

Guest editorial comment

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The role of professional institutions in research

PROFESSIONAL institutions exist for their members. Most institutions were first established as learned societies for the exchange of information and mutual support related to professional activity. Later came the qualifying role with its examinations and more recently the provision of services to members on a payment basis. The charter lays down fundamental objectives for the institution. The members are expected to support these objectives by personal contribution and in their work.

Research has a position in the traditional learned society role of professional institutions. Research, and the results of research, contribute to a general exchange of information and figure as the subject of papers in institution journals and meetings, and also contribute to the technical publications produced by an institution. Moreover, most professional institutions concerned with engineering have a duty within their charter to facilitate or promote research in one way or another.

Considering construction, the industry has a poor record in using the results of research. In the NEDO *Research Strategy Report* of 1985, the view was put forward that the dissemination of research was a major issue and that, although more and better co-ordinated research was needed, there was a wealth of research information available which was not used by the practitioner. Accordingly it would seem that institutions could play a key role in bringing the results of research to the attention of their members.

In 1988 the Institution of Structural Engineers adopted the following statement to summarize its policy on research:

Recognising the importance of research to the development of structural engineering, the Institution of Structural Engineers seeks to promote the active interest of its members in all aspects of research related to the science and art of structural engineering, and is particularly committed to the proper and effective dissemination and application of the results of research to enhance the practice of structural engineering.

Although there is an external role, the Institution sees its own members as the focus for its research policy. The aim is to promote the interest and involvement of

its members in research and the use of research in practice.

This task is not straightforward. There is still an uncomfortable divide between practice and academe, and research is often regarded as a province of academe. There is a reluctance to accept that research is an integral part of practice, even though many consultants and contractors spend significant time and effort on studies to support their own work, which would be considered as research in any R & D organization. The different motivations of researchers and practitioners are not always respected or even understood. An academic may be contributing to an emerging picture of the subject which will take years of his and others' work, maybe throughout the world, to clarify and render useful. The practitioner tends to be project-oriented and needs the best judgement available on the basis of current knowledge. The two positions are not totally incompatible but understanding is necessary if research and practice are to work together to mutual advantage.

There are difficulties too in the use of research in practice. The take up or use of research may involve doing something for the first time with all the associated uncertainties and risks. These may be primarily technical but could also have significant financial and litigious implications. Because of this, there must be a significant advantage in using new theories, materials or techniques if these are to be adopted. Unless the advantage is clear, engineers will rely on established methods and avoid innovation by designing to avoid difficulties and so minimize uncertainty.

Adoption of new techniques involves a step-change in thinking and applications by practitioners. This is not the only way in which research influences practice. Continuing research of all kinds leads to an increase in knowledge. There is an expectation that an engineer 'should command the corpus of knowledge which forms part of the professional equipment of the ordinary member of his profession'. As knowledge is disseminated and becomes generally available, an engineer is expected to know more, and so is held liable if he has ignored this knowledge in situations involving failure or dispute.

The last point is the key to the 'proper and effective dissemination' of research by professional institutions as proposed in the Structurals' research policy state-

ment. There is clearly a responsibility to the members to do everything possible to ensure that research which is disseminated is appropriate, useful and has been assessed and put into context.

Institution journals and the various conferences run by professional institutions allow research papers to be published in the author's name in the spirit of *caveat emptor* for the practitioner. On the other hand, many institution technical reports are intended to be statements of practice, i.e. they should be directly usable by the practitioner. It is here that particular care must be taken in introducing the results of research and so adding to the corpus of knowledge which is part of the equipment of the professional engineer. In producing reports of this kind, it is essential that there is a full understanding of the objectives, together with co-operation between the researcher and practitioner, so that preliminary and egocentric views

are not oversold, and that useful results are not ignored.

To conclude, professional institutions need to take a responsible but open view of research. They have a role in mobilizing the experience of their members in defining research objectives and reviewing the effectiveness of research. More importantly though, the principal role for institutions must be in dissemination. This must be undertaken critically so the results of research are integrated into practice and so made useful to the profession. More widely, the institutions have a role in establishing a climate in which research is seen to be useful by their members, and their members see their own participation in research as a necessary part of professional practice. Considering that both curiosity and construction (or research and practice) are as old as time itself, there is still some way to go.