

## Curriculum Development

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### INTRODUCTION

Curriculum is indeed the heart of the educational process. The quality of education, irrespective of the system under which it is provided, depends ultimately upon the individual, and the social relevance of the curriculum and the extent to which it is effectively transacted in educational institutions. The direction to the curriculum is provided by its educational objectives from which, in a manner of speaking, it derives its shape as well as identity. The challenges and the tasks that await Indian education have been succinctly expressed in the modified version (1992) of National Policy on Education (1986):

Life in the coming decades is likely to bring new tensions together with unprecedented opportunities. To enable the people to benefit in the new environment will require new designs of human resource development. The coming generations should have the ability to internalise new ideas constantly and creatively. They have to be imbued with a strong commitment to human values and to social justice. All this implies better education. (1.14).

The challenge of education is indeed daunting, especially to those perceptive minds that understand the finer nuances of this challenge. The oft heard remark "The destiny of a nation is shaped in its classrooms" is true only to the extent to which classroom activities are consonant with the future aspirations of society and to the degree to which students imbibe those aspirations and become committed to giving a shape to them. Hence the centrality of the curriculum in all educational endeavour.

Education as a means of developing human resources for a nation in the making and on the highway to development—social as well as economic—has to be a multifaceted activity. While each of its facets would have some commonality with other facets, yet it should have its distinctive identity too. And this distinctive identity should be reflected in its curriculum and the curriculum should be purposive and functional in attaining its objectives. The role of research as an ongoing critical enquiry, whose result can be ploughed back to improve the curriculum, assumes tremendous significance in our context.

### THE INTERNATIONAL SCENARIO

One often hears the slogan 'go global'. In the context of curriculum development, its limited implication would be to identify the trends in curriculum development in various sectors of education and to assess how far these would be relevant for us in helping us meet the challenges we face.

Historically viewed, the main problem in curriculum development is to select and teach what is worthwhile in terms of knowledge, techniques and values. These three dimensions of the curriculum relate to cognitive, psychomotor and affective aspects of human behaviour. The main bone of contention here is 'how to determine what is worthwhile'? In other words, the criteria of worthwhileness. There are differences related to philosophical orientations,



too: Should the curriculum be child-centred or should it cater for intellectual discipline? The dominant trend now is to develop a curriculum that treats the needs of the learner, his capacities, interests and level of development as its starting point. It was somehow assumed that a curriculum geared to intellectual discipline will make education hard and unpleasant. The current feeling is that learning should not be a killjoy affair. Like life, education too should promote joy and celebrate spontaneity and creativity. This is, however, the dominant trend, but the rumblings of the undercurrent that emphasises intellectual discipline are also heard from time to time, though in a muffled tone.

So far as conceptualisation of curricula is concerned, it exists at three levels. The *first* level is of the prescribed, mandated or intended curriculum. The *second* level is the translated or implemented curriculum. The translated curriculum focuses on a specific school or classroom and its assessment refers to the degree of emphasis given to a particular topic/unit in a classroom or school. The *third* level of curriculum relates to what the students have achieved or attained; hence it is called the attained or achieved curriculum. It is, therefore, the attained curriculum alone that is invariably measured through any evaluation programme. Any test or examination is relevant to curriculum on which it is based to the extent to which it covers various aspects of the intended curriculum. This is measured in terms of 'curriculum relevance index' (CRI). It is widely accepted that a curriculum consists of five dimensions or components, viz:

- (i) assumptions about the learner and society;
- (ii) aims and objectives;
- (iii) structure of the subject-matter, and selection, scope and sequence of content;
- (iv) recommended modes of transaction in terms of methodology and supportive learning environments;
- (v) evaluation of various aspects of the

attained curriculum.

The past two decades have witnessed a questioning of the nature of these components. It is now believed that: (a) the components of a curriculum are organically interrelated like the subsystems of a system; alteration in any component affects other components as well; (b) while the intended curriculum has definitiveness and stability, the translated curriculum has a 'fluid' character because of the interaction among various situational factors both human and non-human; (c) each component, when functional, is essentially multi-optioned; the manner in which a curriculum is translated in various situations takes various forms because of the several possibilities in which each component can be provisioned; and (d) the nature of the teaching-learning process being what it essentially is, its various underlying assumptions can never be adequately expressed. These shifts in our conception of curriculum have brought about a radical change in the process of curriculum development. The phrase 'curriculum change' has now been replaced with 'curriculum reform' because the latter is based on redirection in values and framework leading to restructuring of the education system.

Another noteworthy trend in curriculum developments is the gradually increasing influence of parents so far as curriculum decision-making is concerned. Fantini, M's (1980), fourfold typology of parental participation has relevance for us because it has already assumed a *deja vu* character in metropolitan cities in our country. Fantini, M. (1980), classifies parents' involvement as clients, as producers, as consumers and as governors. Membership of Parent-Teacher's Association reflects the parents' involvement as clients. The incidence of parents as members of advisory councils or governing bodies is gaining momentum now.

So far as recent trends in curriculum design are concerned, one can easily discern a shift from traditional designs (viz., structure of discipline, the student, and the society as three



databases of curriculum design) to competency-based and process skills-based curriculum designs. In addition to these, we find another two designs also being used; these are the humanistic design and the core curriculum design. The shift during the past decades has been in favour of the core curriculum design. In fact, increasing concern about the curriculum design based on deliberate rational and enlightened decision-making has been responsible for a more eclectic approach. The contemporary trend is in favour of more flexible rather than static and rigid curriculum design so that curricula can evolve as new challenges emerge and new agendas are set for education.

Besides, one finds a happy coexistence so far as various approaches to curriculum design are concerned. Even today one finds various curriculum designs ranging from the structure of discipline based to the core-curriculum based in use in various parts of the globe.

This synoptic description of the global scenario would be incomplete without a brief description of the curriculum reform that took place in England and Wales during 1987-89. The National Curriculum of 1988 was the final result of these reforms. The speeches made by Kenneth Baker, Secretary of State for Education and Science (1986-89), to the North of England Education Conference and the Society of Education Officers in 1987, provide the first explicit references to the National Curriculum. During the general election of 1987, all political parties included a National Curriculum in their manifestos. Mrs. Thatcher's return to power led to the publication of *The National Curriculum 5-16, A Consultation Document* (DES & WO 1987). The approval of the Education Reform Act in November (DES & WO 1987) with the National Curriculum as its Chapter One was indeed a far-reaching development.

The National Curriculum aimed at achieving two sets of objectives: (1) to promote the spiritual, moral, cultural, mental and physical development of pupils at school and of society; and (2) to prepare pupils for the opportunities, responsibilities and experiences of adult life.

