YEAR 13 OF THE AUSTRALIAN EDUCATION SYSTEM

Brian McInnes*

The numeration of the various annual stages of primary and secondary schooling across Australia was recently amended to a Year 0 to Year 12 designation. Perhaps we can anticipate administrative decisions and assign the numbers 13 onwards to the annual stages of tertiary education. (The proposed establishment of a Tertiary Education Commission should facilitate such a decision and the introduction of fees for higher and second degree students should ensure a reasonable cut-off to the numbers at 16 to 18.)

It is tempting to imagine these numbers as contour values on a map representing Australian education: displayed there are the lowlands of infants and primary schools, the middle ground of lower secondary, and the highlands of the tertiary establishments. The elders who live in this land can remember the days of old when the highlands were shrouded in mist and all believed that Himalayan ranges lay beyond; latterly, the mists have dispersed revealing a somewhat drab plateau, distinguished more by eroded gullies than by massive bluffs. Legends exist of distant days when drought held sway, while heavy rains are of recent memory. There are those who claim that much of that water gushed recklessly and unused down the slopes and across the plains to the sea. All agree that drought has returned.

It is undoubtably of more interest than profit to pursue this analogy much further, but we should note that the majority of inhabitants of the land are juvenile, being supplemented by teachers, administrators and researchers. The population is for the most part immobile: the juvenile component usually do move once or twice, almost all into a high school at the Years 6/7 transition and some 18% of the original starters to a tertiary institution after Year 12. Each of the three establishments houses two classes of students: infants/primary, junior/senior, undergraduate/postgraduate. It would be interesting to look closely at these divisions and both transitions, to see if they signify real steps in the educational process or whether they are merely a response to administrative convenience, the response being located by arbitrary barrier assessments. However, in this article we look closely only at the transition from upper secondary to undergraduate university.

This school-university interface is the subject of increasing examination, both by educators, especially those working in or near the interface, and by administrators. I give two illustrations, both of which I have personal knowledge. At the 1975 International Conference on Physics Education, sponsored by UNESCO, a working party deliberated on a trend paper, drawn up by Ogborn[1], on this matter. In mid-1976 a panel from OECD is carrying out a review of Australian Education Policy, the theme being the transition from school to work or further study.

An ideal school-university interface is difficult, probably impossible, to define since the interface does not exist in isolation from community needs and attitudes. Society and history as well as education are involved. Financial limitations may govern the capacity of the university to absorb numbers but social pressures (e.g. unemployment) may demand the existence of university and other tertiary places for reasons which are not at all educational. There may be much cynicism but there is some truth in the opinion that military conscription and compulsory higher education are alternate ways to keep youths off the street and out of mischief. The banding together in tertiary institutions, may, of course, lead the students back onto the street and mass demonstrations thus replace solitary muggings.

Nevertheless a quota system does exist for most tertiary establishments and the normal mode of filling this quota is by assessment, usually conducted in Australia by a series of examinations not under the direct control of the selecting bodies. In some parts of the world, especially those developing countries with a strong cultural link to their former colonizers, there is fierce competition for entry, a competition that itself distorts the nature of the interface. Hamburger[2] writes . . .

> "Brazil was known, a short time ago, as the country of carnival, the country of football, and the country of happy indolence. But today a traveller who arrives at our shores in the months of November, December, January or February, will find that Brazil is, in fact, the country of competition for university entrance (vestibular). Newspapers, radio and television — all the media of the communication — are at the service of the examination; mock examinations, registration instructions, times and places of examinations, names of successful candidates, and computer print-out of results and finally, advertisement after advertisement for cramming courses. Carnival takes second place, football is forgotten; the talk is all of the examination. It looks like collective madness. The families of candidates anxiously follow every turn in

*Director of Courses in First Year Physics, University of Sydney.

the drama. The candidates take benzedrine; they suffer nervous breakdowns; and as a rule, they take several examinations in every kind of university, so as to be sure of a place."

