

PSYCHOLOGY
IN
INDIAN UNIVERSITIES

*Report of the
University Grants Commission
Review Committee*

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FOREWORD

The Review Committee on Psychology has examined the existing facilities in the universities for teaching and research in the field of Psychology and allied subjects. The committee has made several valuable suggestions and recommendations for improvement of courses of study and promotion of research in this important field of university studies. To the Chairman of the Committee, Dr. B. Kuppuswamy, formerly Professor of Psychology at the Mysore University, and other members of the committee. I am most grateful for the time, energy and attention given by them to the work of the committee. Dr. S. C. Goel, Education Officer of the Commission, gave valuable assistance to the committee in the preparation of the Report.

The report of the committee, I have no doubt, would be of great interest and value to all concerned with study and research in psychology.

New Delhi
January 20, 1968.

D. S. Kothari
Chairman
University Grants Commission

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INTRODUCTION

1 The University Grants Commission, appointed in March, 1961 a Review
 2 Committee on Psychology, which consisted of the following :

- | | | |
|----|---|-------------------------|
| 2 | 1. Dr. B. Kuppaswamy,* | <i>Chairman</i> |
| 7 | Formerly Professor of Psychology,
Mysore University. | |
| 13 | 2. Professor N. Mukerji, | <i>Member</i> |
| 18 | Department of Applied Psychology,
Bombay University. | |
| 22 | 3. Professor S.K. Bose.* | ” |
| 31 | Department of Psychology,
Calcutta University. | |
| 38 | 4. Dr. P.J. Philip, | ” |
| 43 | Secretary,
University Grants Commission. | |
| | 5. Professor E.I. George, | <i>Member-Secretary</i> |
| | Department of Psychology,
Kerala University. | |

46 The committee had before it wide terms of reference and was free to
 determine its own programme and procedure of work. It was asked
 particularly to consider the following :—

- 49 (a) to review the present position of teaching and research in psy-
 50 chology, particularly at the postgraduate and research levels ;
 56 (b) to examine the existing inadequacies and anomalies in this regard
 and suggest methods of improvement ; and
 66 (c) to suggest measures for improving the standards of teaching and
 research in psychology.

67 The committee held a number of meetings to discuss various issues
 relating to the objectives and contents of courses, admission requirements,
 68 standards of instruction and research and examination techniques in Psy-
 chology and finalized its report at its meeting held on 4th February, 1967
 in New Delhi. The report and recommendations of the committee are
 69 presented in the succeeding chapters.

* Since retired.

HISTORICAL BACKGROUND AND THE PRESENT POSITION

Though modern psychology had its origin in the empirical branches of philosophy, it was quick to react, especially in the Euro-American countries, to the potentialities of the developing physical and biological sciences. The first department of psychology to be established in India was at the Calcutta University in 1915. Sir Asuthosh Mookerjee, the then Vice-Chancellor of the University, was keen on introducing the study of experimental psychology at the postgraduate level. Sir Brojendra Nath Seal was responsible for drawing up the syllabus at the Calcutta University. A full-fledged department of psychology at the Calcutta University was set up under the chairmanship of Dr. N.N. Sengupta. Prof. S.C. Mahalanobis, Prof. H.D. Bhattacharya, Dr. B.C. Ghosh and Dr. G. Bose collaborated with him in organizing the first laboratory of psychology in India. During the past fifty years, particularly under the guidance of Dr. G. Bose, the department has done commendable researches in the field of mental testing and attitude surveys in industries. Professor S.K. Bose was, till recently, the head of the department.

The Mysore University set up a department of psychology in 1924 with Dr. M.V. Gopaldaswami as the professor. This was the first university to establish a chair in psychology. The department has been active in designing appliances to suit its needs and in constructing psychological tests for use in the laboratory. The department has a well-equipped laboratory for practical work at the postgraduate level and for research in the various fields of psychology. It has lately set up an animal laboratory. The present head of the department is Professor B. Krishnan.

The department of psychology at the Aligarh Muslim University which was a part of the philosophy department dates back to 1932, when experimental psychology was introduced at the undergraduate level and a psychological laboratory was set up. Since its inception, the department has been specially interested in experimental psychology, social psychology, abnormal and clinical psychology, and educational and vocational guidance and counselling. A number of research projects in the field of social tensions and social welfare have been completed by the department. Dr. Anwar Ansari is the reader and head of the department.

The department of psychology at the M.S. University of Baroda owes its origin to the interest taken by the authorities of Baroda State in the development of a Secondary Teachers' College as a centre of research and educational investigation. The department owes a debt to the pioneering

work done by Professor T.K.N. Menon. To begin with, psychology was taught in the department of philosophy. When the university came into being, the authorities planned to develop a full-fledged department of psychology under the faculty of education and psychology. It has carried out a number of projects sponsored by various agencies. Professor L.J. Bhatt is the head of the department.

The Madras University established a department of psychology in 1943 to make provision for training in advanced educational psychology for the students of the M.Ed. classes and for research work. A number of research projects were undertaken by the department under the guidance of Dr. G.D. Boaz. Professor Shanmugam is the present head of the department.

At the Patna University a separate department of psychology was started in 1946. Subjects taught consist of industrial psychology, clinical psychology, educational psychology, measurement and guidance. The university has also set up an Institute of Psychological Service and Research whose first director was Dr. H.P. Maiti. Professor S.M. Mohsin is the present head of the department.

The Banaras Hindu University introduced postgraduate studies in psychology in 1949. With the separation of the department from philosophy in March, 1962 and recent changes brought about in the syllabus, the department is now engaged in an active programme of teaching, research and publications. Dr. M.M. Sinha is the head of the department.

At the Lucknow University postgraduate teaching in psychology started in 1950. This department, originally an adjunct of the department of philosophy, was started by Dr. N.N. Sengupta. Psychology as an optional subject for the B.A. degree was introduced in 1953. The department has facilities for teaching in industrial and social psychology, psychology of religion and para-psychology. Prof. Raj Narain is the head of the department.

The Poona University started a department of experimental psychology in 1950. The department was independent from the very beginning though it shared a common Board of Studies with philosophy upto 1962. It is carrying out researches in several areas, particularly on verbal learning. The department has a well-equipped laboratory in experimental psychology. Professor V.K. Kothurkar is the head of the department.

The Bihar University started honours classes in psychology in 1953 and postgraduate classes in 1954. The present head of department is Dr. A. Hazari.

Four universities, namely, Delhi, Gorakhpur, Kerala and Gujarat started departments of psychology in 1957. The department at the Delhi University was started as a unit attached to the department of philosophy. The department recently undertook a research project on 'Industrial Neurosis' sponsored by the Indian Council of Medical Research and a Unesco project on the 'Study of Images and International Understanding', under the supervision of Professor H.C. Ganguli.

The psychology department of the Gorakhpur University is administratively a part of the philosophy department and has joint representation on the academic bodies of the university. Professor H.S. Asthana is the present head of the department.

The psychology department at Kerala University has, besides teaching and research facilities, started a psychological clinic and students' counselling centre. Professor E.I. George is the head of the department.

The University School of Psychology, Education and Philosophy of Gujarat University was originally established as a School of Psychology in June 1957. Professor P.H. Prabhu is the director of the school and head of the department.

The Osmania University started undergraduate courses in psychology in 1958 and postgraduate courses in 1962. The department has undertaken two major research projects sponsored by the National Council of Educational Research and Training. It is also collaborating with the department of journalism and the university employment information and guidance Bureau in certain research projects. Dr. E.S. Parameswaran is the head of the department.

The department at the Utkal University was established in 1958.* Professor R. Rath is the head of the department, which has facilities for teaching in social psychology, personality, juvenile delinquency, learning and hypnosis.

The Universities of Bombay, Panjab and Sri Venkateswara set up departments of psychology in 1959. The department at Bombay specializes in experimental and animal psychology on the theory side and industrial, educational and psychiatric psychology on the applied side. Dr. N. Mukerji is the head of the department.

The department at the Panjab University devotes special attention to comparative and physiological psychology, behavioural genetics, testing, experimental work, industrial psychology, guidance and counselling. It has been able to establish an animal laboratory for experiments on environmental effects and behavioural genetics.

Sri Venkateswara University prior to 1959 offered an M.A. honours course in psychology under the department of philosophy. In 1959, psychology became the concern of an independent department with facilities for postgraduate teaching and research. Professor S. Parthasarthy was, till recently, the head of the department.

The Allahabad University established a department of psychology in 1961. The department recently completed a research project financed by the National Council of Educational Research and Training on 'A psychological analysis of factors associated with success and failure in university education'. Professor D. Sinha is the head of the department.

* The Ravenshaw College started teaching psychology to B.A. classes in 1953.

The department at the Annamalai University (established in 1963) under Professor S.P. Adinarayan has done considerable work in the field of ethical relationships, group tensions and colour prejudice.

Some of the departments established in recent years are at Bhagalpur (1963), Jodhpur (1963) and Saugar* (1963). The Ranchi University also introduced postgraduate teaching in psychology in 1963. The department has been working in collaboration with the Harvard Research Project on socio-cultural aspects of development.

This brief historical account of the growth of psychology in the Indian universities indicates that the subject is no longer content with being a part of philosophy. In many universities, there are independent departments of psychology with separate boards of studies and boards of examiners. Psychology in India, as elsewhere, has been moving closer to the natural sciences and away from the humanities, a trend which should be welcomed in the interest of its growth as an academic subject of great value and significance to human society.