The National Curriculum consists of 10 subjects (11 in Wales) three of which (viz., mathematics, English and science) are core and the rest are history, geography, technology, music, art and a modern foreign language. The National Curriculum is based on 4 key stages; these key stages are of 2-year, 4-year, 3-year and 2-year duration, respectively. Each key stage has its explicitly stated attainment targets (AT) and Programme of Study (POS). The attainment target spells out the knowledge, skills and understanding which pupils of different abilities and maturities are expected to achieve by the end of each key stage. The programme of study, on the other hand, deals with the matters, skills and processes which are required to be taught to pupils during each key stage.

The National Curriculum strives to achieve and extend the best educational practice. The primary school curriculum, for example, extensively uses projects or topic work to integrate the teaching of various subjects within broad themes. At times English and mathematics appear as identifiable separate subjects. The first batch of pupils educated through the National Curriculum should be able to complete full-time education in the year 2003. The National Curriculum gives greater importance to cross-curricular elements because separate subjects as organising devices have not found favour, especially at the primary level. Thus design and technology will be linked with science, art, home economics, business and business studies; and history will be linked with mathematics, information technology, statistics, economics, English, Welsh, science, geography and technology, art, music, foreign languages and classical studies. Thus the National Curriculum has a broad conception of subjects in the sense that they: (a) relate to each other, (b) are defined through attainment targets and programmes of study, (c) can be divided into profile components, and (d) facilitate cross-curricular treatment.

The National Curriculum is a large scale experiment in school education in England and Wales. The entire task including the



accompanying assessment system was conceived, finalised and implemented in just two years, i.e., 1987-89. Initially, it was considered rather straitjacketed and out of tune with the British tradition of education. Some feared that it would destroy creativity and initiative. The National Curriculum is now considered an entitlement for all pupils; it will ensure equity based availability of education cutting across gender biases and ability-streaming. It represents the single, largest planned change in the entire history of education. Its results will be eagerly awaited and for that to happen, one will have to wait for another 8 years.

This capsule review of curriculum development at the international level reveals that various concepts related to curriculum development are being redefined and its various components are perceived as open-ended and multi-optioned. The National Curriculum has offered an altogether new approach to curriculum design that is bound to cast its influence far and wide. Besides, the "hidden curriculum" has emerged as an issue. Educators are eager to ensure that the hidden curriculum does not go against the thrust of or oppose the main emphases of the intended and attained curriculum.

### THE NATIONAL SCENARIO

The contemporary national scenario related to curriculum development has a brief history which must be relived in order to comprehend the multifaceted developments that have overtaken us during the last 47 years. The relevant chapters up to the Third Survey of Research in Education in India were "Curriculum, Methods and Textbooks". In the Fourth Survey, the title changed to "Research in Curriculum". The present chapter is entitled "Curriculum Development". Surely these changes convey a whole story of changing trends.

It is worth monitoring that the four-tier

classification evolved for the Fourth Survey gives a strong and unmistakable signal about the number of studies conducted during that period on curriculum. Surely, the sheer quality of research studies is important but the various dimensions explored by researchers are no less important. The Fourth Survey reported 107 studies, while the First, the Second and the Third Surveys reported 69, 71 and 100 studies, respectively. The present survey has a meagre number to report, a mere 23! This trend is disturbing indeed because curriculum development seems to have lost its appeal for researchers.

Besides, new areas have emerged. Development of Education in India 1993-94 (MHRD, 1994) reports various sectors like Educational Technology, National Curricular Framework, Integrated Education for Disabled Children, Management Education, and Environmental Education, yet hardly any research has been reported in these areas. Value Education is another area that has engaged educationists' attention and much discussion has taken place about it. Yet the researchers seem to have cold-shouldered it. Looking back, one is impelled to remark that the years covered by the Third and the Fourth Surveys were the years of laudable research activity related to the curriculum. The history of curriculum research in free India reveals a singular lack of research in the basic issues. Even the National Core Curriculum has not been able to generate research inputs for extending it to suit regional needs and aspirations. Studies of curriculum ideology, innovative enrichment, teachers' role in effective translation of the curriculum, and comparative methodological studies seem to be almost entirely missing. Hardly any study exists on curriculum models. It is the issues with passing interest that appear to catch the researcher's eye. That there has been a let-up in the earlier momentum in curriculum research appears to be supported by the decline in the number of studies and the predominance of trivial over more basic issues in curriculum research.



### FRAMEWORK FOR TREND ANALYSIS

The comprehensive four-tier framework used in the Fourth Survey has been adapted with minor modifications for trend analysis of the 23 reported studies in this chapter. The framework therefore consists of Stages, Areas of Learning, Components of Curriculum and Research Methodology. In order to facilitate trend analysis, the research effort in curriculum as reported in the earlier four Surveys, has been juxtaposed with that analysed in the Fifth Survey.

Besides, analysis in respect of frequency of tools used for data collection, degree-related versus other research and the medium of research reports adds new dimensions to the present trend report.

### Trends Related to Stages of Education

So far as stages of education are concerned, research effort related to the curriculum reveals the following trends:

1. *Pre-school education* continues to be disregarded or spurned by researchers. Even though the National Policy on Education (1986/1992) accords it priority yet the mismatch between discussions and research in this area continues to exist. Of the 400 (inclusive) studies on curriculum development conducted so far, just 5 are concerned with pre-school education.
2. *Elementary stage* continues to get high attention. As many as 8 out of 23 studies (34.7%) were on elementary education. Since elementary education can again be subdivided into lower-primary and upper-primary stages, one finds that as many as six of these eight studies were related to the lower-primary stage and only two to the upper-primary stage. In terms of the overall number of studies conducted so far, 140 (35%) out of 400 (inclusive) have been in elementary education. This is a heartening trend indeed.
3. *Secondary education* suffered a setback because during the period under reference only 3 studies (13.0%) were concerned with it. The Fourth Survey reported the highest number of studies, 43 out of 120 (35.8%), under the secondary stage. In terms of overall figures, 108 out of 400 (inclusive) studies were in secondary education, the percentage being a healthy 27.
4. Since elementary and secondary education together constitute the undifferentiated general education which every schoolgoing child has to negotiate, it is encouraging to notice that almost half of the reported studies (11 out of 23) are in this area, the overall figure being 248 out of 400. Thus the researchers' interest in general education has continued to match the public interest in it. This trend has been consistent and it should continue unabated in future too.
5. The *senior secondary stage* has been totally neglected by researchers during the years being reviewed under the present volume. None of the 23 studies is concerned with senior secondary education. One possible reason for this could be its perception as a transition stage. Sandwiched between general education and college/university education, it lacks the status of either. Besides, diversified curricula at this stage do not seem to constitute a priority area in curriculum research. There have been only 32 studies (8%) out of a total of 400 in this area so far.
6. Research studies that deal with *more than one or all stages* of education have their own special relevance. In the past, curriculum researchers have been alive to its importance and this importance continues to be perceived. Only one out of



