CHAPTER ONE
OUTLINE OF THE STUDY

This dissertation is being presented as part of the work for the M.A.(Education) degree in the University of Lancaster. It is intended to draw upon several perspectives of educational theory used in the various curriculum and planning units of this course in an analysis of an important recent development - the arrival of the microcomputer as an educational tool in schools and colleges and the growing recognition of the need for the educational system to respond to the challenge of the 'new technology' and the information explosion.

Such an analysis involves consideration of factors operating on different scales. The classroom potential for microcomputer-based activity is affected by decisions taken at national level and by features of the classroom learning environment equally. Strategies for implementing curriculum reform for 'microelectronics literacy' must take account of a range of considerations; principles of curriculum design and the feasibility of the various possible approaches to curriculum innovation and dissemination will be important, as will the psychology of learning and the nature of classroom interaction in assessing the viability of computer-based instruction as a substitute for, or complement to, existing practice. Hence, this study will need to examine 'educational computing' from a macro and a micro-level using a range of theoretical perspectives - this is not intended to represent a definitive study of any particular aspect of this new area, but rather to present a description of the present state of development as an aid to the understanding of the potential for its future.

The background to the study will first be established by summarising significant previous characteristics of the use of computers in education and pointing, in outline, to the principal technological developments that have very recently led to a rebirth of interest in educational computing. The main characteristics of the development projects initiated in the USA and the UK up till the mid-1970s will be examined, with particular attention being paid to the origin and nature of the UK projects - NDPCAL (National Development Programme for Computer Assisted Learning) and the Schools Council Computers in the Curriculum Project. A range of issues will be considered in the context of these projects since they present the opportunity to examine the variety of factors influencing the potential of the computer in education - these factors include psychological ones related to the motivation of students and their learning, financial aspects concerning costs and cost-effectiveness of the computer as an educational tool, and the relevant technical aspects of what equipment is available and appropriate to educational needs. A number of different varieties of educational computing will be identified - computer assisted instruction, computer aided learning, computer managed learning and the use of the computer for a range of time-saving administrative and teacher support purposes - and their respective future potential assessed.

Blackpool & Fylde College is one of the biggest colleges of its type in the country (see Chapter 6) and may be usefully examined for a variety of examples of the ways in which institutions are beginning to take advantage of the now much reduced costs of computing equipment. In one sense this college is showing very atypical educational computing development and is all the more revealing an example for study as a result. Unusually for its size, Blackpool & Fylde College has never

possessed a mainframe, nor even a mini, computer system and, not being committed to the use of previous generations of computing equipment, the College and its teachers seem to have been able to take full advantage of the powerful but relatively cheap equipment now available. The result has been a large buildup of hardware which is now finding application in every Faculty in the College. A questionnaire attempting to assess experience of and attitudes towards the use of microcomputers has been administered to all 370 full-time teaching staff. The questionnaire is NOT intended to represent a key part of this study and though it was designed to elicit certain factual information, the results of its analysis are used as illustration of the planning and curriculum themes which constitute the main concern of the dissertation.

The likely influence of the present government Microelectronics Education Programme will be assessed, and its characteristics as a curriculum dissemination project examined. It is felt that the empirical evidence derived from the large number of respondents to the College questionnaire will help to put much of the present comment relating to these developments into the context of real institutions. Building on the stated desires of staff inside the College for support in their development of computer-based work, the possibilities for an appropriate staff development programme, suitable for operation over the next few years, will be assessed, and tentative proposals for the design and implementation of such a programme presented.

Throughout the study an attempt will be made to relate comment and analysis to the relevant curriculum and educational planning theory. It is hoped that, in doing so, it will be possible to demonstrate how the curriculum specialist (as opposed to the

computer specialist) might assist the development of this important aspect of educational technology. Up till recently, most educational computing has been education ABOUT computing rather than education THROUGH computing. A recognisable shift in emphasis from the former to the latter can now be discerned. If our students are to be adequately equipped for life up to and beyond the turn of the Century, there can be little doubt that some familiarity with the 'new technology' and its artefacts will be essential. The onus to provide that familiarity lies with institutions like Blackpool & Fylde College. This study is about the ways in which that responsibility can be and is being met.