Space forbids us to enter into the details of the commendable work that is being done at each university or even to touch upon all their characteristic features. However, it should be mentioned here that apart from awarding degrees in psychology, several universities offer diploma courses. The Aligarh Muslim University offers a diploma course in psychology, and the Calcutta University has instituted a certificate course in applied psychology. In some of the universities, the local colleges also are allowed to enrol students for the undergraduate or postgraduate courses. For example, in Bombay three colleges are permitted to register students for the postgraduate course in psychology. The Agra University gives instruction in psychology up to the Master's level, only through the affiliated colleges. This university has twelve such colleges under its jurisdiction. There is one college under the Gujarat University and one under the Madras University which offer postgraduate course in psychology.

According to the information available with the UGC there are now 25 university departments teaching psychology at the undergraduate and/or postgraduate level.† These are as under :

- | | |
|--------------|--------------|
| 1. Aligarh | 5. Bhagalpur |
| 2. Allahabad | 6. Bihar |
| 3. Annamalai | 7. Bombay |
| 4. Banaras | 8. Calcutta |

* Prior to 1963, psychology was part of the philosophy department since July, 1959.

† Information relates to the year 1963-64.

The following universities also offer undergraduate/postgraduate courses in psychology :

(1) Agra, (2) Andhra, (3) Indore, (4) Jabalpur, (5) Karnatak, (6) Marathwada, (7) Magadh, (8) Nagpur, (9) Rajasthan, and (10) Sardar Patel.

The syllabuses prescribed by these universities are given in appendices I-VI. These universities have not given the historical background of the setting up of their departments. Information in this section and in appendices I-X is based on material supplied by the universities.

- | | |
|-------------------------------|----------------------|
| 9. Delhi | 18. Osmania |
| 10. Gorakhpur | 19. Panjab |
| 11. Gujarat | 20. Patna |
| 12. Jodhpur | 21. Poona |
| 13. Kerala | 22. Ranchi |
| 14. Lucknow | 23. Saugar |
| 15. Madras | 24. Sri Venkateswara |
| 16. M.S. University of Baroda | 25. Utkal |
| 17. Mysore | |

It is heartening indeed to find a rapid rise in the number of universities now taking a keen interest in teaching psychology as may be seen from the following :

1920	...	1
1930	...	2
1940	...	4
1950	...	9
1960	...	19
1964	...	25

Mention should also be made of the fact that certain branches of psychology like industrial and animal psychology are taught at the Indian Institutes of Technology, and psychiatry in its various branches is quite popular in the medical training courses. The department of nutrition at the Baroda University is doing original work on the effect of protein deficiency on intelligence in animals. Psychology has become equally popular in the business management courses and many industrial firms have their own cells for researches in psychology to meet their requirements. These examples clearly indicate that psychology is fast growing in India and that it is necessary to adjust our courses of studies to meet the expanding needs and requirements of the subject.

It is encouraging to find a rapid increase in postgraduate and research enrolment in psychology, as seen from the following table :

Year	M. A.			Ph. D.		
	University Departments	Affiliated Colleges	Total	University Departments	Affiliated Colleges	Total
1961-62	N.A.	N.A.	1048	N.A.	N.A.	63
1962-63	615	500	1115	77	17	94
1963-64	783	560	1343	78	12	90
1964-65	932	640	1572	121	16	137

This shows an increase of 50 per cent in postgraduate enrolment and of 117.4 per cent in research enrolment during 1961-62 and 1964-65. Admittedly, however, quality is more important than quantity. It is the former aspect that will be dealt with in the following chapters.

OBJECTIVES OF TEACHING PSYCHOLOGY

(Including the syllabus)

A clear definition of explanatory principles at the various levels of university education viz. undergraduate, postgraduate and research is an important pre-requisite to any attempt to formulate suitable courses of study. Rationalization and modernization of courses are equally important steps in order to keep teachers and students abreast of developments in their respective subjects. The inexorable process of introducing desirable changes in the courses of study from time to time applies to all branches of knowledge, but the need is more imperative in a subject like psychology which is growing at a rapid rate. The teaching of psychology in our universities is still in its formative stages trying to sever its connections with philosophy and humanities. It is, therefore, a matter of great importance that teachers of psychology should devote serious attention to defining the goals which should underlie teaching and research in the subject and provide a fresh stimulus to its growth in the right directions.

Judging from the syllabi framed at the various universities, it becomes evident that very little attempt has so far been made to define the objectives of teaching psychology and spell out the principles or to justify the rationale behind the selection of certain papers and omission of others. These matters are often decided by the members of the boards of study without due regard to academic considerations and developmental needs. The result is that the syllabi often emerge as a patch work.

An analysis of the material supplied by the universities in response to a questionnaire issued by the University Grants Commission, to collect information regarding the contents of courses at various levels makes a revealing study. Here, one notices a lack of uniformity in the branches taught. Generally, psychology and abnormal psychology form the common core of compulsory papers at the undergraduate pass level. While the inclusion of the former is understandable that of the latter is not. Abnormal psychology is not only an applied branch of study—leaning heavily on the fundamentals which should be given priority—but is, also, highly technical in nature. Putting academic psychology or any branch of it at too popular a level should be seriously discouraged. Another serious lacuna.....is the omission of a practical course in experimental psychology from the undergraduate and postgraduate courses. Again, the number of compulsory papers varies from one university to another within the wide range of two to six. It is also observed that at the undergraduate stage one can take psychology with elementary biology and statistics (Banaras) philosophy,

economics and ancient Indian culture (Gujarat) ; politics and public administration (Osmania) and so on. This is also the case at the honours and post-graduate levels.

In the nature of things, there cannot be any rigid uniformity in the courses of study followed at the different universities ; they are very likely to vary in matters of detail as well as in emphasis given to particular aspects of the subject-matter. What is, however, necessary is that there should be some measure of agreement regarding the elements which constitute the essentials of the subject. Once this is understood, students should be given the necessary freedom, to choose from the areas of specialization depending on the availability of qualified teachers and adequate equipment, library and laboratory facilities and also opportunities and material for field work. It is also necessary to ensure that courses are so designed that they can be adjusted to the level of intellectual maturity attained by students and thus take them from lower to higher planes of knowledge. In other words, we should have a clear idea of what to expect from the graduates, postgraduates and doctorates in psychology.

To lead to postgraduate teaching and research, it is essential in any discipline to gradually develop the student's outlook and attitude. This is most clearly noticed in the case of the physical and organic sciences. A student who offers physics or physiology at the master's level has to patiently prepare himself from the post-school level or even earlier. Modern psychology demands a similar treatment if it is not to be looked upon as an infructuous subject. Since intermediate teaching has now been abolished in most of the universities, it is imperative for the universities to prepare the mind of the student to enable him to cope with the courses offered at higher levels.

The first necessary condition for improvement of standards is to limit admissions to such students as have the necessary background of the subject. For obvious reasons, marks acquired by them at the qualifying examination should not be the sole criterion of admission. The essential qualities for a student of psychology can be judged better by means of an interview or a *viva-voce* conducted at the time of admission to assess the intellectual calibre and emotional preparedness of the candidate. We therefore, recommend that for admission to honours courses interview should be a compulsory requirement.

In both pass and honours courses, it is necessary to relate the number of students to the physical and other facilities available in the department, particularly those for practical work. Here we have to think separately about the theory classes and laboratory practice. As for the former, stress has been repeatedly laid by the various commissions and committees on the reduction of the size of the lecture classes and it is needless to reiterate it here. The greatest drawback in a large class is that there cannot be any fruitful exchange of ideas or clarification of doubts lingering in the mind of the student. A lecture to a class of 150 students becomes a mechanical activity without the involvement of students. For intensive laboratory

practice, it is essential to have a ceiling on the number of students, as in its absence the student cannot properly assimilate what he actually does. The continued association of psychology with the faculty of arts has also been unfortunate as the arts student who offers psychology has not fully imbibed the spirit of learning through doing. The general tendency prevailing in the psychology laboratories is for the demonstrators to simply arrange the appliances and expect the student to press the buttons and catalogue the data. This severely restricts the student's freedom and ability to gain mastery over the appliances. This is bound to be so if the classes are inordinately large. Keeping in view the available laboratory facilities in universities, we recommend that at the undergraduate stage there should not be more than 24 students per set of scheduled appliances. It is also recommended that besides demonstration, the teachers should also take part in the work of laboratory practice.

The study of psychology at the undergraduate pass level has to be related, by and large, to a programme of liberal education. Obviously, it cannot offer sufficient scope for specialization as students are required to offer 3 to 4 optional subjects in addition to one or two compulsory subjects and are expected to devote equal attention to each of them. This aspect has particularly to be emphasized because some universities attempt to impart a certain degree of specialization even at the pass level by introducing a system of major or special courses in psychology. Obviously these courses are not full-fledged honours courses and cannot be treated as equivalent to them. They seem to be a compromise between pass and honours and hence detrimental to both.