Table 1  
Curriculum Research X Stages of Education

Survey	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	S <sub>5</sub>	Total
Stage						
Pre-School	1 (1.4%)	3 (3.7%)	1 (.9%)	-	-	5 (1.25%)
Elementary	30 43%	30 (37.9%)	41 (37.9%)	31 (25.8%)	8 (34.7%)	140 (35%)
Secondary	17 (24.2%)	15 (18.9%)	30 (27.7%)	43 (35.8%)	3 (13%)	108 (27%)
Sr. Secondary	7 ( 10% )	4 ( 5% )	4 ( 3.7% )	17 (14.1%)	-	32 ( 8% )
Combined/ Entire	7 ( 10% )	12 (15.1%)	10 ( 9.2% )	6 ( 5% )	1 (4.3%)	36 ( 9% )
Higher Education	2 ( 2.8% )	8 (10.1%)	16 (14.8%)	20 (16.6%)	7 (30.4%)	53 (13.25%)
General	6 ( 8.5% )	5 ( 6.3% )	3 (2.7%)	3 (2.5%)	4 (17.39%)	21 (5.25%)
Not stated	-	2 ( 2.5% )	3 (2.7%)	-	-	5 (1.25%)
Total	70	79	108	120	23	400*

\* Inclusive aggregate

23 studies was simultaneously concerned with the elementary, the secondary and the senior secondary stages. The trend has been a fluctuating one: 10% (S<sub>1</sub>), 15.1%(S<sub>2</sub>), 9.2%(S<sub>3</sub>) and 5.0%(S<sub>4</sub>)— the overall weighting being 9% (36 out of 400 studies). One can hope that combined stages studies shall not lose their appeal for researchers in the coming years.

7. Curriculum researchers' interest in *higher education* exhibits a rising trend. The percentages for four surveys reported sequentially are 2.8, 10.1, 14.8 and 16.6.

This has shot up to 30.4 for the Fifth Survey. In fact, higher education is the second preferred area of curriculum research; as many as 7 out of 23 studies are concerned with it. However interdisciplinary curricula which have been a recent (and refreshing) development in higher education have not engaged the researchers' attention. One hopes the future curriculum research shall make some forays in this virgin area.

8. It is rather heartening to note that



17.39% of the studies (4 out of 23) have been concerned with stages other than those mentioned above. As education expands, it conquers new territories and new sectors appear within its fold. Perhaps in the coming years, these non-traditional stages that fall outside the ambit of formal education shall gain in importance and curriculum research of the second half of the nineties shall reflect this adequately.

9. Some stages of education reveal consistency in trends. The pre-school curriculum research began as a trickle but it dried up quite early and now has the unenviable distinction(?) of zero effort. Elementary and secondary education continue to engage the curriculum researchers' gaze. These two areas account for the bulk of research effort; almost more than 50% of the total studies are in these areas. This trend can surely be expected to continue, especially because of discernible greater governmental support to these stages. Research in the higher education sector appears to be gaining ground and should emerge as a strong component of curriculum research in the coming years. The same can be predicted for general sector curriculum research.

### **Trends Related to Areas of Learning**

Data related to curriculum research for the five Surveys have been presented in Table 2. It is heartening to note that almost all areas of learning have been represented to a greater or lesser degree. Surely, curriculum research is not known for its socialistic approach to various areas of learning. It has traditionally been more concerned with the basic areas of school curriculum, viz., languages, mathematics and sciences. The fringe areas of learning get only partial attention. New additions have been made in areas of learning related curriculum research.

Value education research has finally appeared on the curriculum research horizon. Educationists are seized of the value-crisis and value-conflict, and hence the need for value-oriented curriculum and research on it. The general area of learning, a mixed bag if one may say, has new additions at last like family-life education, hotel-working, etc.

The various trends in curriculum research regarding areas of learning are as follows:

1. Curriculum research in *languages* has in a way lost its appeal. Till 1988, it was a very strong area of curriculum research. In terms of percentage of studies, it had a weighting of 56.5, 62.0, 8.0 and 19.6 in the four surveys; for the Fifth Survey, it has sunk to a mere 4.3% (1 out of 23 studies). One hopes that this is a temporary let-up in view of its inherent importance in any curriculum. Language is a content area as well as a medium of instruction. Besides, the ongoing controversy regarding the specifics of language education can surely be expected to sustain curriculum research in language studies.
2. Research in *mathematics* reveals a trend of low initial activity (during the First and Second Survey periods), a spurt (during the Third and the Fourth Survey periods), and again a decline (during the Fifth Survey period) which may prove deceptive given the shifts in research priorities. The percentages for the four Surveys are 7.2, 2.8, 13.0 and 14.0 respectively. For the Fifth Survey, the figure plummets to 8.6%. In terms of overall percentage, the figure is 10.0%, a mere 37 out of 370 exclusive studies.
3. Curriculum research in the *sciences* also reveals a mixed trend very much like research in mathematics; though in terms of sheer magnitude it comes next to research in language studies.

**Table 2**  
**Curriculum Research X Areas of Learning**

<i>Area of Learning</i>	<i>S<sub>1</sub></i>	<i>S<sub>2</sub></i>	<i>S<sub>3</sub></i>	<i>S<sub>4</sub></i>	<i>S<sub>5</sub></i>	<i>Total</i>
Language	39 (56.5%)	44 ( 62% )	8 ( 8% )	21 (19.6%)	1 ( 4.3% )	113 ( 30.5% )
Mathematics	5 ( 7.2% )	2 ( 2.8% )	13 (13% )	15 (14%)	2 (8.6%)	37 (10%)
Sciences	4 ( 5.7% )	6 ( 8.4% )	23 ( 23% )	22 (20.5%)	3 (13.04%)	58 (15.67% )
Social Sciences	6 ( 8.6% )	4 ( 5.6% )	7 ( 7% )	10 (9.3%)	1 ( 4.3% )	28 ( 7.56%)
Work Experience/ Vocational/ Agricultural/ Technical Education	2 ( 2.8% )	3 ( 4.3% )	13 ( 13% )	8 (7.4%)	2 ( 8.6% )	28 ( 7.56%)
Health and Physical Education	2 ( 2.9% )	2 ( 2.8% )	8 ( 8% )	6 ( 5.6% )	-	18 ( 4.86% )
Population Education	-	1 ( 1.4% )	3 ( 3% )	9 ( 8.4% )	1 ( 4.3%)	14 ( 3.78% )
Value Education	-	-	-	-	1 ( 4.3%)	1 (.027% )
General	11 (15.94%)	9 (12.6%)	25 ( 25% )	16 (14.95%)	12 (52.17%)	73 (19.72%)
Total	69	71	100	107	23	370



The overall figures for science-related research are 58 (15.67%) and for language 113 (30.5%) out of a total of 370 reported studies. The percentages for the first two surveys are 5.7 and 8.4, respectively, and these rose to 23.0 (the Third Survey), and 20.5 (the Fourth Survey), the corresponding figure for the Fifth Survey being 13.04. The appearance of a study on Environmental Science can be taken as a happy development indeed. Research in this area should grow in size because of its seminal role in familiarising learners with their natural environment and especially the process that consistently supports it. The integrative process based approach in EVS should hopefully engage the researcher's attention in the coming years, especially in the mother-tongue medium teaching of EVS and the need for developing multi-media based instructional material.

