very good examples for successful R&D projects made by UASs;
- ➢ The growth of R&D at UASs was high during the last years;
- ➢ The investment in R&D (made by Austrian UASs) was approx. €25-26m. in 2008 (but the potential is not reached yet);
- ➢ Austrian UASs received 145 innovation cheques in 2008;
- ➢ The percentage of SME among partners is over 50 %:
  - o UAS Burgenland: 33 %
  - o UAS Salzburg: 36 %
  - o UAS Oberösterreich: 42 %
  - o UAS St. Pölten: 56 %
  - o UAS Technikum Wien: 92 %
- ➢ There is no own R&D support for UASs except Josef Ressel Centers;
- ➢ Initiation of R&D base financing at UASs could lead to more efficient and effective use of their potential and, therefore, to double increase in number of conducting research projects. [19, p.5 et.sqq.]

Today, R&D at Austrian Universities of Applied Sciences is conducted in cooperation with leaders in technology. The number of the R&D customers of the Austrian UASs is about 1600: e.g. AVL, Baxter, Bau Holding, Borealis, Bosch, BMW, Doppelmayr, Google, Infineon, Magna, Mahle, MAN, Microsoft, NXP, OMV, Philips, Red Bull, REHAU, Siemens, Telekom Austria, Voestalpine Stahl, Zumtobel, etc. [11]

Summing up all above, the following strengths of R&D made by UASs can be highlighted:

- ✓ the regional adjustment coupled with practice orientation and internationalisation;
- ✓ interdisciplinary teams;
- ✓ high leverage effect of the used resources, because of:
  - – existing resources (rooms, devices, etc.) in the UASs used for teaching. These resources could be also used for R&D purposes;
  - – UASs have direct access to students and graduates;
  - – UASs have direct contact with business due to external professors;
- ✓ Higher dynamism and good organisation;
- ✓ Support of R&D by the governance and other funds.

Related to the last point of R&D at UASs each country has different volumes of support and other special features:

→ Germany: €30m. p.a. by BMBF and, in addition, state funding (public funds),
→ Holland: Since 2001 research professorships (€50m. p.a.) and RAAK programs with €8m. p.a.,
→ Austria: no own R&D support for UASs except Josef Ressel Centres,
→ Switzerland: R&D basic funding by state and cantons.

Thus, for successful cooperation between science and business and higher potential of such cooperation human resources play a significant role. In regard to this, the next chapter aims to the give theoretical basics of HR Management and HRD.

RESEARCH-ORIENTED HUMAN RESOURCES DEVELOPMENT STRATEGIES

In 1980 Laukamm defined the term „Human Resource“ as “the whole intellectual and physical potential of the enterprise’s employees namely the latent available one as well as the already used potential”. [2] Especially the intellectual potential of employees is important for each company. Nowadays the knowledge is considered as a strategic competitive factor. Our society is defined as a knowledge society. Of course, this description of society has a high impact on the company’s activities. [4, p.5]

Before starting to describe the HRD and its role, the term “Human Resource Management” (HRM) should be defined. Armstrong defines HRM as “a strategic and coherent concept approach for management of the organization´s most valued assets”: people contributing individually and collectively to the achievement of organizational objectives. [1, p.3] The main goal of HRM is to achieve the organizational goals and high performance through the intellectual potential and professional knowledge of the employees. [1, p.4]

Accordingly to Sims, one of the most important parts of HRM and one of its primary functions is HRD that in comparison with other areas of HRM still has further developments to be brought about. [15]

In 1980 Bisani tried to give a definition of Management Development or HRD. He wrote, that “the definition of HRD is still new and came, actually, only to the discussion when the progressive technical development changed the activity contents of traditional occupations stronger and stronger than always new technology and materials produced new manufacturing methods and working forms and the change process also spread to management (…)”. [2, p.1]

The following statistic of expenditures for HRD refers to the importance of the HRD for German companies: 1970s – 2,1 billion D-mark,1995 – 33 billion D-mark and 1998 – already 48,5 billion D-mark. [2., p.1 et. sqq.]

Furthermore, Stephen Gibb distinguishes 4 terms in the field of HRD: learning, training, education and development (Figure 6).