It is essential to distinguish between the objectives of the pass and honours courses. At the B.A. pass level, the student must develop his critical judgement with respect to behaviour, acquire the necessary foundation for training at the postgraduate level and equip himself with the basic requirements for carrying out technical jobs under the supervision of an expert. The honours course should, in addition to the objectives suggested above, provide for a certain degree of specialization so that the honours students become better equipped both in regard to the content of knowledge as well as in depth and intensity. On the whole, the honours students would be more suitable for admission to the postgraduate courses. Specialization at the honours level, however, does not mean that the student should not be acquainted with certain allied subjects. In fact, it is necessary for him to have some insight into subjects like statistics, physics, anthropology, sociology, physiology, biology etc. which have a direct bearing on the study of psychology. The boundaries that once delineated the different subjects are fast losing their sharp contours and psychology will suffer if we do not let fresh wind blow in from many windows of knowledge. It would, therefore, immensely benefit the honours student if facilities could be provided for part-time training in some of these ancillary subjects, if necessary, beyond the usual hours; thereby a good student would gain a wider perspective and even an average student would develop a desire to look around.

It should also be borne in mind that there is a possibility of an honours graduate in psychology entering a vocational field. This he cannot do on his own unless he works under the supervision of a well-qualified person. Keeping this in view, necessary facilities should be made available to the honours students so that they may not feel totally alienated, if they are unable to proceed for postgraduate education. A good honours graduate can be employed as a research assistant, demonstrator in a psychological laboratory or in a vocational guidance bureau or in a psychiatric department of a medical college and so on. The training of honours graduates in psychology should not only meet these ends but should also provide for a certain degree of uniformity in the maintenance of standards.

As already pointed out, there are wide variations in regard to the number of papers prescribed (including the compulsory as well as the optional papers) for study at the B.A. pass and honours levels. We recommend that there should be at least 2 papers and one practical for the B.A. pass course and 7 papers (four in psychology, one practical and two in a subsidiary subject) in the honours courses. It has also to be understood clearly that there is hardly any value in conducting a purely theoretical course in psychology. Practical training should be considered an integral part of the subject even at the Bachelor's level, as without practical training students cannot gain a proper knowledge of psychology. It is suggested that thirty should be the minimum number of experiments that a student should actually conduct in the pass course. The requirement should be 40 to 50 experiments for the honours student. In addition, both the pass and honours students should be acquainted with at least 10 mental tests. Colleges which do not have adequate laboratory facilities for the practical training of their students should not be permitted to offer the B.A. course in psychology.

At the postgraduate level, the aim of the course should primarily be to produce competent teachers in psychology, to train them in the methodology of research so that they are able to derive benefit from the study of learned journals and books pertaining to their subject and to enable the student to specialize in applied fields where he can work as a practical expert on his own.

As the postgraduate stage is one which aims at specialization and provides the necessary training for future research workers, teachers and psychologists in the country, a high degree of scholarship and achievement would naturally be expected of the postgraduate student. Admission to the course should therefore be strictly restricted to enable emphasis to be laid on quality rather than quantity. In certain universities there are over 50 students in an M.A. Class. This is by no means a desirable trend. The following should be the minimum qualifications for admission to the M.A. course in psychology :

- (a) The candidate should have an honours degree in psychology or a pass degree with psychology.

- (b) The candidate should have secured at least second class marks in psychology.
- (c) He should be able to satisfy the head of the department or the departmental committee about his competence and interest in the subject.

Apart from ensuring that only students of the right calibre are admitted to postgraduate courses in psychology, attention has also to be given to its re-organization. The practice prevailing in certain universities of combining papers in psychology with three or four papers in other subjects at the Master's level is not desirable. The content of the courses which a candidate has to master for the postgraduate degree does not leave any scope for such an arrangement.

A conspectus of courses in psychology shows that sufficient attention is not being given to modern knowledge of fundamental problems in psychology like perception, memory, learning etc. What needs emphasis here is that the boundaries of knowledge are fast changing and unless we keep abreast of these changes, our syllabuses will become completely outdated. At one university, for instance, the theories of learning and with Thorndike's work. At another university the books selected under comparative psychology are Galloway's *Philosophy of Religion* (sic) and *Comparative Psychology* by Thorndike. It has also to be emphatically stated that stress on the application of knowledge to actual problems of life (a desirable end in itself) should not result in the neglect of fundamental problems.

We recommend the following papers for compulsory study at the M.A. level. They constitute the basic tools required for grasping the fundamentals of psychology and of other related areas. A student will not be able to learn them without guidance from teachers. These subjects are (i) experimental psychology—theory and practice, (ii) psychometry, including research methodology, (iii) physiological psychology, (iv) comparative psychology, and (v) theories of psychology. In addition to the above papers a student may be given optional courses either of a pure or applied nature. The following areas are given by way of illustration.

<i>Pure</i>	<i>Applied</i>
Perceptual Processes	Industrial Psychology
Personality	Vocational Psychology
Measurement of Ability	Clinical Psychology
Group Dynamics	Educational Psychology
Social Psychology	Criminal Psychology
Child Psychology	

Specialization should preferably be in one area. There should be at least one practical and two theory papers for each of the optional subjects.

The practical work should consist of laboratory exercises, field work and case studies. The papers for compulsory and specialized study will have to be taught in a logical order*.

A word may also be said about research work in psychology which at present is often based on questionnaire studies and is, in many cases, a mere duplication of work already done. It is necessary to lay down that a questionnaire study in itself or critical survey of the existing material should not be considered sufficient for the award of Ph.D. degree. The main objective of the research course should be to fully equip the student as a thinker, research scholar and teacher. The dissertation should, therefore lead to the advancement of knowledge in a particular area. Various problems of research including admission requirements, supervision and guidance, evaluation, departmental research etc. are discussed in chapter 5 of the report.

* It may be noted in this connection that the Bombay University has recently modified its postgraduate syllabus in Psychology. Students are required to take 4 compulsory papers viz., Advanced General Psychology (including schools), Advanced Abnormal Psychology, Advanced Social Psychology and Experimental Psychology (Practicals). In addition, a candidate has to select 4 papers out of the following :—

1. Physiological Psychology
2. Advanced Comparative Psychology
3. Indian Psychology
4. Psychometric methods
5. Industrial Psychology
6. Psychology of Education
7. Personality : Theory and Assessment
8. Clinical Psychology

The Mysore University has the following compulsory papers :

- (1) History and Systems, (2) Physiological Psychology and Psychological Genetics, (3) Abnormal Psychology, (4) Statistics, Scientific Method and Experimental Design, (5) Psychometrics, (6) Practical—General (7) Practical—Applied, and (8) Dissertation.

In addition a student may offer one of the following optional papers : (1) Counselling and Guidance, (2) Industrial Psychology, and (3) Social Psychology.

IMPROVEMENT OF THE ACADEMIC PROGRAMME

An improvement of the academic programme depends, to a certain extent, on the provision of adequate financial resources. Paradoxically, however, in the university departments in India, it is not the dearth of financial aid which is proving to be so much of a handicap as is the organizational aspect. In the establishment and strengthening of university departments of psychology, the University Grants Commission has placed adequate resources at the disposal of the universities. Research grants are also available from the UGC, NCERT, Planning Commission, Medical Council and several foreign agencies to name a few. The main obstacles in the way of our progress have therefore no direct bearing on financial stringency. We have to look for the reasons of slow progress and stagnation elsewhere.

The rapid expansion of student population which is often described as an 'explosion', has depleted the physical and other facilities in university departments and colleges. The student-staff ratio which is as low as 17 : 1 for the country as a whole is lower still in the faculty of arts. There are some university departments of psychology with a ratio of 30:1 or even lower. The position is worse in colleges, particularly in large cities. It is therefore clear that under the present dispensation, it is well-nigh impossible for teachers to pay individual attention to or take personal interest in the progress of their students either in the class-room or in the laboratory.

A noticeable disparity in this respect is that in some universities lectures are supplemented by tutorials, seminars, laboratory exercises, field work etc., whereas in many others there is a predominance of lecturing as a method of instruction. At the postgraduate stage, most universities arrange two to four lectures per paper, per week. There are, however, some universities which provide a large number of lecture periods in their time-table. There can be no doubt that this system of spoon-feeding students on too many lectures not only discourages independent reading on their part but also deprives them of any measure of self-reliance. It is certainly strange that when students of psychology are taught that learning is a motivated active process, in the actual process of teaching they are forced to hold a passive posture in the lecture theatres with few outlets for constructive activity or with any opportunity for an exchange of views. Things tend to grow more dismal in some universities and colleges by over-crowded and large-sized classes which make it impossible for the student to be involved in the learning process and for any intellectual or emotional contacts to be established between the teacher and the students.

We would, therefore, suggest that lectures should form only a minor part of the work of the psychology departments and stress should be laid on :

- (a) practical work (including laboratory work, clinical work, field work and visiting institutions) ;
- (b) seminars ; and
- (c) essay work.

A few words may be added here regarding essay work. Writing of essays by students, as part of their sessional work could also bring about an improvement in their power of expression. It is a widely known fact that our university and college students do not have an adequate command over the English language, with the result that while they read books in English they are unable to express themselves through it. This gap between thinking and expression can be reduced considerably through the writing of essays. It would also be necessary for teachers to correct the essays carefully. This would of course involve the appointment of some additional teachers. The tutorial system will also have to be organized with the requisite imagination and understanding. Students should be encouraged to go to the library, read for themselves and do some independent thinking and writing. Credit should, of course, be given to students who engage themselves in wide reading and do the tutorial assignments regularly. It has to be understood that the main purpose of introducing sessional work in the universities and colleges is not to evolve a fool-proof system of evaluation but to persuade the students to apply themselves regularly to their work.

