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Viewpoints & Discussion:

Research Skills for the Future: A Consultant's Perspective

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Note. This article is a response to a *Viewpoint & Discussion* article published in this journal: Ulrich, W., & Dash, D. P. (2013). [Research skills for the future: Summary and critique of a comparative study in eight countries](#). *Journal of Research Practice*, 9(1), Article V1.

The summary and critique of the consultant report, *Skills and Competencies Needed in the Research Field: Objectives 2020*, provided by Ulrich and Dash (2013) is to be welcomed. The consultant report itself (links to which can be found in Ulrich & Dash, 2013) is well presented and clearly written. However, Ulrich and Dash find reasons for concern about its methodological transparency, its economic and commercial orientation, and its apparent concentration on the medical-pharmaceutical industry. In their critique Ulrich and Dash raise many interesting questions about the wider role of research and the means of conducting it. What part should research play in developing countries? Where is the concern for social justice? What sort of society do we want and what is the role of research in achieving it? No doubt others will give their views on these important questions; I will concentrate on the report itself.

The Overall Aim of the Consulting Project

The consulting investigation, of course, never set out to answer these wider questions, or if it did, its attention rapidly converged on the more familiar (to consultants that is) issue of economic and commercial success. As Ulrich and Dash put it, "a related limitation of the report appears to be what might be seen as its tacit orientation towards the needs of

the business and corporate world. Research appears to be treated primarily as a factor of commercial success, both for individual organizations and national economies.”

The motivation for a report such as this is to interest existing and potential clients, demonstrate the consultants’ capability, and to establish contacts. The subject of the report, “research” to support the national competition for international commercial success and economic growth in research-intensive countries, is timely. The report, despite its title, has a narrow focus centred on researchers in the commercial sector and their collaborators. Essentially it elaborates on the commercial research and development value chain. The project involves a rapid gathering of opinions, some relevant documentation, and available comparative statistics. The opinions are based on interviewing 80 research managers and administrators in commercial, university, and governmental organizations (rather than individual researchers themselves). The representation of different sectors differs greatly from country to country, as does the balance between private and public interviewees. The choice of whom to approach for interview is not stated but presumably it reflects the serendipitous nature of existing contacts, introductions made, and whether individuals would agree to be interviewed.

It is important to recognize that *the exclusive focus of the report is on science and technology research*. If one is in any doubt about this, one need only look at the titles and affiliations of the “committee of experts” convened by the consultants. Universities and public bodies are participants in the commercial research value chain both as collaborators and as suppliers of the vital resource—(partially) trained scientists and engineers. For this reason, if no other, academics and public administrators are rightly included. They are also potentially able to provide a somewhat independent view of the issues; but the focus of the people involved in this study, however wide their interests are in general, was clearly on applied research of commercial interest. No doubt there was some wider debate during the interviews but the whole is like a stew made from a rabbit and an elephant—the stew will taste of elephant.

Research Competencies and Science

The thing that stands out in the section of the report devoted to key research competencies is the designation of one of the three groups as “scientific competencies,” the first item of which is “scientific knowledge.” Some of the academics involved might have understood this to include all sorts of knowledge including that derived in the social sciences and humanities in general. But in the light of the background of the majority of people involved in the project, science in this case is generally understood to mean natural science; there is little evidence that they also mean, for instance, knowledge of studies into violence in city centres or the role of formal religion in societal cohesion. Any social science input is taken as an add-on, a contribution to the scientific and technological effort. This observation, if correct, reinforces the conclusion that the report is about scientific and technological research, not research in general. The conclusion that the report concentrates on a narrow but very important (in university, commercial, and governmental terms) segment of research, makes the findings of the report easier to understand and actually more practically useful rather than less. The unit of analysis, if

that is the right term, is the research laboratory, what goes on inside their research teams, and their relationships with customers, suppliers, collaborators, competitors, universities, and researchers and administrators in the public sector. This is the extended value chain of commercial research. This understanding raises questions about the meaning of some of the identified competencies. For instance, does the competence “ability to work in an interdisciplinary environment” refer primarily to the ability to work with other scientists, engineers, and practice professionals or does it mean increasingly working with social scientists? Some of the discussion gives example of scientists and engineers working with sociologists and psychologists. The question is whether this will become a more normal feature of scientific and technological research; if so, how do scientists/technologists need to be prepared?

The Structure of the Competence Model

Under the general heading “competencies,” 20 key competencies for the ideal experienced researcher are identified and are organized into three groups: scientific competencies, project and team management skills, and personal aptitudes/interpersonal skills. This structure seems arbitrary (why three groups, why these three, why not a fourth, say “understanding of social, political, and economic context”) as does the allocation of the 20 key competencies to the three groups; for instance, it is not clear why “ability to learn and adapt” is a scientific competence whereas “adaptability” is deemed to be a personal aptitude/interpersonal skill; why is the competence “language skills” included under project and team management skills rather than under aptitudes/interpersonal skills. The grouping has all the hallmarks of yellow Post-it notes being shuffled into some sort of shape at the end of a long day.

Competencies Key Now and for the Future

Despite the doubtful structuring, the lists of key competencies are useful in themselves; they are worthy of attention. Can we wring more out of the lists? Of the 20 key competencies required of the ideal experienced researcher now and in the future (Ulrich & Dash, 2013, Figure 1, “Competencies expected of experienced researchers”), the following 6 were designated as key competencies required for the future (such a designation indicated hereafter by a star*):

- (1) Capacity for analysis and grasp of sophisticated IT tools*
- (2) Ability to work in an interdisciplinary environment*
- (3) Ability to develop a network*
- (4) Language skills*
- (5) Business culture and management skills*
- (6) Awareness of the pertinence of the research and its impact on the environment*

Only competencies 2 and 3 are not included in the list of the 12 competencies expected by research organizations when recruiting young researchers; the implication is that, of the key competencies required now and for the future, the “ability to work in an interdisciplinary environment” and the “ability to develop a network” would only be

acquired after recruitment. That seems a reasonable conclusion to draw; it gives those in employer organizations responsible for encouraging the development of their researchers, something on which to focus.

Of the 20 key competencies required of experienced researchers, 8 are expected to be picked up after recruitment (in other words, those competencies required of experienced researchers not included in the list for young researchers):

- (1) Ability to learn and adapt
- (2) Ability to work in an interdisciplinary environment*
- (3) Ability to incorporate existing knowledge
- (4) Ability to develop a network*
- (5) Ability to assess
- (6) Project management skills
- (7) Ability to manage and steer teams
- (8) Ability to self-assess

With one possible exception, this would seem a potentially useful set of those competencies that a science based university course would have difficulty in addressing adequately beyond a brief introduction to raise awareness. The exception is (6) “project management skills,” some foundations for which could be developed as part of the “business culture and management skills” competency, a competency which young researchers are expected to have in some countries.

Concluding Remarks

Consultant reports of the sort considered here have their place. Some aspire to meet academic standards but that was not the case here. However, the title of this consultant report misleads in that it raises expectations of a much wider review of research, its aims, and its means of conduct. These expectations are quickly dashed, but if understood for what it is—a review of the value chain of commercial science and technology research in research-intensive countries—the report provides some useful information, raises some interesting questions, and gives some food for thought. But it is what it is. It lacks academic rigor and its findings should be treated with caution; but it is pertinent and timely.

References

- Ulrich, W., & Dash, D. P. (2013). Research skills for the future: Summary and critique of a comparative study in eight countries. *Journal of Research Practice*, 9(1), Article V1. Retrieved from <http://jrp.icaap.org/index.php/jrp/article/view/377/304>

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