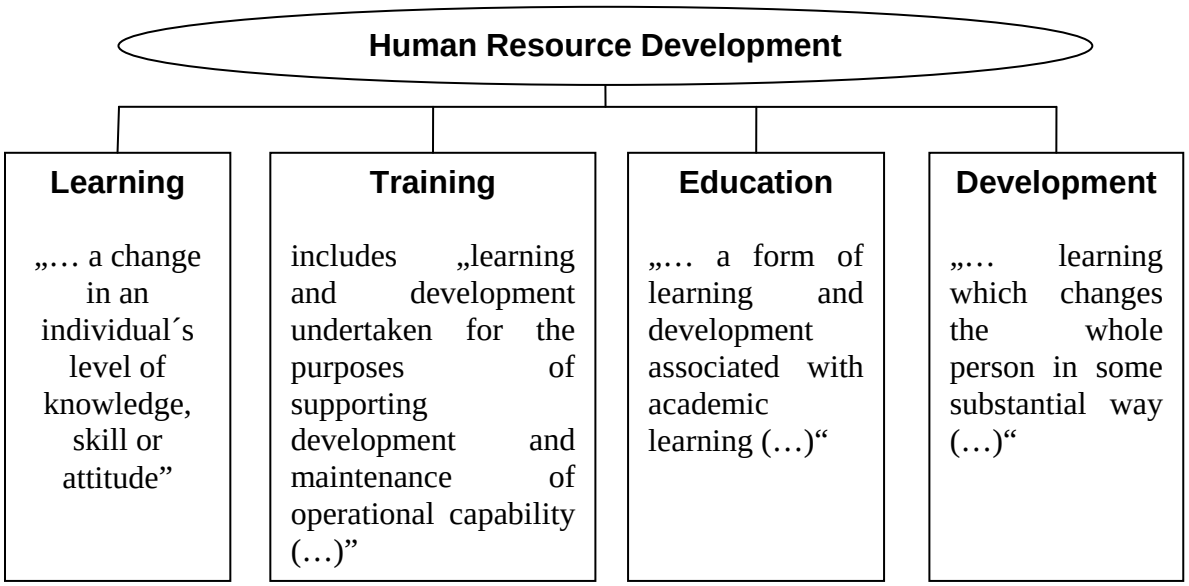

Figure 6. Definitions in the field of HRD

Source: compiled by author, based on [5, p.5]

As appears from Figure 6 above, there are some differences between development and other terms. Development “…helps people to grow, not just to change their vocational skill level or academic knowledge. Development is a task that faces people at all times, from childhood throughout the lifespan.”

[5, p.5-6]
Jeffrey Gold also mentioned that "…ideas and practices relating to HRD have moved beyond a narrow conception of training and development. Many organizations now attempt to take a holistic view that embraces the idea of learning at individual and organizational levels as a crucial source of competitive advantage." [3, p.274]
Thus, "HRD is the framework for helping employees to develop their personal and organizational skills, knowledge, and abilities." [7]
The human resource development pursues the aim to qualify employees of all levels for implementing (accomplishing) the present and future requirements. [10, p.250] However, it should be also a balance of interests (organizational and personal). HRD tries to integrate the personal development objectives and the career wishes of an employee into the general goals of the enterprises. [cf. ibid.]
Accordingly to Manfred Becker the HRD has two orientations: economic and social efficiency. Economic efficiency of HRD leads to achievement of the company's goals. But nowadays, when the Human Resources are in the core of each organization and the main capital of each organization, the social efficiency is also very important. It aims to implement the individual goals and objectives of employees (personal development). [10, p.250] In opposition to these goals are the wishes, needs and expectations of the staff in organizations. All situations with people are complicated, sometimes it´s hard to predict their reaction (especially to something that is new). No activities in the area of HRD can be successful and efficient without taking into account the wishes of employees. [cf. ibid.]
Recently HRD "has moved out of training departments into every aspect of organizational life as many have attempted to become learning organizations with increasing moves towards finding ways to integrate work and learning." [3, p.274]
John Leopold mentioned that "…the growing emphasis on HRD´s strategic contribution to organizational change and development, and the concepts of careers and roles in organizations and management development." [12, p.377]
Stephen Gibb also points out that "HRD needs to be set in the wider operational context of organizational performance management." [5, p.9]
IBM Business Consulting Services (Dusseldorf) in cooperation with DEKRA Akademie GmbH (Stuttgart) and Atoss Software AG (Munich) (a study that surveyed 72 companies with 800.000 employees) has determined that the enterprises spend on average 1.52 percent of their expenditure on the personnel work. [cf. 16] In large enterprises the share is higher.
By the apportioning of the HR costs on single processes and per employee is to be recognised that the area of the education and the further education (e.g. trainings) forms the biggest cost pool (484 Euros per employee). The hiring processes (227 Euros) and payroll accounting (158 Euros) follow it. [cf. ibid.] A staff member causes on average 1777 Euros of HR costs. [cf. ibid.]
By the question about the improvement need of the HR processes the study came up with the result that the HR managers, as well as the executives, look at many processes still as improvement-destitute (the need for improvement is high). This is important in particular for the hiring processes (51 percent), planning of HR allocation (49 percent), HR development and the communication (in each case 46 percent). [cf. ibid.]