Another serious deficiency which needs immediate rectification is the lack of sufficient attention to practical work in the applied fields of the subject. Quite often specialization in applied psychology means taking a theoretical course, without receiving any sustenance from practical work in the field. It is difficult to understand how students can learn applied subjects like clinical psychology, industrial psychology etc. in the absence of any practical experience. For example, no amount of theoretical lectures would enable a student of clinical psychology to understand and familiarise himself with the complex problems in the field, unless he has, as part of his course, worked in a mental hospital. It is the same with the other applied branches of psychology. Thus there is an urgent need for an active and close collaboration between the departments of psychology and the field agencies concerned. Without co-operation from agencies like schools, factories, hospitals, jails etc., it would be well-nigh impossible to give the necessary practical orientation to the applied branches of psychology and in the long run both the departments and the agencies would tend to suffer. Fortunately, a majority of the universities are situated in large towns not far away from a medical college, industry or a district jail. It is, therefore, possible to build up a co-operative spirit to benefit both the sides.

There is also a neglect of case studies in many departments. This is a valuable method to understand the individual as well as the principles underlying his behaviour. Case study method has become quite common in many branches of learning and has led to interesting conclusions and researches in the areas concerned. One way of bringing this about is by laying down that the M.A. curriculum in psychology should have as a compulsory requirement the study of at least 10 or 15 cases by each student.

The technique of setting question papers needs radical change in order to relate them to well-defined educational objectives and not merely to the topics enumerated in the syllabus. It is to be regretted that some universities have rules to the effect that questions of the current year cannot depart radically from that of the previous year. While in final examinations some general guidance is necessary for the external paper setters, they should, on the whole, be free to set the questions and give directions to co-examiners for ensuring uniformity in evaluation. Acquaintance with the latest developments in the subject and application of principles to the problems of the day should receive due attention in questions as well as in evaluation. At present, there is a strong tendency to think in terms of perpetuity and this tendency permeates the whole of academic life not excluding the boards of studies in psychology. There are several universities where the teachings of St. Thomas Aquinas and Ramanuja find a place under the paper on history of psychology, but there are not many where biochemical bases of memory or Guttman's scalogram are included. While it may be argued that syllabi should not be changed too often, it is necessary to locate the issues involved, change the syllabus and renew the list of text books to meet the requirements of evolving knowledge and growing needs. To obviate this difficulty, it is suggested that in each paper of 100 marks at least one compulsory question may be asked which does not exactly fall within the prescribed syllabus and yet which is considered by the examiner to be a reasonable question. This would keep both the teachers and students alert to the progress made in the subject.

Another question pertains to the feasibility of framing straight-jacket syllabi for the M.A. students. It is understandable that precise areas of study are defined for the benefit of the undergraduate students who have just started gaining acquaintance with the subject. But the same argument cannot be applied to postgraduate students whose aim is to gain mastery over the subject. The greatest danger that lies in the syllabus system is that there is a likelihood of skipping of certain aspects of the subject resulting in lack of coherent knowledge. The system of doing away with the syllabus at the M.A. stage is not altogether novel. For example, no definite syllabus is prescribed at the Bombay University ; only books are recommended. This experiment is to be strongly commended.

At the postgraduate level, it would also be desirable to examine the students by means of a viva-voce, as it will give the examiner an opportunity to assess the candidate's knowledge and competence in the subject. Examiners should have an idea, prior to the test, of the kind of questions they

are going to ask. However, if the viva-voce is not to be reduced to a mere formality, each student should be examined for at least half an hour or so.

Most practical examinations are conducted according to a set pattern. There could be nothing worse than the performance of routine experiments in a routine way. It would be desirable to change the form of the question so that it does not become a repetition of what the student had *actually* done in the class room. The accent here should be on the ability of the student to adjust himself to a slightly different situation rather than to judge him on the basis of results obtained which in any case cannot be compared to the experimental results in physics or chemistry. We suggest the following distribution of marks for the practical examination :—

(a) Practical (two experiments)	... 50%
(b) Viva-voce	... 25%
(c) Laboratory journal	... 25%

The point to be stressed is that a certain proportion of marks should be set apart for the way in which the candidate conducts the experiment and discusses the results and draws inferences. It may also be mentioned in this connection that for appointment as an examiner, experience of teaching the particular paper for a certain number of years should be necessary. It is not uncommon to select an examiner in clinical psychology who has neither taught the subject nor worked in the field. By selecting such examiners injustice is done to the candidates as well as to their teachers.

The suggestions outlined above for improvement of teaching and examinations can only produce good results if there are good teachers. Though it is difficult to evaluate the capacity, the training or performance of the existing staff in psychology in an objective or unbiased manner, it may be stated that the members of the present staff in a number of institutions are not fully qualified to teach new areas which have already been incorporated in the syllabuses, or may be added in the near future. Some of the members of the staff who sit on the boards of studies resist many worthwhile changes because they themselves are outdated. Methods have therefore to be devised to provide necessary training and orientation to the existing staff, specially of the affiliated colleges.

One method which suggests itself to us is the holding of seminars, summer institutes, refresher courses etc. In a rapidly advancing field like psychology, the teacher or research worker who does not have sufficient access to books and journals may soon become outdated and therefore refresher courses for teachers, particularly in colleges located in mofussil areas can be of immense value. Seminars help to stimulate the level of research in the subject. For this experts in particular branches, eminent teachers and research workers may be invited to give lectures and lead discussions. A single university may not be able to finance the projects but would certainly do so if 3 or 4 universities in a region pool their resources and some assistance is forthcoming from a central agency like the University Grants Commission. If four or five seminars could be arranged

in different parts of the country during a year, this will have a deep impact on teaching and research in the subject in the long-run. The programme could be broadened and strengthened as more funds become available to include in its scope more teachers and research workers.

To encourage research work on the part of teachers and also for strengthening the quality of their teaching, it would be necessary to provide sufficient scope for specialization by them, particularly at the postgraduate level. Specialization would not be possible in more than one or two areas. It is, therefore, necessary to have the required number of teachers in the department and also to arrange the departmental time-table so as to ensure that no teacher has to give courses in more than two papers at the postgraduate level. The physical and biological science departments, it is understood, already have such arrangements and there is no reason why this practice should not be extended to the department of psychology also. Further, each postgraduate department of psychology should have a well-equipped workshop attached to the laboratory. As far as possible, appliances should be repaired in the workshop and teachers should take interest in devising their own apparatus.

In some departments teachers are required to work for 12 to 15 hours per week. Although this is surely a matter of resources, it is obvious that no staff member can function to the best of his capability when he is required to teach 15 hours or more. This specially applies to postgraduate teachers. A teacher at the postgraduate level cannot do this kind of work and still keep himself abreast in his field and specialise. It is, therefore, necessary to ensure that the teaching load does not exceed five to six hours a week. The teacher should devote the rest of the time for seminar work, to guide the research work of younger persons and for his own research work. It is also necessary to emphasize that teachers should be consulted in all academic matters and in the framing of rules and regulations. Anomalous situations may arise if the university authorities ignore this basic principle. At one university rules permit that a teacher can be elected chairman of any board of studies. By this procedure, a teacher in geography was elected chairman of the board of studies in psychology. If such things happen, all our efforts to improve standards would indeed be in vain.

RESEARCH IN PSYCHOLOGY

Research in psychology in our universities is one sector which needs considerable strengthening and improvement. Judged by the number of doctoral dissertations in psychology in recent years as also by grants provided by various agencies to university departments for undertaking research projects, the situation has certainly improved compared to what it was about a decade ago. A number of university departments in the country are active in the field of research and are doing good work. But we cannot claim to have reached the standards obtaining in the field of research in some of the advanced universities of the world. This applies both to the research work of students as well as that of the teachers.

At the outset, it may be pointed out that research work in psychology necessarily involves considerable practical work and, therefore, a mere critical survey of the existing material should not be considered a sufficient requirement for the award of the Ph.D. degree. Research represents the seminal point of higher education and here we should prepare the student to become an independent thinker. While the objectives of the M.A. course apply to the Ph.D. also, at the Ph.D. level there is a greater degree of specialization and an effort to advance knowledge and to apply it to the solution of a problem. The dissertation ought to lead to the advancement of knowledge in a particular area. It should not be a mere questionnaire study or survey based on secondary source-materials.

If such are the objectives of the research course in psychology, it is obvious that students should be admitted to the course with due care and deliberation. No doubt, universities have laid down comprehensive rules for admission of research students in the context of local conditions. In most universities, a B.A. or M.A. degree in psychology is insisted upon before registering a candidate for the Ph.D. degree in psychology. The practice of registering graduates for the Ph.D. degree has to be firmly discouraged, as specialization is not possible without a prior background of the subject up to the postgraduate level. This, however, does not mean that a change of the faculty should not be permitted. Thus a student in Medicine need not be debarred from pursuing a research course in psychology because he belongs to the faculty of medicine and not to the faculty of social sciences. We are of the view that for admission to the Ph.D. course in psychology, the research guide must satisfy himself that the candidate has the necessary aptitude and competence for carrying out research. In exceptional cases students from other branches of study may be admitted, provided the board of research studies and the recognized guides are satisfied about the candidate's background, competence and interest in the subject of research.

Greater attention must be devoted to the supervision of work relating to research thesis. In an Indian university the research student registers with a set topic whereas in many western universities he makes his preliminary reading and decides his problem within the course of the first six months or so. He may have a written examination at the end of these six months. This latter practice seems to be more desirable. Even in the selection of candidates and the recognition of supervisor for guiding research, greater care and attention are needed. The deplorable fact has to be admitted that a good proportion of research workers in universities enjoying research fellowships have taken to research merely as a stop-gap arrangement to find a job. This can be seen from a comparison of the number registered for Ph.D. and the number awarded the degree in psychology, as shown in the following table :

<i>Year</i>	<i>Research enrolment</i>	<i>Number of theses accepted</i>
1961-62	63	12
1962-63	94	16
1963-64	90	12

It is not altogether uncommon for a student working for 8 or 10 years for the Ph.D. degree. We are of the view that a time-limit should be imposed for completion of the task undertaken by the research scholar and only under exceptional circumstances this limit may be relaxed.

