

On Higher Education and Research: a Perspective of Joseph Ben-David et al.

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1 Introduction

This is an attempt to summarize major observations and theses of Joseph Ben-David as they pertain to higher education and research systems (and not to the other areas of investigations with which JBD dealt with). These major observations and theses are placed within a framework of observations and theses shared by many authors; observations and theses that can be ascribed to Ben-David (in particular) are specifically identified. The perspective is traced to the post Ben-David years (i.e. to the present).

2 Basic Observations

O1: Science (as a social activity) is linked to modernity.

O2: Higher education beyond the original four faculties (theology, law, medicine, philosophy) is originally tied to industrial societies.

O3: Industrial societies called for (new) learned professions (engineering and the sciences):

- Polytechnic schools and *Bergakademien*, as vocational training centers outside of universities, sprung up in France and Germany (around 1800);

- The University of Berlin was founded (1809) on the basis of ideas of Fichte, Schleiermacher and W. von Humboldt (Humboldt's eminence was recognized only about 100 years later);
- The combination of teaching and research, coupled with *Freiheit*, proved (in the eyes of JBD) decisive (the other aspect, *Einsamkeit*, has only historical significance);
- In the US, Research Universities were formed around the second half of that century, molded to some extent on the German experience and the unique combination of teaching and research;
- There remained, however, a detrimental current (in the assessment of JBD) to separate research from teaching (e.g. in France, in Germany itself, in the USSR).

O4: There was a co-development of new disciplines and enrollment.

O5: The German university became the dominating university in the 19th century (emulated, to some extent, in the US).

O6 (Ben-David): The US university became the dominating university of the 20th century; Ben-David dates the decline of the German university earlier than most scholars, namely around the beginning of WWI (and not around 1933). After WWII, European higher education and research has been unable to regain its former status as a "center of learning".

O7: With the onset of post-industrial, service industry oriented societies, mass-higher-education evolved and existing higher education systems diversified. US higher education has been, in comparison to European higher education, traditionally diversified: today, only circa 100 institutions (among roughly 4,000 tertiary education institutions) count as research oriented universities, whereas in Europe roughly 800 institutions aspire to be research oriented.

O8: Higher education (and research), as a naturally labor intensive industry, is hampered in the process to reduce costs by becoming capital intensive (in spite of recent efforts in the direction of a "virtual" university). Higher

education has become (comparatively) costly and retrenchment is common, affecting quality. All university systems are affected. The “performance” of science or higher education systems has become an issue.

O9: Higher education, once regarded to be a public good in the service of society, is increasingly privatized: funding sources are diversified, patenting income pursued, technology transfer and sponsoring activities accentuated, tuition and fees increased, etc.

O10: Higher education has become the subject of intervention and some crude planning: performance-based budgeting and funding, excellence initiatives, top-down interventions, and so on. These activities (paralleling investment capitalism) mimic — without proper reflection — planning activities (once deplored) of the Soviet era.

O11: There do exist notions on how the performance of higher education or science systems are to be measured (operationalized), but there does not exist enough evidence on what causes performance (and corresponding evidence is being negated).

3 Further Observations and Theses

T1: Disciplinary development is tied (i) to the expansion of the higher education systems, to the tacit and overt “rules and regulations” shaping this expansion, and (ii) to scientific/technological progress.

T2: Disciplinary development (within academia) is due to four forces: (i) specialization within existing disciplines, where the specialization within an existing discipline forms a new disciplinary orientation; (ii) academic drift of previously non-academic occupations (i.e. the elevation of non-academic pursuits to academic activities); (iii) the cross-disciplinary¹ merger of separate academic activities into new fields; and (iv) the abandonment of superfluous

¹I use the term “cross-disciplinary” neutrally to denote inter-disciplinary and trans-disciplinary. The adjective “inter-disciplinary” I use in connection with cooperations or communications of representatives of separate disciplines; the adjective “trans-disciplinary” I use whenever concepts, theories or languages characteristic of a particular discipline are used and incorporated into a new disciplinary framework.

disciplines and their replacement through more appropriate lines of development. Examples:

- *Specialization within existing disciplines:* The splitting (and further subdivision) of the faculty of philosophy into philosophy I (humanities and social sciences) and philosophy II (natural sciences and mathematics); physiology as a specialization of medicine.
- *Academic drift of previously non-academic occupations:* Landscape architecture, business management, nursing, social work, penology.
- *Cross-disciplinary merger of separate academic activities:* Computer sciences, formed by merging mathematics and electrical engineering; environmental sciences, formed through the merger of chemistry and biology; mechatronics, formed through the merger of electrical and mechanical engineering; neuro-informatics, formed through the merger of neurosciences and computer sciences.
- *Abandonment of superfluous disciplines:* Photography, replaced by imaging sciences; zoology, replaced by organismic biology.

T₃ (Ben-David): The German university system of the 19th century was successful because it was in a position to expand (growing numbers of academic chairs; new disciplinary orientations). Tacit and written rules and regulations (i.e. the culture) of the German university system shaped and fed this expansion.

T₄ (Ben-David): The very same rules and regulations that were responsible for a viable, expanding German university system (and its outstanding research) in the 19th century became constricting early in the 20th century: the system became saturated, and the expansion slowed or came almost to a standstill.

T₅ (Ben-David): After WWI (1914-17), and clearly after the Nazi period (1933-45) and WWII, the US higher education system produced the leading research universities (see O6). It incorporated a German focus on (i) *Freiheit*, and on (ii) combining teaching with research, but it (iii) retained a (British) focus on teaching and a collegiate culture not present in the German university.

T6: The focus on teaching and the new interest in the unity of teaching and research, coupled with a collegiate culture, had a number of side effects:

- undergraduate education was separated from graduate education and graduate schools were formed (after 1875);
- education was “managed”, and credit systems were introduced (by the Carnegie Foundation) as early as 1905;
- faculty-student ratios were perceived as quality indicators of teaching, and the ratios remained pretty stable and favorable over the past century;
- the formation of graduate schools, coupled with favorable faculty-student ratios, proved instrumental in the case of research productivity.

T7: The US university, and US science, benefited from “natural” advantages: a (quasi) continental culture based on a single language (the new lingua franca); the two WW fought outside their own territory; domestic professional organizations (and periodicals) that could serve the world market; comparative economic prosperity (up to roughly 1980).

T8: The US university was, and still is, in a much better position to adapt to, and to form, a changing environment (new technologies, new disciplinary or professional orientations, technology transfer, mass-higher education, retrenchment, etc.). This adaptiveness is directly attributable to structural features of the US university that Ben-David emphasizes:

- the combination of teaching and research (a Humboldtian principle) and the lack of strong research academies;
- the primary focus on teaching and the collegiate culture (with its implicit favorable faculty-student ratios, and the relative ease with which [cross-disciplinary] institutes can be formed or abandoned);
- a substantially flatter hierarchical setup of the academic enterprise and a more pronounced university management;
- the cultivation of graduate schools.

T9: The US university has loſt terrain in recent decades (after 1980) and new — globalized — models of higher education and research emerge. These models tend to:

- devalue general (liberal) education and emphasize professional education;
- devalue the public goods’ aspect of higher education and place emphasis on education as a private good;
- devalue education as a private experience and place emphasis on credentials;
- devalue academic freedom (and tenure) and emphasize education (and research) as a “production” process (with its implicit division of labor).