4. Curriculum research in the *social sciences* has been a low-key affair and it continues to remain so. The percentages for the five surveys reported sequentially are 8.6, 5.6, 7.0, 9.3 and 4.3, the overall figure being 7.56. One can venture to predict consistency in this low-key effort in the coming years as well though social sciences admittedly deserve a greater focus in curriculum research.
5. Research effort in the area of *work experience, vocational, technical and agricultural education* has an almost static trend. The percentages for five surveys are 2.8, 4.3, 13.0, 7.4 and 8.6, respectively. It is worthwhile to point out that the two studies reported in the present survey belong to agricultural education. Studies related to work experience have just dried up possibly because of the peripheral status accorded to it in school curriculum. Technical education too has been unable to generate any research effort.
6. No study has been reported under *health and physical education*. The research effort in this area has been limited to between 2% and 8%. Out of the 370 studies conducted so far, only 18 have been concerned with health and physical education, the overall percentage being 4.86. Future curriculum research in this area would continue to be marginal. The initiative for this should come primarily from teachers associated with this area of learning. The past and the present being the parents of the future, research in Health and Physical Education may take quite some time to pick up momentum.
7. *Population education* too, has all along been a marginal area in curriculum research. The percentages have varied between 1.4 and 8.4, the overall being 3.78 because only 14 studies have been reported in this area out of the total of 370. The trend does not promise much change.
8. *Value education* research has at last appeared on the scene. Even though only one study has been reported in this area, one can conjecture that this area may gain importance in the curriculum researcher's priority list. Value education research has appeared daunting to most researchers because empirical studies seem to deal at best with the surface reality of value education and its inner essential aspects seem to escape it. Qualitative research may provide a better and more effective alternative in this area.
9. *General curriculum* research seems poised for a quantum leap. As many as 12 out of 23 studies belong to this area.



The coming years should see the addition of new themes under its rubric.

presented in Table 3. The trends related to research on various components of curriculum are reported below:

### Trends Related to Components of Curriculum

Almost all the components of the curriculum have received the curriculum researcher's attention though in different measures. Data related to studies conducted on various components of the curriculum have been

1. Research on *objectives and syllabus* reveals a consistent declining trend. Research studies conducted on objectives and syllabus and reported in the previous four surveys are 21, 24, 17 and 14, respectively. The figure for this (i.e. the Fifth Survey)

Table 3  
Curriculum Research X Components of Curriculum

Survey Component of Curriculum	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	S <sub>5</sub>	Total
Objectives and Syllabus	21 (30.4%)	24 (33.8%)	17 (17%)	14 (13%)	2 (8.69%)	78 (21.08%)
Learning Experiences	13 (18.8%)	15 (21.4%)	36 (36%)	38 (35.5%)	1 (4.35%)	103 (27.83%)
Textbooks	-	9 (12.8%)	9 (9%)	8 (7.4%)	1 (4.35%)	27 (7.29%)
Evaluation	17 (24.6%)	11 (15.7%)	7 (7%)	7 (6.5%)	6 (26.08%)	48 (12.97%)
Access	2 (2.8%)	-	3 (3%)	4 (3.7%)	-	9 (2.43%)
Teacher Response	-	-	-	-	1 (4.35%)	1 (0.27%)
Development and Policies	7	-	-	-	3 (13.04%)	3 (0.8%)
Instructional Modules and Models	-	-	-	-	3 (13.04%)	3 (0.8%)
Combined	16 (23.18%)	12 (16.9%)	28 (28%)	36 (33.6%)	6 (26.08%)	98 (26.48%)
Total	69	71	100	107	23	370



is just 2 out of 23. In all, 21.08% of the curriculum research (N=370) has been devoted to this component. One possible reason for decline in research on objectives can be traced to the decline in objectives based movement in Indian education. Most educationists now feel that the significant and subtle aspects of education cannot be pinned down through behavioural objectives. Besides, the Indian education scene doesn't reveal anything beyond Bloom's taxonomy even today. The spate of studies reported in the first three surveys were bound to cause saturation and this is supported by the declining trend seen in the Fourth and the Fifth Surveys.

2. Research on *learning experiences* reveals a trend that somehow does not connect itself easily with the meagre research effort available now. Only one study out of a total of 23 was conducted during the period covered by the Fifth Survey. The figures for the first four surveys reported sequentially are 13, 15, 36 and 38. In all, 103 studies out of a total of 370 concern learning experiences, the overall percentage being 21.08. That a consistent rising trend should lead to such negligible research does not appear convincing. Perhaps this could be a passing phase. One hopes research activity on learning experiences shall gain momentum once again as time passes.
3. Research trend related to *textbooks* steadily declined during the periods covered by the Second, the Third and the Fourth Surveys. The percentages for these periods were 12.8, 9 and 7.4, respectively. The corresponding figure for the present volume is 4.35%, just one study out of the reported 23. A possible reason could be the near monopoly of textbooks by the State Bureaus. It is quite likely that the trend may take a favourable turn after a few years. So far only 27 studies out of a total of 370 have been concerned with textbooks.
4. The trend related to *evaluation* appears quite favourable now. The percentages for the first four surveys are 24.6, 15.7, 7 and 6.5. It has now shot up to 26.08; as many as 6 out of 23 studies have been devoted to evaluation. In all, 48 studies out of 370 done so far under curriculum development have been on evaluation component of curriculum.
5. Research efforts on *access* as a component of curriculum do not reveal a consistent trend. The Second Survey did not report any study on access. The Fifth Survey, too, has no entry in this category. During the periods covered by the First, the Third and the Fourth Surveys, research related to access was just marginal, the figures being 2.8%, 3% and 3.7% respectively, and the overall figure being as low as 2.43%. Till now, only 9 studies out of a total of 370 have been conducted in this area.
6. *Teacher response* is a new component of the curriculum on which the maiden study has at last been conducted. It would be premature indeed to forecast the trend on the basis of this single study. Data related to the next five years may provide a more reliable basis for predicting the trend.
7. *Development and Policies* is another area of curriculum in which as many as three studies have been conducted. Policy studies can be expected to gather momentum during the coming years because of greater transparency, media coverage and public participation.
8. As many as three studies have been conducted on *Instructional Modules/*



*Models.* The greater popularity of the modular approach may witness a spurt in research activity on this component. It would however be discrete not to make any definitive prediction now about the research trend on Instructional Modules/Models.