The supervisor should himself be a specialist, a devoted and successful research worker interested in his work and the student who works under him. While conducting regular classes for research students may not be absolutely necessary, the supervisor, should meet his students at least once a week for the discussion of difficult points, planning the work, and appraisal of work already done. The training for the Ph.D. should be at least for a period of three years and the aim should be to prepare research workers and teachers in the field. The candidate should evince real ability to study a problem systematically through rigorous scientific method and to relate his results to the general body of the subject. In the selection of topics for research, the student as well as his guide have to exercise imagination with a view to exploring fresh grounds rather than to keep to the beaten track.

A large number of research reports are merely duplication of work already done. It would be desirable for departments of psychology to be in touch with each other and avoid this type of duplication. A more positive step would be to start programme research to be undertaken as a collaborative effort by a number of institutions. Special courses in methodology should be given to regular research students. We still lack basic materials and tools of research in psychology, e.g. tests in the various fields. Standardisation

of tests of intelligence, personality, clinical diagnosis, guidance etc. could be undertaken as a collaborative effort by many institutions in the various regions.

The members of the teaching staff must themselves undertake special problems of research. By and large, members of the teaching staff do not actively engage themselves in research though they are not always to be blamed. At one university when a teacher complained to the authorities against 21 classes entrusted to him and spread over from 9 a.m. to 5 p.m. he was told by a responsible person that 'this is a teaching university, and not a research university'. We feel assured that such ignorance on the part of university authorities is an exception rather than a rule. We would go to the length of suggesting that each member of the staff should have one long-term project and two short-term projects so that every year he could write at least two papers. These should be published in technical journals or read before scientific conferences, learned societies etc. As far as possible, necessary assistance in terms of personnel and funds should be made available. The professor of a department for example, may have, apart from teaching, considerable administrative responsibilities. It is not only desirable but necessary to have research assistants to help him in his work. As for the teaching staff other than the professor, they should also undertake research on their own. To encourage work on their part they should not be overburdened with too much teaching responsibilities. It is also essential to reward good work with appropriate recognition by promotions and/or enhancement of salaries.

Some of the psychological problems to be investigated involve much field work and sustained effort. While longterm assistance for such work is necessary, it has also to be stated that in psychology there is an enormous scope for undertaking short-term research projects which do not necessarily require heavy financial outlay.

Another aspect to be considered in this connection is the availability of laboratory equipment, books and journals. It must be admitted that the University Grants Commission has certainly helped many universities in this connection, but with the restrictions on foreign exchange it is not always possible to get certain types of equipment and back numbers of journals. The situation has become worse with the recent devaluation. With the usual allocation of three or four thousand rupees, a polygraph or a set of back numbers of journals cannot be purchased. Larger allocations are therefore necessary.

It would be worthwhile to point out here that it is not desirable for each university to offer specialization in all or several branches of psychology. This is not only ambitious but entails a good deal of wastage of funds and effort. A tradition can be developed in each university to specialize in one or at the most two subjects. This, however, does not mean that while a university department specialized, say, in educational psychology, researches in other branches should be neglected. What is meant here is that the bulk

of financial aid and resources should be diverted to one or two major areas of abiding interest to the department concerned.

There are certain areas in which the co-operation of various departments of psychology in different universities will prove extremely valuable e.g., in programme research, such as diagnostic clinical research, where one department cannot design standardized tests for the whole country. We would, therefore, recommend a closer collaboration among the various departments in programme research.

There should always be a greater co-operation between the university departments of psychology on the one hand and the statistics and biology departments on the other. Where there is no department of statistics or co-operation is not possible for some technical reasons, a full time statistician should be provided for the department of psychology.

A word is necessary on the trend in some institutions to undertake work in the field of parapsychology, yoga and similar subjects in spite of there being no equipment or proper training facilities for this type of work. While we recognize the importance of work in these areas, it may not be in the interest of the scientific development of psychology at this stage to undertake ambitious schemes in these areas without adequate training, equipment and guidance.

NEW DIRECTIONS

Mathematics has grown into an essential tool for understanding natural phenomena, physical as well as organic, and thereby it has proved to be the cementing force among the various scientific disciplines. Lately, contemporary psychology appears to have attained a similar position in the field of bio-social sciences. Modern psychology has broken the barriers among several disciplines, which had hitherto remained in isolated compartments. For instance, ethology and comparative psychology have not only enriched our knowledge of living beings but have also exposed the common ground covered by biology and psychology. Anthropology frequently transcends its traditional barriers and the anthropologist's queries are no longer limited to the empirical observations of a community structure : ethological differences are now believed to be correlated in a substantial way to the personality network which is fundamentally a psychological issue. Psychology is inextricably mixed with sociology too, as may be seen from a perusal of any standard book on the subject. Psychology has also influenced art and literature (though after reading a 'psychological' novel a psychologist may tend to lose his self-confidence). Psychology is equally indispensable for the students of politics or economics; the 'bulls' and 'bears' in the share market reveal as much the industrial state as the mental state of the buyers and sellers. Psychology now contends to lay claim on historiography and linguistics as well as on modern warfare and rehabilitation. In short, whatever pertains to man also pertains to psychology. The psychologist can now see various channels of inter-communication with other disciplines and he has to make full use of these opportunities, by exploring fresh and new directions for teaching and research, some of which are discussed in this chapter.

We cannot move forward in the field of psychology if facilities are not provided in some of these branches of the subject in selected universities. This would call for a careful study of the potentialities of different departments of psychology and a planned programme for introducing specialities in accordance with their competence. It is also suggested that encouragement be given to individual research workers in areas of this kind, either in India or abroad, even if large scale developments cannot be brought about in the immediate future. This would also help in producing trained personnel required for organization of teaching and research in such specialities. We shall begin with those areas in respect of which a beginning has already been made and then indicate certain later developments.

Clinical Psychology

Regarding the development of clinical psychology, the applications of modern learning theory and personality theory, particularly the dimensional approach have brought about significant changes in theory and application. Neurotic reactions are today considered as learned reactions, depending on environmental aspects, to a large extent. Being learned reactions they should follow the laws of learning. The neurotic symptoms are learned patterns of behaviour, which are unadaptive, and treatment in terms of behaviour therapy will be more useful. H.J. Eysenck, A.A. Lazarus, S. Rachman, C.M. Franks, Joseph Wolfe and others have described several methods like, reciprocal inhibition therapy, negative practice and conditional inhibition, aversion therapy, and therapy by positive conditioning and feedback control, under the general name of behaviour therapy, for a variety of conditions like children's phobias, stammering and speech blocking, tics, obsessive compulsive states, anxiety states, hysterical aphonia, neurodermatitis, alcoholism, drug addiction, homosexuality, writer's cramp, enuresis, nocturna and certain hysterical conditions.

One related problem in this context is the training of the clinical psychologist. In the training of the professional clinical psychologist, two aspects must be taken into consideration. On the one hand, the clinical psychologist must have a thorough grounding of fundamentals in the general area of psychology. On the other, he could be fully equipped to do his professional job as a clinical psychologist by undergoing a postgraduate training programme enabling him to familiarize himself with the various testing techniques and treatment methods. In other words a fundamental, academic, and experimental programme of teaching in practical and professional areas and a rigorous standard of scholarship should be insisted upon. It is not enough if the clinical psychologist practices his profession either with the theoretical knowledge he has gained in the ordinary M.A. course or with a superficial acquaintance with clinical work. In the past, the art of medicine, which the apprentice doctors learned from their colleagues on the whole tended to be concerned with the art of diagnosis, the accumulation of lore about drugs, the acquisition of bedside manners and so on. None of these procedures have any scientific basis. By contrast university courses of medicine have always tended to be concerned with sciences such as biology, physiology, chemistry, anatomy and the like which are the scientific basis of medicine. If the various psychological specialities are to retain their reputation with the public, they must avoid the temptation to indulge in 'pseudometrics' and 'psycho-magic'. Universities must be responsible for professional training in all branches of applied psychology. Programmes in clinical psychology should be carried out in active collaboration between medical institutions, psychiatric hospitals and university departments of psychology. A scientifically planned programme would no doubt improve the vocational opportunities in this subject.

Counselling and Guidance

A field related to the training programme in clinical psychology is that

of psychological counselling and vocational guidance. Student personnel work has gained tremendous momentum in many universities in the west, but the role of psychologists in this area of higher education has not been fully recognised in this country though a beginning has been made in this direction. A well-planned student personnel programme includes the process of selecting the most promising candidates for admission into various courses, assessing their personal and intellectual characteristics, orienting them to college life, controlling their progress towards the degree, providing adequate food and housing, maintaining discipline, attending to physical and emotional problems, offering a profitable extra curricular programme and providing financial aid and placement services. In a number of activities envisaged under student personnel programme the psychologist has a major role to play and to start with requisite tools have to be developed.

