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Editorial

THE FIRST paper in this issue, by **Meyer and Sass**, focuses on measures to improve educational approaches for students coming from educationally disadvantaged backgrounds—here related to the situation in South Africa. This is a delicate subject area which needs to be treated as objectively as possible. By this we would imply that cause, effect and remedy need to be kept at an analytical level. Meyer and Sass state that,

> It is dangerous to argue, as many have done and still do, that the learning problems of disadvantaged students can be addressed independently of the objective context in which they arise, and of the subjective context perceived by the students themselves. Many study skills interventions have failed precisely because they failed to address either the content, or the context, of the academic discipline in which the skills are to be practised, or the study environment in which the students find themselves.

We could ask ourselves whether this statement is valid for *all* students, not just the disadvantaged. Little information is available, or known to engineering faculty, on why students fail courses or drop out of engineering studies. We accept high dropout and failure rates without examining the reasons analytically in order to improve the situation. A typical approach in our school involves two remedial preventive courses of action at the beginning of the course in mechanical engineering. One course is an orientation unit, where incoming students spend a week acquainting themselves with the infrastructure, and study the situation in the department. This introductory orientation serves to diminish the 'culture shock' of transferring from one environment to a newly structured learning environment, which has its own rules of existence and survival mechanisms. Another introductory action is a remedial course in mathematics. Typically, students are accepted with varying mathematical skills, and in some cases they lack basic skills, without which advanced mathematics becomes a rarefied subject and can obscure the need for down-to-earth arithmetic skills. These actions may contribute to some degree to an increased retention rate. They do not, however, address the question of motivation in a society with a multitude of diversions away from a learning discipline. Moreover, nowadays four years of hard work, after thirteen years of schooling, may not even bring the relief of a high standard of living and a respectable position in society. Such circumstances would, it seems, require placing the motivation to study engineering in a social context.

Studies, like those by Meyer and Sass on the academic situation of engineering students, viewed from the vantage point of education experts are all too rare. I venture to propose that some of the reasons of this neglect are the rejection by engineering academics of interference in their teaching practise; the assumption that nobody knows better how to present their subject than the subject-matter experts; and the neglect of other communication factors for teaching success. Another reason is that academic institutions tend to separate education from engineering, not realizing that a large measure of success of an engineering education institution does depend on the quality of teaching. Therefore, I plead for more involvement of education experts, such as Meyer and Sass, in helping to analyse and improve the study situation of students in our engineering faculties. Having such experts join engineering faculties will help to foster mutual respect between the education and engineering disciplines, to the advantage of both sides. The engineers will receive better, more structured, education, and education will be able to contribute, within the context of engineering faculty needs and aims, to the quality of engineering teaching.

Michael S. Wald