The Australian situation is by no means as extreme but, whereas football and education are kept to their rightful priorities, there is still keen competition, especially for certain elite sections: 1146 qualified applicants sought the 250 places in Medicine I at Sydney University in 1976, while a total 10,399 qualified students sought the total 3900 quota places at that University. For the bulk of these students the decision on their application was made on the basis of the Higher School Certificate mark of 1975 or an earlier year.

There is no doubt that the effect of this selection based on assessment of school work extends the interface well back into the upper secondary system. It is now rare to find university influence playing an active role in formation of secondary school curricula and syllabi but, because school work is directed to the assessment, a passive, perhaps undesired, university influence is paramount. State education systems evolve contorted statistical procedures designed to adjust marks on the basis of "various course candidatures" but, even so, choices of subjects are often made at school on the basis of what is thought likely to maximise HSC scores and not what is best preparation for the aspired-to tertiary course or what is most immediately appropriate. This last is the more regrettable because the majority of those aiming for the tertiary course will not reach it.

The distortion produced by the existence of such a sorting system extends into the university system as well. When school teaching is encouraged to be a serious game of guessing examiners' minds, gaps arise in the knoweldge students bring with them to the university, gaps which make it difficult for coherent first year courses to be mounted. It can be more difficult to successfully "teach" a first year student who has such uncharted gaps in knowledge, unrealised by him and unappreciated by the lecturer, than to "teach" a student who has not studied the subject at all at the higher secondary level.

Most of us, if we had been setting up a definition of the school-university interface twenty or so years ago, would have remarked that one of its main properties was delineating a time and place where students were taught from a time and place where students learn. The conventional attitude then was that at school, a failure of the student to remember, to understand and to apply was the fault of the teacher, while at university such a failing was the fault of the student. Perhaps the briefest such definition of the interface is that teachers are to be found on one side and lecturers on the other. This last statement, an etymological analysis of which I leave to the reader, still holds true today, even though the interface itself may have been widened to a buffer zone and acquired its own mixed bag of educators. Whether the two other definitions (teaching and learning, fault assigning) are still valid is debatable.

The introduction of school curricula which emphasize understanding rather than content and concepts rather than facts has led to the blurring of the distinction based on teaching at school, learning at university. Students in upper secondary have been given an increased responsibility and independence in organising their study; academics, reacting to what they see as deficiencies both in students' written and oral communication skills and in their grasp of subject content, have sometimes introduced diagnostic and remedial teaching, often with associated compulsory assignments. A recent newspaper report [3] quotes a call from a business executive to the universities to introduce an auxiliary (and compulsory) course in writing of business letters and job applications.

Another contributing factor in reducing the sharpness of the interface has been the increasing use, in both school and university, of the hardware of educational technology, especially closed-circuit or broadcast television and carrels equipped for the student to interact with slide/tape material. The use of such instruction techniques in Australian Universities is patchy. There is opposition based on initial unhappy experiences, especially with television, and on prejudice; but there are instances where these techniques are being used with some success. Most of these instances are located at or next to the interface, with large junior-year classes. One significant development in the last few years is that the utilitarian reason for using this style of instruction, that is it was an economical way of coping with large numbers, has generally been found wanted and discarded; decisions to persevere with or to introduce audio-visual aids are now being made on the basis of belief in the intrinsic worth of such aids. There has been less resistance to use of the newer tools of education technology at the school level, perhaps because of the availability of suitable software (films, slides, transparencies, audio tape and videotape) and, in the early seventies, funds for both hardware (equipment) and software.

Although tutorial classes with small numbers, if the timetable allowed it, were not unknown to academics in the past, there has been a recent emphasis on the small-group discussion session as an essential ingredient of the instruction process. Standard guidelines on how such sessions should be conducted, what part the disucssion leader should play and even where the leader should sit vis-a-vis the (other) participants, have proliferated. Fortunately, there has been much contradiction between sets of guidelines and, more fortunately, many educators

have been stimulated to analyse their teaching methods. A trend towards greater student/lecturer co-operation in the educational process, at undergraduate level, can be discerned.

It is likely that in the last two or three years at school, most students will have experienced a mixture of teaching and learning techniques. When such students transfer to university, they could well meet a similar mixture. The similarities in teaching style may well outweigh the differences and even any formal distinction between university lectures and school lessons appears slight. The sharp increase in numbers in the class could well appear to many students to be the more significant change.