In many universities, some tests have been standardized for pure academic research purposes. But the large number of tests necessary for the purpose of selection and admission of candidates (assessing their interest, aptitudes and the like ; personality and clinical tests for purposes of diagnosis) have yet to be made and these must be done on a collaborative basis. Apart from the university departments of psychology and education devising tests, attempts have also been made by the educational institutes to standardize suitable tests on a larger scale with grants now forthcoming from the UGC and NCERT. With financial assistance available from several agencies, there is a likelihood of duplication of work leading to wastage. To avoid this ; it will be necessary for the UGC and the NCERT to discuss the matter and devise measures for coordination of activities in this regard.

Criminalistics

This is an area where psychology can make a significant contribution. In many universities, courses in the psychology of crime are conducted at the M.A. level. Criminology as we know can be studied from several standpoints. However it is mainly the sociological aspect in criminology that has received emphasis in this country. Yet, forensic science by aligning itself to criminology has given a new shape to the latter, so that a new phrase had to be coined to delineate its image. For a proper study of criminalistics it is necessary to provide facilities for laboratory work, physical measurement, personality assessment, impression methodology, techniques of photography, chemical examination, document examination, optical methods of analysis, advanced instrumental methods of analysis like X-Ray diffraction and spectrophotometer and use of polygraphic methods constitute the basic tools in criminalistics. The psychological components are too well known to be reiterated here. Now that the police wing of the home ministries at the centre as well as in the States are being renovated, an urgency is increasingly being felt for imparting training to the personnel to man the institutions and organizations which are coming up. Universities in India have yet to realize their role in filling this gap.

Human Engineering

Though an intrinsic part of industrial psychology, human engineering in this country is more often treated as a subject of secondary importance. Known by various other terms like biomechanics, engineering psychology, ergonomics, the subject matter of human engineering is a basic constituent of operational research. It places a great reliance upon systematic research with reduced reliance upon human experience as the basis for developing principles to be applied in adapting equipment, work space, and work environment for human use. Starting as an interdisciplinary activity, supported partly by engineers and partly by psychologists, physicians, physiologists and anthropologists, human engineering now demands a place for itself in the midst of the behavioural sciences. The topics dealt with under human engineering being highly dynamic in nature—varying according to the quality and quantum of industrial development taking place in a country—it is obvious that it has a tremendous potentiality in this country, where there is a considerable lag between the state of industrial development and trained technicians required in the area.

Military Psychology

Since the second world war, the programme of research in selection, classification, training and human engineering have achieved considerable success. Psychological services and research are firmly established in industry and military services. Military psychology aims to provide screening instruments and techniques for purposes of selection and classification in different job areas, to develop training methods and devices that will expedite the learning process, to develop management methods and techniques that will assist the commander in providing the necessary leadership, in maintaining high motivation and morale, and in welding groups of individuals into unified cohesive groups ; its aim is to ensure that all weapons, equipments and supplies are designed with the capabilities and limitations of the average operator and maintenance man in view. As far as our country is concerned development of military psychology leaves much to be desired. Scientific assistance on a collaborative basis will go a long way in making these services effective. Psychologists will be in greater demand in the fields of industry as well as military services if they can provide more effective methods and services in these areas. It would be desirable if the courses in psychology and specific programmes of related research are reoriented to meet this end.

Mathematical Psychology

The development of psychology as a science and the quantification of psychological data have been closely paralleled by the application of mathematics in its various branches. While the use of mathematics and statistics has permeated all social sciences, its use in psychology has increased by leaps and bounds in recent years. Complex mathematical methods

and principles are being used more and more in psychology and the rapidly increasing sophistication in the use of advanced mathematics has given birth to a new trend in psychology (sometimes referred to as a separate branch of psychology), which has been christened 'mathematical psychology'.

From the early days, mathematics has been closely associated with experimental work in psychology. Special statistical tools were developed by Galton and others in their systematic study of individual differences. The technique of factor analysis was developed by Spearman in his attempts to study the nature of intelligence. Several methods of factor analysis have been developed by later workers to study the organisation of personality traits. Mathematical techniques have become part and parcel of mental measurement now known as psychometry. Psychophysics and psychometric scaling deserve special mention here.

Several attempts have been made to measure and explain human behaviour in general, in mathematical terms. Mathematical models have been used in studying certain specific aspects of behaviour like manual tracking. Experimental study of learning is one field in which mathematical models have been frequently made use of. Leading proponents of this approach were Thurstone and Hull. In recent years, in the field of learning, mathematical models have been employed mostly in studying acquisition, experimental extinction, generalisation, discrimination, motivation, punishment and interaction effects.

Information theory has its application in modern psychology. It affects not only the analysis of certain kinds of data, but also the choice and design of various experimental problems. It has helped in studying the sequential relations among responses in a wide variety of situations and has been of much use in the study of learning and memory. Cybernetics is an attempt to extend the concepts of information theory. Statistical decision theory is being utilised in many situations, for instance in the study of constant errors.

Stochastic learning models are being used to predict psycho-physical relations. Stochastic process theory has been used for many other purposes as well, for example, to describe the actions of individuals forced to make a sequence of simple decisions. Non-parametric statistics is helping in many problems where the distribution of variables does not follow expected patterns. Developments in probability theory and analysis of variance have helped in the treatment of psychological data in no small measure. Study of sensory processes has been closely linked with neurophysiology on the one hand and physics and mathematics on the other. The work of Bekesy and Zwislak on audition illustrates this.

The use of electronic computers in simulating human personality and human perceptual and cognitive processes is another area which involves the use of mathematical techniques. Methods of mathematical logic have also been profitably employed in the nervernet theory and the computer simulation of the brain.

Quantitative models of sensation, perception and information processes by human being, recent theories of stimulus detection and recognition, problems of scaling, utility theory, decision theory, memory and related areas form constituent parts of mathematical psychology. Rashedsky and his colleagues have extensively used models depending largely upon differential calculus ; while these models are usually referred to the nervous system, little of neuroanatomical details are involved and the models are largely mathematical rather than anatomical or physiological. Thurstone, Bush and Mosteller have proposed mathematical models for learning theory. The increasing importance of mathematical application and the new trends in mathematical psychology are developments which need systematic study and encouragement. Here again our output is meagre and we need greater effort.

Psycho-genetics

Studies in psycho-genetics relate to an objective experimental investigation of the inheritance of behaviour using strain differences and selective breeding. The hypothesis of multifactorial or polygenic inheritance is stressed by many, and some basic principles of the methods of analysis of biometrical genetics have already been expounded. No doubt, this is an area of great possibilities, and several research methods are already available in this field.

Psycho-pharmacology

This is a relatively new field. Eysenck and his collaborators in England have done pioneering work in this field. The general thesis is that the neural substructure of the behavioural dimension, introversion/extraversion is the inhibition/excitation balance of the central nervous system. The further postulate based on this is that depressant drugs increase cortical inhibition, decrease cortical excitation and therefore produce extroverted behaviour pattern ; stimulant drugs decrease cortical inhibition, increase cortical excitation and therefore produce introverted behaviour pattern. A psychologist's probe into the effect of drugs, particularly, the behavioural effects, would be rewarding. A collaborative effort has to be made by pharmacologists, physiologists and psychologists. Susceptibility to certain drugs appears to be a constant personality feature and the correlations of the susceptibility with extroversion and neuroticism indicated in many studies are worth pursuing. It may not be out of place to add here a word of caution against totally neglecting the ancient systems. The field of Indian medicine is one such region which remains almost ignored. While some of the claims in ancient literature may not be acceptable, it would certainly be desirable to look into them in a critical vein. There are quite a few drugs mentioned in the Ayurvedic texts which are suspected of bearing tranquilizing or hallucinogenic properties, yet no systematic effort has been made to scrutinize them in the modern scientific manner. Let it be recalled that the plant *sarpagandha* went out of the country *in cognito* and returned

later as serpasil. To avert such happenings, planned efforts have to be made by several university departments and/or institutions working together.

Bio-psychology

This is also a relatively new branch of psychology. Quite a number of western universities like the University of Chicago, have developed a new programme of work leading to Master's or Ph.D. degree in bio-psychology. It involves specialized training in areas like anatomy, bio-chemistry, bio-physics, chemistry, mathematics, medicine, pharmacology, physics, physiology and zoology. The curriculum and programme of bio-psychology are designed to enable the student to attain professional competence in the general and special areas of a biologically oriented psychology. The expectation is that the research worker trained in bio-psychology may ultimately devote himself to problems falling between the fields of psychology, and the traditional biological disciplines like physiology, anatomy and zoology. Substantial grounding in physical and biological sciences in addition to the general field of psychology is absolutely essential.

Psycho-linguistics

This is yet another development in psychology which brings together linguistics and psychology—the common ground here being communication. General principles of behaviour are demonstrated through the study of verbal behaviour. Psychological, perceptual and cognitive aspects of speech and language are examined. During the last 25 years, there have been two major approaches to the study of language : one represented by structural linguistics, and the other represented by behavioural psychology. A distinction is made between language in its abstract aspect and language in its physical aspect. The abstract aspect is a system of habits described in terms of signs and rules. The physical aspect consists of some finite corpus of utterances actually produced by one over a given period of time. The linguist is interested in conformity to the rules, whereas an equally important question is whether the production of noise or marks on paper, which we conveniently call language, is one of a variety of learned human behaviour like opening a door or pushing a lever. A finite set of variables affect the learning process and the psychologists ask the question as to what factors are operating to cause the speaker to say what he says. Skinner's functional analysis of verbal behaviour, studies of conditioning of verbal behaviour and their implications for inter-personal communications, investigations on Acoustic phonetics, speech perception, semantic aspects of linguistic events (problem of reference and meaning), semantic differentiation, content analysis, language acquisition, bilingualism, studies of defects or difficulties (*e.g.* aphasia) as a linguistic problem of deficit are areas which have received increasing attention in modern psychology. Sufficient attention has not been given to psycho-linguistics in our country. A venture in this field would be highly rewarding.