9. As many as 6 studies have been conducted on *two or more components* of curriculum and one finds that the tradition of studies on combined components continues to engage the curriculum researcher's attention. The number of studies conducted on combined components of curriculum as reported in earlier four surveys, along with their percentages are 16 (23.18%), 12 (16.9%), 28 (28%), and 36 (33.6%), respectively. The percentage of combined components studies is 26.08 for this volume. The overall number of combined components studies conducted till now is 98 (26.48%) out of a total of 370. One can hope that the existing trend shall be maintained and the appeal of such studies to the curriculum researcher shall not flag during the coming years.

### Trends in Research Methodology

Table 4 presents data related to the research methodology used for curriculum research during the years under review, from the First Survey to the Fifth Survey. The following trends are revealed by the data.

1. *The Survey Method* appears to have been favoured by most curriculum researchers. The total number of studies based on the survey method is 177 (47.83%) out of 370. The survey-wise figures are 39 (56.5%), 36 (50.7%), 40 (40%), 46 (42.9%) and 16 (69.56%), respectively. Till the Third Survey, the trend regarding the use of the survey method was a declining one but thereafter it happens to be a rising one.

It appears that in the years to come about 50% of curriculum research will be based on the survey method.

2. The *Experimental Method* happens to be the second most preferred method. As many as 93 (25.14%) out of a total of 370 studies were experimental in nature. Till the Third Survey, the trend regarding the use of experimental method in curriculum research was a rising one (18.8%, 19.7% & 33%), but thereafter it has become a declining one. The Fourth Survey reported 30 (28%) experimental studies and the figure has now slid down to a paltry 3 (13.04%). One can conjecture that the coming years shall continue to witness the use of the experimental method in curriculum research though the percentage of these studies could be around 25; on the whole, one out of every four studies on curriculum research should hopefully be based on the experimental method.
3. The *Historical Method* has been sparingly used all these years. Till now only ten (2.7%) studies in curriculum research have been historical in terms of research methodology. The number of historical studies reported in the earlier four surveys has been 1 (1.4%), 3 (4.2%), 4 (4%) and 2 (1.8%) respectively. No historical-method based curriculum research was conducted during the years being reviewed under the Fifth Survey. One can, therefore, make the safe prediction that the number of historical studies in curriculum research shall continue to be a marginal one.
4. The frequency of research studies based on *Mixed Methodology* has been below 10% all along. For the earlier four surveys, the figures are 7.2%, 4.2%, 6% and 9.3%, respectively. The figures for the Fifth Survey is just one study (4.34%) out of a total of 25 studies. The safe prediction therefore is that



Table 4  
Curriculum Research X Research Methodology

Survey Research Method	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	S <sub>5</sub>	Total
Survey	39 (56.5%)	36 (50.7%)	40 (40%)	46 (42.7%)	16 (69.56%)	177 (47.83%)
Experimental	13 (18.8%)	14 (19.7%)	33 (33%)	30 (28%)	3 (13.04%)	93 (25.14%)
Historical	1 (1.4%)	3 (4.2%)	4 (4%)	2 (1.8%)	-	10 (2.7%)
Combined	5 (7.2%)	3 (4.2%)	6 (6%)	10 (9.3%)	1 (4.34%)	25 (6.75%)
Evaluative	11 (15.9%)	13 (18.3%)	12 (12%)	14 (13%)	-	50 (13.51%)
Developmental	-	2 (2.8%)	5 (5%)	3 (2.8%)	3 (13.04%)	13 (3.51%)
Observation	-	-	-	2 (1.8%)	-	2 (0.54%)
Total	69	71	100	107	23	370

combined methodology studies shall continue but their frequency shall remain low.

5. *Evaluative Studies* in curriculum research have maintained an almost steady frequency with a slight fluctuation during the various periods. In all, 50, evaluative studies have been conducted so far out of a total of 370 under the rubric of curriculum research. The number of evaluative studies reported in the earlier four surveys is 11 (15.9%), 13 (18.3%), 12 (12%) and 14 (13%), respectively. No evaluative study was conducted under curriculum research during the years reviewed under the Fifth Survey. The overall trend however points towards some evaluative studies during the coming years.

6. The Fifth Survey reports three *Developmental studies* out of a total of 23 studies under curriculum research, the percentage being 13.04. The previous surveys reported 2 (2.8%), 5 (5%), and 3 (2.8%), under the Second, the Third and the Fourth Surveys, respectively. The overall number of developmental studies is as low as 13 (3.51%) out of a total of 370 studies. There is every likelihood of more developmental studies in near future too.
7. Very few *Observation-based Studies* have been reported so far. In fact, the Fourth Survey listed two studies under this category and the number remains unchanged even now. Curriculum researchers seem to avoid observation studies because of the time needed for



observation sessions. The trend does not hold much hope for such studies in future too.

### **Trends Related to Research Tools and Techniques**

It is interesting to note that a variety of research tools and techniques have been used in curriculum research. Chief among these is, of course, the questionnaire which was used in as many as 9 (39%) studies. This is hardly surprising because of excessive use of the survey method in curriculum research. Interview and content analysis are the second most used techniques; each of these was used in 6 (26%) studies. Achievement Tests occupy the next slot; as many as 5 (21.7%) studies out of 23 used some achievement test. Checklist, opinionnaire, personality test and general mental ability tests were used in 2 (8.7%) studies each. The least used tools and techniques in curriculum studies were diagnostic test, attitude scale, aptitude test, schedule, inventory and observation; each of these was used in just one study.

Thus the trend regarding the use of research tools and techniques favours greater use of questionnaire, interview, content analysis and achievement tests. Though a large variety of tools have been used in the 23 studies reported here, yet schedule, inventory, attitude scale, diagnostic test and aptitude test happen to have the lowest frequency of use. In view of the higher frequency of survey, experimental and evaluative studies and, because of the trend in favour of these studies, questionnaires, interview, content analysis and achievement tests can be expected to get greater patronage from curriculum researchers in the coming years too.

### **Other Trends**

It is interesting to note that curriculum development studies are largely supported by degree-related research. As many as 10 (43.47%) studies were submitted as doctoral theses while another 4 (17.39%) were submitted in partial

fulfillment for the degree of Master of Philosophy in Education. Three (13%) studies were sponsored by various agencies/institutions. Only 6 (26%) studies account for independent research. These statistics reveal that in the future, too, curriculum development research shall largely be conducted under formal research programmes at Ph.D. and M.Phil levels. There is however a need to have more sponsored and independent studies in curriculum development because these two categories represent authentic interest of academia as well as other agencies in educational curricula. Independent studies are invariably short-duration studies due to paucity of inputs for sustained, quality research of longer duration. One hopes that sponsoring/funding agencies will come forward and support more and better curriculum development research.