No amount of word-spinning can obscure the fact that the transition is sharp as regards change of locale. One major consequence of this change is that it leads to a loss of status within the educational establishment, a loss unlikely to be compensated for in any rise in status in the family and local community.

A pessimistic view of the student's movement through the university-part of the buffer zone sees him as submerged in a large crowd, suffering from a loss of self-importance, finding little change in teaching style and learning requirements and interacting (usually at long range) with academics who appear to blame him for deficiencies in background knowledge and general preparedness. For female students in the physical sciences or engineering there can be the feeling that her presence in the class is at best tolerated by fellow students and lecturers.

Certainly the universities themselves are aware of problems and have attempted through service facilities to ease the students' way. Student counselling services and student health services provided direct help for those students aware of problems, while much of the work of teaching/learning centres (whatever choice of name or letters they take) is spent analysing instruction programmes in the interface region. Many academics involved in the instruction of first year students have systematically endeavoured to chart deficiencies in the amount of knowledge incoming students have or, more properly, mismatches between this knowledge and that background assumed, explicitly and implicitly, by the university instructors.

In my own field of physics such endeavours have occurred on a large scale in England and Wales in the Physics Interface Project[4]. This project, funded by the Nuffield Foundation, is a co-operative venture by a number of British universities. The project is trying to devise diagnostic tests and materials to help students overcome common deficiencies arising from gaps in knowledge. Similar studies, more restricted in participants and finance, are occurring at Australian universities and CAE's. Naturally such studies are not restricted to the discipline of physics. I have no figures to hand, but I suspect that work in this field is more common at the newer universities and the CAE's than at the older universities.

Such endeavours are praiseworthy, but time-consuming; they compete with normal teaching routines for increasingly limited staff and finance, and there is no guarantee that they can produce formulas or procedures that can significantly assist students to progress through the interface region. Furthermore, any ways found are likely to be of temporary value only, as conditions on both sides of the interface are by no means permanent. Shifts in demands for graduates, shifts in structure in school education, shifts in university financing all change the nature of the interface and require changes in content if not in method. Nevertheless, I feel it is essential to make this effort to be aware of changes at the entrance to the interface and to adapt courses to meet student needs and preparedness. To claim that such adaptation necessitates prostitution of standards is nonsense, yet I have heard this claim made, both explicitly and implicitly, in academic circles.

Ogborn[1], in the trend paper noted earlier, refers to school and university in the following terms: "Both parties to the relationship are caught in a conflict between education as the conservation, transmission and development of knowledge, and education as the agent for change in society, with its implication in terms of social control." The words "both parties" could just as well describe academic and student as school and university. We must note that the conflict is not between school and university, nor between academic and student, but within education and society. Unless we hold extreme views of society, we must see value in both sides of the conflict. In the student's first year of university, the year 13 of the Australian education system, we should make all reasonable effort, within the limits imposed by a particular discipline, to aid the students to appreciate this dual nature of education.

REFERENCES:

1 **J. M. Ogborn,** "The interface between secondary and tertiary education". The results of the deliberations of this working party are to be published in the Unesco volume. *New Trends in Physics Education. Vol. III.* The Conference was organised by the International Union of Pure and Applied Physics and sponsored by Unesco, The Royal Society, The Institute of Physics and the University of Edinburgh.

2 **E. W. Hamburger,** "O exame vestibular e os desajustes do sisteme de ensino [The university entrance examination and its effect on the education system]" *Cience e Cultura* Vol 22, No. 2, 1970. pp 223-226.

3 *Sydney Morning Herald.* July 9, 1976. Mr. John P. Young, chairman and managing director of John P. Young and Associates said that too many students including university graduates, did not have enough command of the language to write for a job. Mr. Young said the universities could run a short extra-curriculum course common to all faculties.

4 **R. A. Sutton,** "The school-university physics interface project". *Physics Education.* Vol. 7, May 1972. p 212. **C. A. Taylor,** "The physics Interface Project". *Physics Education.* Vol. 8, March 1973. p 109.