Related to the problem of communication and in the context of theories of learning, Weiler, in 1948, encouraged the application of certain principles coming from communication engineering to physiological and social problems. Cybernetics can be thought of as a study of control process in organisms. It is the mechanism of control that provides the model of these various activities. One of the central concepts of cybernetics is feedback or servo-mechanisms, which has gained wide importance in psychological work. Many of these are expressed in mathematical form. The implications of the concept of cybernetics have scope for a variety of investigations and research, but in India it is woefully neglected.

In this chapter, our intention was to discuss the possible sources of psychological investigations and not to draw up an exhaustive list which is well-nigh impossible. New routes to the understanding of man will continue to be explored with fresh needs arising within the social field and also with the aids coming from other disciplines. Thus, there will always remain a possibility of finding a fresh direction to psychological researches. To illustrate the point, we find that little attempt has been made to undertake any psychological investigation in this country into the ethnical variations and psychological characteristics of our people. We seem to be very much influenced by the attitude that Indians, in their social reactions, constitute a monolithic community and, if there are any differences in the fields of personality, attitudes, etc., among the different ethnic groups, these should be overlooked as unfortunate aberrations. This is not an acceptable principle for a student of the behavioural sciences. There are reasons to believe that the ethnical distinctions, instead of being obliterated, are in the process of being perpetuated. It would be worthwhile indeed to undertake planned investigations in 'ethnical psychology' which may give valuable data for the law makers and administrators.

This leads to the issue of interdisciplinary researches. Spade work in this direction seems to have started in some of the red-brick universities in the U.K. and at several places in the U.S.A., but this field remains barren in this country. For instance, a student of psychology in India, adhering to the traditional pattern of thinking, may hesitate to think about the possible researches in psychology of values and such a person will no doubt find innumerable supporters in India and abroad. Here, we ignore the fact that attitudes are derived from values and man's personality structure is not devoid of value judgements. Strangely enough, this subject seems to hold more appeal for the bio-psychologists and biologists rather than for traditional psychologists. (Cf. *The design of culture* : B.F. Skinner, *Daedalus*, Summer 1961 ; *Science, Man and Morals* : W.H. Thorpe ; *Mankind Evolving* : T. Dobzhansky, to name a few).

A few words may be added here about what is popularly known as Indian Psychology. The fact is that there is nothing that can be termed as Yogic psychology. The syllabi on this subject wherever it has been introduced gives an impression that Patanjali and Charaka have been brought into the class-room of psychology with much incongruous matter. Any student

of modern psychology who may have observed a genuine case of *samadhi* must have felt the inevitable urge to unearth the underlying causative factors. A few institutions in India which have undertaken the study of yogic exercises seem to be tempted to propagate ideas rather than to open doors between the past and the present. Little purpose can be served by reiterating the ancient philosophical paradigm (wherein earth, air, fire, etc., constitute the natural elements). It would be more fruitful if attempts were made to seek explanations by employing scientific concepts. An authority on historiography has defined history as the dialogue between the society of today and the society of yesterday. But this dialogue, as in the case of yogic psychology, will have to take place on the platform of today.

<i>Sd.</i>	B. Kuppaswamy	<i>Chairman</i>
„	N. Mukerji	<i>Member</i>
„	S.K. Bose	„
„	P.J. Philip	„
„	E.I. George	<i>Member-Secretary</i>

SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

1. Psychology as a University Discipline

1.1. Psychology in recent years has emerged as an important subject of study in Indian universities. It has also demonstrated its scope for practical utility in industry, education, therapeutic measures, social welfare programmes etc.

1.2. The application of psychology to the understanding of man and society has been most rewarding. Its study has become indispensable to scholars, scientists, administrators and men of affairs alike.

2. Objectives of Teaching Psychology

2.1. Teachers of psychology should devote serious attention to defining the goals which should underlie teaching and research in the subject and provide a fresh stimulus to its growth in the right directions.

2.2. In the nature of things, there cannot be any rigid uniformity in the courses of study followed at the different universities : they are very likely to vary in matters of detail as well as in emphasis given to particular aspects of the subject-matter. What is, however, necessary is that there should be some measure of agreement regarding the elements which constitute the essentials of the subject.

2.3. Students should be given the necessary freedom to choose from the areas of specialization depending on the availability of qualified teachers and adequate equipment, library and laboratory facilities and also opportunities and material for field work. It is also necessary to ensure that courses are so designed that they can be adjusted to the level of intellectual maturity attained by students and thus take them from lower to higher planes of knowledge.

2.4. The first necessary condition for improvement of standards is to limit admissions to such students as have the necessary background of the subject. The essential qualities for a student of psychology can be judged better by means of an interview or a *viva-voce* conducted at the time of admission to assess the intellectual calibre and emotional preparedness of the candidate. It is, therefore, recommended that for admission to honours courses interview should be a compulsory requirement.

2.5. In both pass and honours courses, it is necessary to relate the number of students to the physical and other facilities available in the department, particularly those for practical work.

2.6. Keeping in view the available laboratory facilities in universities, it is recommended that at the undergraduate stage there should not be more than 24 students per set of scheduled appliances. It is also recommended that besides demonstration, the teachers should also take part in the work of laboratory practice.

2.7. The study of psychology at the undergraduate pass level has to be related, by and large, to a programme of liberal education. Obviously, it cannot offer sufficient scope for specialization as students are required to offer 3 to 4 optional subjects in addition to one or two compulsory subjects and are expected to devote equal attention to each of them.

2.8. At the B.A. pass level, the student must develop his critical judgement with respect to behaviour, acquire the necessary foundation for training at the postgraduate level and equip himself with the basic requirements for carrying out technical jobs under the supervision of an expert.

2.9. The honours course should, in addition to the objectives suggested above, provide for a certain degree of specialization so that the honours students become better equipped both in regard to the content of knowledge as well as in depth and intensity. On the whole, the honours students would be more suitable for admission to the postgraduate courses. It is necessary for the honours student to have some insight into subjects like statistics, physics, anthropology, sociology, physiology, biology etc. which have a direct bearing on the study of psychology.

2.10. A good honours graduate can be employed as a research assistant, demonstrator in a psychological laboratory, in the vocational guidance bureaus or in the psychiatric department of the medical colleges and so on. The training of honours graduates in psychology should not only meet these ends but should also provide for a certain degree of uniformity in the maintenance of standards.

2.11. There is very limited value in conducting a purely theoretical course in psychology. Practical training should be considered an integral part of the subject even at the Bachelor's level as without practical training students cannot gain a proper knowledge of psychology. It is proposed that 30 should be the minimum number of experiments that a student should actually conduct in the pass course. The requirement should be 40 to 50 experiments for the honours students. In addition, both the pass and honours students should be acquainted with at least 10 mental tests. Colleges which do not have adequate laboratory facilities for the practical training of their students should not be permitted to offer the B.A. course in psychology.

2.12. At the postgraduate level, the aim of the course should primarily be to produce competent teachers in psychology, to train them in the methodology of research so that they are able to derive benefit from the study

of learned journals and books pertaining to their subject and to enable the student to specialize in applied fields where he can work as a practical expert on his own.

2.13. The following should be the minimum qualifications for admission to the M.A. course in psychology :

- (a) The candidate should have an honours degree in psychology or a pass degree with psychology.
- (b) The candidate should have secured at least second class marks in psychology.
- (c) He should be able to satisfy the head of the department or the departmental committee about his competence and interest in the subject.

2.14. The practice prevailing in certain universities of combining papers in psychology with three or four papers in other subjects at the Master's level is not desirable. The content of the courses which a candidate has to master for the postgraduate degree does not leave any scope for such an arrangement.

2.15. The following schedule of papers is suggested for the M.A. course in psychology : (i) experimental psychology—theory and practice, (ii) psychometry, including research methodology, (iii) physiological psychology, (iv) comparative psychology and (v) theories of psychology. In addition to the above papers a student may be given optional courses either of pure or applied nature. The following areas are given by way of illustration :

<i>Pure</i>	<i>Applied</i>
Perceptual Processes	Industrial Psychology
Personality	Vocational Psychology
Measurement of Ability	Clinical Psychology
Group Dynamics	Educational Psychology
Social Psychology	Criminal Psychology
Child Psychology	

Specialization should preferably be in one area. There should be at least one practical and two theory papers for each of the optional subjects. The practical work should consist of laboratory exercises, field work and case studies. The papers for compulsory and specialized study will have to be taught in a logical order.

3. Improvement of the Academic Programme

3.1. An improvement of the academic programme depends, no doubt, on the provision of adequate financial resources. But the main obstacles

in the way of progress have no direct bearing on financial stringency. Reasons for slow progress and stagnation have to be sought elsewhere.

3.2. While over-crowded and large-sized classes make it impossible for the student to be involved in the learning process, some improvement can be brought about by proper utilization of the available time and resources. Lectures should form only a minor part of the work of the psychology departments and stress should be laid on :

- (a) Practical work (including laboratory work, clinical work, field work and visiting institutions) ;
- (b) Seminars ; and
- (c) Essay work.