So far as the language of research reports on curriculum development is concerned, English dominates throughout. As many as 21 (91.3%) studies out of a total of 23 are in English. Only two reports are in Indian national languages, one each in Hindi and Marathi. There is a complete absence of any independent study in an Indian language. The fact is that most school-teachers who are expected to be the ultimate consumers of curriculum research at some stage and also the change-agents do not get to know of its problems, the thrust areas and the suggested solutions. Ph.D. theses and M.Phil. dissertations invariably remain confined to the bookshelves of university libraries. Consequently, the essential dialogue between the researchers and the teachers, which alone can bring about the much awaited change in classroom transactions, continues to be absent.

### **TRENDS IN THE FIFTH SURVEY**

Compared to curriculum studies reported in the previous surveys, the studies conducted during the years pertaining to the Fifth Survey constitute a lean period of curriculum research. Only 23 studies are being offered here under the rubric of curriculum research. The periods



pertaining to the Third and the Fourth Surveys were characterised comparatively by more research activity pertaining to curriculum development. The Fourth Survey reported 120 studies while the Third Survey reported 100 studies. It appears that the momentum for curriculum research built over the past four decades has fizzled out all of a sudden. This phenomenon, disturbing as it surely is, deserves to be probed at depth. Besides, such meagre research activity in a seminal area like curriculum development poses obvious hazards for trend analysis and forecasting. It is in this disturbing context that the following trend analysis should be viewed.

### Elementary Stage

In all 8 studies were conducted at the elementary stage. No studies were conducted in the languages, work experience/vocational/agricultural/technical education, health and physical education and value education. One study was conducted on mathematics and it examined spiral arrangement of sub-units in textbooks for Classes I-III. Two studies were conducted in sciences. Of these, the one was on Environmental Science and the other concerned attitude toward science. One study dealt with an innovative curriculum in social sciences for middle stage classes. Population Education in Puri District in terms of strategies for primary curriculum development was the focus of one study in population education. As many as three general studies were conducted; of these the first one was on teachers' attitude towards an integrated programme, the second one concerned sex stereotyping in primary school curriculum and its effect on self-concept among female children while the third one examined curriculum policies and planning and their implementation.

### Mathematics

Desai, A.A. (1992) examined the spiral arrangement of sub-units in the mathematics

textbooks prescribed for Classes I-III in Maharashtra. This study was sponsored by the Maharashtra State Bureau of Textbooks during 1991-92. The second and the third series of textbooks in mathematics produced by the Maharashtra State Bureau of Textbooks were analysed. Teachers of mathematics were administered a questionnaire while expert opinion was elicited through interview. Desai concluded that the spiral arrangement of sub-units was in keeping with the principles of child psychology and the sub-units were organised in 'simple-to-difficult' sequence.

It is indeed disheartening to find that no curriculum research has been devoted to the pedagogic aspects of mathematics even though it happens to be a basic subject. Neither has there been any attempt at a diagnostic-cum-remedial instruction study in this area. It is common knowledge that children from disadvantaged sections of society have difficulties in learning various mathematical concepts like fractions, decimal, percentage, etc. One hopes that curriculum researchers will be active in this important area during the coming years.

### Science

Devi, S.A. (1990) examined environmental science (EVS-I) curriculum in Andhra Pradesh. The teacher sample was taken from three district geo-political areas, viz., Coastal Andhra, Rayalaseema and Telangana. Two districts were selected from each of the three above-mentioned areas. Devi, S.A. (1990) discovered that EVS-I syllabus is not being transacted the way it was meant to; the children are not encouraged to explore their environment and develop the desired scientific skills and attitudes. She recommended activity-based teaching of EVS-I and preparation of socio-psychological profile of learners for more effective teaching of EVS. Masih, A. (1991) investigated middle school students' attitude towards science, understanding the nature of science and concept attainment in science. Two groups of students



studying the HSTP curriculum and the NCERT curriculum were used for data collection. Masih, A. (1991) found that Class VIII students had a favourable inclination towards science-related attitudes. On the whole, students following the HSTP curriculum had a more favourable attitude and better performance compared to those pursuing the NCERT curriculum. The students' understanding of the nature of science was not satisfactory, irrespective of the curriculum being pursued by them.

### **Social Sciences**

Dhand, H. and Lyons, J. (1991) described the experiment on an innovative curriculum in social studies in Saskatchewan (Canada) which is inhabited by a sizeable population of Indian origin. According to Dhand, H. and Lyons, J. (1991) social studies as an area of school curriculum is in a state of turmoil. Citizenship education and cultural literacy are its primary objectives. The major goals of the new curriculum in social studies are concerned with developing democratic understanding and values including national as well as personal identity, and development of abilities and skills for analysing problems that affect us as members of a changing and complex world. The pedagogic techniques recommended for transacting the new curriculum include open-ended questions, value-clarification and value-analysis, linking social studies content to the real life around and focus on global and peace education.

### **Population Education**

Senapati, T. (1989) investigated strategies for primary curriculum development in population education for schools of Puri District. The focus of the study was on problems related to the introduction of population education through the primary school curriculum. Senapati, T. (1989) studied the status of population education in the existing primary school curriculum and developed strategies for

organising population education curriculum. In all 193 schools selected through stratified random technique comprised the school sample and 125 individuals constituted the respondent sample. Senapati, T. (1989) found that 17.4% schools had already introduced population education and that it was being taught through integrated as well as subject-centered approaches. Besides, the teachers had not been systematically prepared for effective transaction of population education curriculum. Senapati, T. (1989) recommended that appropriate training strategies should be developed for training teachers through pre-service education programmes.

### **General**

In all, three studies were conducted on the general aspects of elementary education: Minocha, M.'s (1989) study was concerned with responses of primary school-teachers to an experiment in curriculum reform based on integrated programme; Mohan, S. and Krishnaraj, R.'s (1991) study was on sex-stereotyping in primary school curriculum in terms of its effects on self-concept among female children; Prakash, V.'s (1991) study was concerned with curriculum policies, planning and their implementation at primary school level in Delhi during 1966-76.

Minocha, M. (1989) investigated primary school-teachers' response to an integrated programme in terms of receptivity, resistance or indifference, and the causes of these responses and teachers' problems while participating in curriculum reform. About 25 schools from Delhi were chosen for this study and the teachers' teaching there constituted the respondent sample. In addition to the above-stated objectives the teachers' social background was also investigated. Minocha, M. (1989) found that teachers were less responsive to the integrated programme and more favourable to the NCERT textbooks and the NCERT evaluation system. Since the integrated programme consisted of a reformed textbooks as well as evaluation procedure, teachers found it difficult



to supplement the textbook with suitable instructional material; evaluation as well as accommodating the integrated programme in the timetable were also perceived as problematic.