SUMMARY AND CONCLUSIONS: RESEARCH-ORIENTED HRD AT AUSTRIA´ S UASS

Finally, this last paragraph aims to analyse the state of research-oriented HRD at UASs in Austria.
Miloš Vec defined in his article the tasks for researchers in the following way: "if the science is an innovation process, so must the researchers either formulate a new task or solve the old issues or questions

in a different way." [13, p.15-23]
Potential (or further opportunities) of the UASs in Austria is the following:

- As mentioned earlier, initially (1994) there were approx. 10 degree programmes with 708 students and today the number of students reached 33,600 and the number of degree programmes in turn has risen to 276. Nevertheless, there is still potential for further growth. A study of the Austrian academy of the sciences (Österreichische Akademie der Wissenschaften) has found out interesting results: till 2030 in Austria every second teenager will have a university entrance diploma. [19, p.2] In comparison to present 41% the growth to 50% is a big step forwards. At the same time the ÖAW comes from the fact that more and more young people will decide to study at UASs and not at university. In the long term an increase of the rate to 90% is expected. [19, p.2, 20]
- The president of FHR Leopold March points out a „dynamical development of the research and development made by UASs which will affect, in the end, positively the economy". [19, p.2]
- Internationalisation
- Personnel development and organisational development.

Thus, UASs should conduct research and take care of research-oriented HRD. Finally, Figure 7 presents the further ideas for necessity of HRD at UASs.

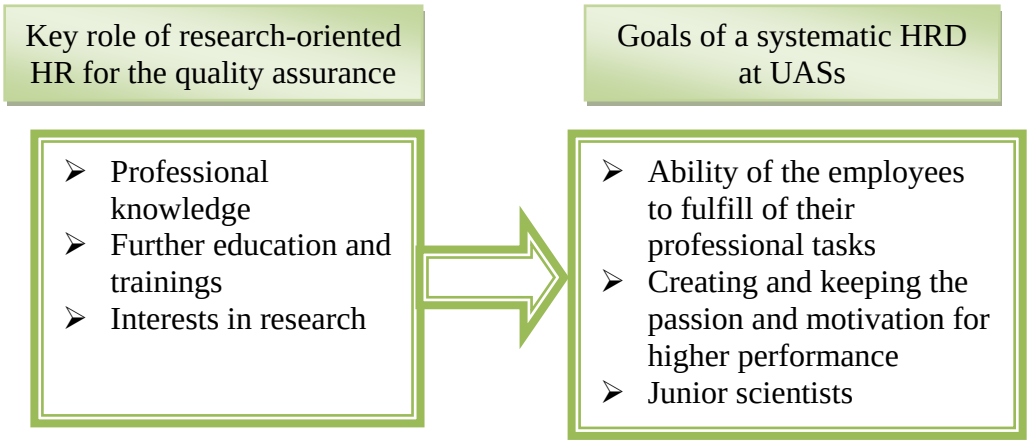

Figure 7. Need for a systematic HRD at UASs

Source: compiled by author

All three approaches have created instruments and techniques especially for young researchers at Universities of Applied Sciences, which are supposed to provide sustainable qualification opportunities in order to enhance substantive, methodological and additional key qualifications for outstanding research and development achievements.
Thus, this paper highlighted the importance of research-oriented HRD at Universities of Applied Sciences and provides an analysis of the Austrian system of UASs and current state of R&D in higher education as well as potential of UASs for the future.

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