Mohan, S. and Krishnaraj, R.'s (1991) study on sex-stereotyping in primary schools was conducted by: (a) developing indicators of sex-stereotyping in textbooks of Tamil, English, EVS (I and II), community living and fine arts and mathematics; (b) assessing the level of self-concept among primary school-boys and girls; (c) investigating teachers' and parents' attitude to sex-stereotyping; and (d) evolving strategies for developing positive self-concept among girl students. The sample consisted of 400 primary school-children (boys = girls = 200), 100 teachers and 100 parents. Mohan, S. and Krishnaraj, R. (1991) found that school textbooks had sex bias and both teachers and parents were conscious of this.

Prakash, V.'s (1991) study sounds to be historical but was in fact based on a survey. The school sample consisted of municipal corporation schools only. Unaided schools were excluded. While the study revealed the pathetic conditions prevailing in these schools; various dysfunctional features of MCD schools were also listed, chief among these being: (i) lack of initiative among teachers, (ii) political interference, (iii) ineffective supervision, (iv) incorrect approach to teaching science, and (v) unusually heavy syllabus load on students.

### Secondary Stage

Three studies were conducted at the secondary stage of schooling. Of these, Deshpande, A.R.'s (1992) study was concerned with developing curriculum in mathematics at the secondary stage of education in Maharashtra State. Mlanga, A.T.O's (1992) doctoral study dealt with perceptions of high school-teachers, students, parents and educational administrators regarding the principles, practices and procedures of curriculum development programmes for high schools in

Nairobi, Kenya. Mehdi, B.'s (1988) study was concerned with something more basic, viz., instructional, developmental and social objectives of education at the secondary stage. While Deshpande, A.R.'s (1992) study deals with mathematics, the other two studies belong to the general area of curriculum. All other areas, and these are quite a few, viz., language, science, social sciences, work experience/ vocational/ agricultural/technical education, health and physical education, population education as well as value education, remain unrepresented in terms of curriculum research. Surely, the relevance of research in various areas of learning under curriculum research has not become suspect all of a sudden. More studies need to be, and should, therefore, be conducted in these areas. One hopes that this neglect of these equally important areas in terms of research effort shall be adequately made good during the coming years.

### Mathematics

Deshpande, A.R.'s (1992) study was conducted on 655 teachers of mathematics from 220 schools of Vidarbha representing urban and rural areas. It tried to investigate practical utility of mathematics curriculum for students, whether the curriculum had enough variety to cater for individual differences, its articulation with the primary and the senior secondary curricula and its correlation with life activities. Revision of mathematics curricula carried out during the previous two decades (1971 onwards) were also taken into account. Deshpande, A.R. (1992) concluded that the secondary stage mathematics curriculum had practical utility for students; besides it was well articulated with the elementary and senior secondary curricula. It was, however, not varied enough to provide for individual differences especially for the gifted and the backward learners.

### General

Three studies belong to the general areas of



curriculum and these are Mehdi, B. (1988), Sachan, R.S. (1991) and Mlanga, A.T.O.'s (1992). Mehdi, B. (1988) study investigated instructional, developmental and social objectives of education at the secondary stage. He examined whether secondary stage curricula are relevant for developing intellectual, personal and social qualities among pupils. Mehdi, B. (1988), collected the data through a working group meeting of well-informed teachers in Delhi schools, using a questionnaire. The findings were that: (a) curricula in various subjects were far from balanced and were not conducive to attaining the three sets of objectives; (b) teaching-learning strategies should be geared to attainment of intellectual, social and developmental objectives; these should be made skill-oriented; and (c) evaluation techniques too hinder the attainment of these objectives.

Sachan, R.S.'s (1991) study examined the validity of Bloom's taxonomy of educational objectives in the cognitive domain in relation to teaching of science and whether objective-based teaching results in better development of the category system of cognitive domain. Sachan, R.S. (1991) conducted his study on about 500 students of 6-18 year age-group. The major findings were that a 4-tier hierarchy comprising, K,C,A and E exists in place of the 6-tier hierarchy (K,C,A,SA,S and E) and that learning is cumulative, not sequential.

Mlanga, A.T.O.'s (1992) study explored the perceptions of high school-teachers, students, parents and educational administrators regarding the principles, practices and procedure of curriculum development programmes for high schools in Nairobi, Kenya. The data were collected on a randomly selected sample of 200 high school-teachers, 150 high school-students, 200 parents and 50 educational administrators. The major findings of the study were that: (i) curriculum should be an organised set of learning experiences both within and outside the school environment; (ii) curriculum evaluation should be in terms of the extent to which educational objectives are

being achieved; and (iii) there should be regular evaluation of the constructed curriculum.

### Higher Education

In all, eight studies were conducted on higher education. Of these, John, O.T.'s (1991) and Vijayakumar, B.'s (1990) were on English and science, respectively. Khurana, G.S. and Singh, R.'s (1992) was on agricultural education and as many as three, Kahlon, S.P. and Saini, S.K.'s (1989), Pal, R.'s (1989) and Shukla, N.'s (1991), were on various facets of teacher education. While Kahlon, S.P. and Saini, S.K. (1989) explored the impact of teacher education on the teaching aptitude of Panjab Agricultural University education graduates, Pal, R. (1989) examined curriculum development of academic staff colleges for orientation of teachers of higher education. Shukla, N. (1991), developed a curriculum design for value-oriented secondary school-teacher education in Panjab. Besides, two studies were reported on general areas. Rao, S.K.'s (1992) study was concerned with structural influence on the restructuring of curriculum while Natarajan, V.'s (1982) was on moderation of examination results. Three major curriculum areas of higher education, viz., languages, mathematics and social sciences remained almost unexplored during these years. One can hope for more research on these areas too. On the whole, a tally of just seven studies on curricula of higher education does not mean much. Higher education deserves more attention from curriculum researchers because research is an in-built component of higher education; research represents knowledge-generation as well as validation aspects of higher education. Indeed, research sustains higher education in many ways.

### Language

John, O.T.'s (1991) study was concerned with the existing English curriculum in polytechnics in Tamil Nadu. Its objective was to evolve a new



curriculum in English and to establish its effectiveness experimentally. The first phase of John's study examined the existing English curriculum and found that it did not meet the need of the technicians for whom it was designed. The second phase of the study was concerned with the designing of the new curriculum based on 'skill' objectives. Students, too, were consulted for developing the new curriculum. The effectiveness of the new curriculum was established through an experimental study on 80 students (Experimental = Control = 40).

### Sciences

Vijayakumar, B.'s (1990) study was on development of optimal models of chemistry curricula at collegiate level. Models of chemistry curricula were selected, adapted and evolved and finally tested in order to determine the optimal models. 564 students (rural=279, urban = 285; male = 260 and female = 304) and 315 teachers drawn from 10 colleges participated in the study. Vijayakumar, B. (1990) found the Inquiry Training Model the most effective, and the advance organiser, the least effective. Effectiveness of the models of chemistry curricula was established on the basis of various dimensions responded to by teachers as well as students.

### Agricultural Education

Khurana, G.S. and Singh, R.'s (1992) study analysed the existing postgraduate course curricula of extension education in various agricultural universities in India. This study was specifically concerned with the Ph.D. programmes and their uniformity across universities. Major and minor courses, supporting courses and credit hours for each along with quantum of research work were studied. The researchers found that the highest and the lowest credit hours earmarked for major courses, minor courses and supporting courses

ranged between 10-54 and 3-30, respectively. Four Ph.D. programmes provided for various learning experiences to scholars. The Ph.D. courses were made available from various areas of extension education.

### Teacher Education

Kahlon, S.P. and Saini, S.K.'s (1989) study was concerned with the impact of teacher education on the teaching aptitude of education graduates of Panjab Agricultural University. The relationship between academic achievement and teaching aptitude was also investigated. All the twenty students of the B.Ed. programme of Panjab Agricultural University participated in the study. Teaching aptitude was measured in terms of various personality traits. The researchers found that teacher education helps develop teaching aptitude ( $t=2.23$ ;  $P=0.05$ ) and that academic achievement has low positive correlation ( $r=.2089$ ) with teaching aptitude.

Pal, R. (1989) investigated curriculum development of the Academic Staff College (ASC) for orientation of teachers in the higher education sector. This study was conducted on 110 college/university teachers from four universities of Madhya Pradesh attending orientation programme at ASC, Indore. Pal, R. (1989) found that 85% participants favoured the orientation programme after appointment and felt that the programme should be a full-time one and compulsory. Participants emphasised the need for greater coverage of methods and techniques of teaching, models of teaching, and classroom management.

Shukla, N.'s (1991) study was on curricula design for value-oriented secondary school-teacher education in Panjab. The twin-objectives of the study were to identify the course contents of the B.Ed. programme for integrated value education and to develop value-oriented curricular design. 50 randomly selected student-teachers of B.Ed. programme participated in the study. Shukla, N. (1991) found ample scope for integrating value education with teaching



subjects and various activities. Classifying approach, indirect contrived approach, and the integration-through-subjects approach were considered and recommended for integrated value-education. Besides the utility of various types of activities e.g. intake activities, organisational activities, demonstrative activities and expressive activities for integrated value education was also assessed. The study recommended that value education programme should be based on various approaches and activities in order to have better appeal for students.

### General

Rao, S.K.'s (1992) study on 'Structural Influences on Restructuring of Curriculum' was sponsored by the Council of International Educational Studies, Washington, D.C. The threefold objectives of this study were to (a) identify structural factors that influence restructuring of curriculum; (b) analyse relationship between structural factors and curriculum changes; and (c) suggest planning and managerial strategies for restructuring curriculum at undergraduate level. Besides documentary analysis, the researcher conducted interviews with students, teachers and administrators of various levels from three institutions a university, a liberal arts college and a community college. Rao, S.K. (1992) found that large size of institution, private management bodies, periodic recruitment of new faculty members, location near institution known for restructuring of curricula, innovator status of the institution and larger number of persons involved in restructuring facilitate curriculum restructuring. It was highlighted by the researcher that restructuring curricula is not purely an academic exercise; it has administrative and political aspects too.

Natarajan, V.'s (1982) study examined moderation of examination results with a view to identify some basic difficulties and procedures associated with the moderation process and to

provide a rational, scientific design for it. Data was collected for the study through a questionnaire from 45 universities. The researcher found that the moderation process involves quite some arbitrariness and lacks rational, scientific bases. Considerations related to 'pass' and 'failure' largely influence moderation procedures.

### Miscellaneous

Three more studies were conducted under the general area of learning. Nath, K.'s (1988) study was related to the development of a curriculum on some dimensions of the non-formal education. Desai, M.'s (1991) study dealt with family dynamics and developmental programmes while Yadav, A.J.'s (1992) study concerned the development of a curriculum for educating hotel workers.

### Non-formal Education

Nath, K.'s (1988) study was the only one conducted on non-formal education. Nath, K.'s (1988) major objectives were to develop a need-based curriculum for the non-formal education of adult females, to try out this curriculum for a specific period and to study behavioural and attitudinal changes among some participants undergoing the programme. The study sample comprised 100 females of the age-range 15-35 years from the backward areas of Agra city. The experimental and the control groups consisted of 50 learners from adult education centres in these areas. An open questionnaire and interview were used for data collection. Need-analysis of the female adult revealed that most of them lived in rented accommodation, had on the average nearly 40% incidence of literacy, worked as domestic help, lacked any worthwhile notion of hygienic environment, lived in congested and dingy residential units and were too poor to meet their primary expenses. Nath recommended that the curriculum meant



for these learners should be based on their needs and abilities.

### Other Areas

Desai, M. (1991) undertook this study in order to understand family interactions and development in the context of socialisation and to plan a family-life education programme for attitude development of human rights, skill training for enrichment of family dynamics and information dissemination about family resources. Desai, M. (1991) developed a tentative curriculum based on theory research and social work practices. The tentative curriculum was presented and refined through the workshop mode. Six areas of curriculum were finally identified, viz., theoretical and conceptual framework, family dynamics, planning family-life education programmes for general enrichment of family interactions, family dynamics by stages of family-life and strengthening family's ecological interaction. Desai, M. (1991) further recommended lecture and various experiential methods, e.g., self-analysis, demonstration, role play and library study and discussion as suitable for the programme. Various evaluation techniques, e.g., class presentation, written assignments and conducting family-education programme were also recommended.

Yadav, A.J. (1992) conducted a study of hotel workers in Kolhapur District with a view to preparing a curriculum for their education. This study was based on the needs and expectations of hotel workers, and hotel owners. The main objectives of the study were to survey the working conditions of hotel workers, to prepare a need-based curriculum for them and to assess its impact. Yadav, A.J. (1992) first categorised the hotels in three grades (A, B and C) and took a sample of 20% hotels from a total population of 400 hotels. Besides, 5 hotels were also taken from each taluka town. Questionnaire, interview and observation were

used for data collection. Yadav, A.J. (1992) developed a training programme for hotel workers based on their need-survey and working conditions and assessed its effectiveness through a two-and-a-half month experiment. Hotel information, food, health and general knowledge were the four subjects on which the training programme was based. Marathi was used as the programme medium. The participants found the programme useful, especially those from urban areas.

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