3.3. The main purpose of introducing sessional work in the universities and colleges is not to evolve a fool-proof system of evaluation but to persuade the students to apply themselves regularly to their work.

3.4. There is an urgent need for an active and close collaboration between the departments of psychology and the field agencies concerned. Without co-operation from agencies like schools, factories, hospitals, jails etc., it would be well-nigh impossible to give the necessary practical orientation to the applied branches of psychology and in the long run both the departments and the agencies would tend to suffer.

3.5. The M.A. curriculum in psychology should have as a compulsory requirement the study of at least 10 or 15 case studies by each student.

3.6. Acquaintance with the latest developments in the subject and application of principles to the problems of the day should receive due attention in questions as well as in evaluation.

3.7. In each paper of 100 marks at least one compulsory question may be asked which does not exactly fall within the prescribed syllabus and yet which is considered by the examiner to be a reasonable question. This would keep both the teachers and students alert to the progress made in the subject.

3.8. While precise areas of study may be defined for the benefit of the undergraduate students who have just started gaining acquaintance with the subject, the same argument cannot be applied to postgraduate students whose aim is to gain mastery over the subject.

3.9. At the postgraduate level, it would also be desirable to examine the students by means of a *viva-voce* as it will give the examiner an opportunity to assess the candidate's knowledge and competence in the subject.

3.10. The following distribution of marks is suggested for the practical examinations :

(a) Practical (two experiments)	... 50%
(b) Vice-voce	... 25%
(c) Laboratory Journal	... 25%

3.11. Methods have to be devised to provide necessary training and orientation to the existing staff, specially of the affiliated colleges. Organisation of seminars, summer institutes, refresher courses etc. should be encouraged.

3.12. To encourage research work on the part of teachers and also for strengthening the quality of their teaching, it would be necessary to provide sufficient scope for specialization by them, particularly at the postgraduate level. Specialization would not be possible in more than one or two areas.

3.13. It is, necessary to ensure that the teaching load does not exceed four to five hours a week. The teacher should devote the rest of the time for seminar work, to guide the research work of younger persons and for his own research work.

4. Research in Psychology

4.1. While the objectives of the M.A. course apply to the Ph.D. also, at the Ph.D. level there is a greater degree of specialization and an effort to advance knowledge and to apply it to a solution of problems. The dissertation ought to lead to the advancement of knowledge in a particular area. It should not be a mere questionnaire study or survey based on secondary source-materials.

4.2. For admission to the Ph.D. course in psychology, the research guide must satisfy himself that the candidate has the necessary aptitude and competence for carrying on research. In exceptional cases students from other branches of study may be admitted, provided the board of research studies and the recognized guides are satisfied about the candidate's background and interest in the subject of research.

4.3. Greater attention must be devoted to the supervision of work relating to research thesis. The supervisor should himself be a specialist, a devoted and successful research worker interested in his work and the student who works under him. The supervisor, should meet his students at least once a week, for the discussion of difficult points, planning the work, and appraisal of work already done. The training for the Ph.D. should be at least for a period of three years.

4.4. It would be desirable for departments of psychology to be in touch with each other and avoid duplication. A more positive step would be to start programme research to be undertaken as a collaborative effort

by a number of institutions. Special courses in methodology should be given to regular research students.

4.5. Each member of the staff should have one long-term project and two short-term projects so that every year he could write at least two papers. These should be published in technical journals or read before scientific conferences, learned societies etc. As far as possible, necessary assistance in terms of personnel and funds should be made available.

4.6. Some of the psychological problems to be investigated involve much field work and sustained effort. While long-term assistance for such work is necessary, it has also to be stated that in psychology there is an enormous scope for undertaking short-term research projects which do not necessarily require heavy financial outlay.

4.7. It is not desirable for each university to offer specialization in all or several branches of psychology. This is not only ambitious but entails a good deal of wastage of funds and efforts. A tradition can be developed for each university to specialize in one or at the most two subjects.

4.8. There should always be a greater co-operation between the university departments of psychology on the one hand and statistics and biology on the other. Where there is no department of statistics or co-operation is not possible for some technical reasons, a full-time statistician could be provided for the department of psychology.

4.9. While the importance of work in the fields of parapsychology, yoga and similar subjects is no doubt to be recognized, it may not be in the interest of the scientific development of psychology at this stage to undertake ambitious schemes in these areas without adequate training, equipment and guidance.

5. New Directions

5.1. Contemporary psychology has established various channels of inter-communication with other disciplines and the modern psychologist has to make full use of these opportunities by exploring fresh and new directions for teaching and research.

5.2. Some of these areas in respect of which a beginning has already been made and others which have to be developed are : (i) clinical psychology (ii) counselling and guidance (iii) criminalistics (iv) human engineering (v) military psychology (vi) mathematical psychology (vii) psycho-genetics (viii) psycho-pharmacology (ix) bio-psychology (x) psycholinguistics. Suggestions for the strengthening of these areas are given in the report.

5.3. Spade work in the field of inter-disciplinary researches has been done in some of the red-brick universities in U.K. and in several universities in the U.S.A. In India however, inter-disciplinary researches have not

been undertaken to any appreciable extent. An Indian student of psychology still adheres to the traditional pattern of thinking and hesitates to think about the possible researches in the psychology of values.

5.4. A few institutions in India which have undertaken the study of yogic exercises seem to be tempted to propagate ideas rather than to open doors between the past and the present. Little purpose can be served by reiterating the ancient philosophical paradigm (wherein earth, air, fire, etc., constitute the natural elements). It would be more fruitful if attempts were made to seek explanations by employing scientific concepts.

APPENDIX I

**B.A./B.Sc. Syllabus in Psychology
(Compulsory Papers)**

1. *Agra University :*
 1. Experimental Psychology
 2. General Psychology
2. *Aligarh Muslim University :*
 1. General Psychology
 2. Social Psychology and Abnormal Psychology
 3. Educational and Industrial Psychology
 4. Psychological Measurement and Laboratory Experiments
3. *Allahabad University :*
 1. General Psychology
Developmental Psychology (for those who offer Philosophy as one of their subjects in B.A.)
 2. Abnormal Psychology
 3. Practical
 4. History and Schools of Psychology
 5. Elementary Statistics for Psychology
 6. Practical and Test Administration
4. *Andhra University :*
 1. General Psychology
 2. Educational Psychology
 3. Industrial Psychology
 4. Social Psychology
5. *Annamalai University :*
 1. General Psychology
 2. Child and Adolescent Psychology
 3. Social and Abnormal Psychology
 4. Experimental Psychology
6. *Banaras Hindu University :*
 1. General Psychology-I
 2. Educational Psychology
 3. Practical-I

4. General Psychology-II
 5. Abnormal Psychology
 6. Practical-II
 7. Experimental Methods and Elementary Psychological Statistics
 8. Practical-III
7. *Bhagalpur University* :
1. General Psychology
 2. Abnormal Psychology
 3. Practical
8. *Bihar University* :
1. General Psychology
 2. Abnormal Psychology
 3. Practical
9. *Bombay University** :
1. Basic Psychology
 2. Bio-psychology
 3. Abnormal and Child Psychology
10. *Calcutta University* :
1. (a) General Psychology
(b) Physiological Psychology
 2. (a) Child and Educational Psychology
(b) Social and Mental Hygiene
 3. Practical
11. *Delhi University* :
1. General Psychology and Elementary Statistics
 2. Mental Measurement and Practicals.
12. *Gorakhpur University* :
1. General Psychology
 2. Social Psychology
 3. Experimental Psychology and Elementary Statistics
 - 4 & 5. Practicals
13. *Gujarat University* :
1. Introduction to General Psychology
 2. Introduction to Social Psychology

* Those who take (2) or (3) shall also take (1).

3. Psychology of Personal Adjustment
 4. Applied Psychology
14. *Indore University :*
Abnormal Psychology
15. *Jodhpur University :*
1. General Psychology
 2. Experimental Psychology and Elementary Statistics
 3. History of Psychology
 4. Abnormal Psychology
(Practicals--B.A. I, II & III Years)
16. *Karnatak University :*
General Psychology
17. *Kerala University :*
1. General Psychology
 2. Social Psychology
 3. Child Psychology
 4. Experimental Psychology (Practicals)
18. *Lucknow University :*
1. General Psychology—A Survey
 2. Psychological Statistics and Measurement
3 & 4. Practical
19. *Madras University :*
1. General Psychology
 2. Experimental Psychology and Elementary Statistics
 3. Child and Adolescent Psychology
 4. Social and Abnormal Psychology
20. *Magadh University :*
1. General Psychology
 2. Abnormal Psychology
 3. Practical—Laboratory Course
21. *Marathwada University :*
1. Social Psychology
 2. Abnormal Psychology
 3. Applied Psychology

22. *M.S. University of Baroda :*
 1. General Psychology
 2. Social Psychology
 3. Experimental Psychology with Statistics (Theory)
 4. Experimental Psychology (Practical) including laboratory and field work
23. *Mysore University :*
 1. General Psychology
 2. Psychology (Practical)
24. *Nagpur University :*
 1. General Psychology
 2. Applied Psychology and Statistics
 3. Experimental Psychology
25. *Osmania University :*
 1. General Psychology
 2. Social and Abnormal Psychology
 3. Experimental Method and Statistics
 4. Experimental Psychology (Practicals)
26. *Panjab University :*
 1. General Psychology
 2. Experimental Psychology
 3. Abnormal Psychology
27. *Patna University : (B.A. Part II)*
 1. General Psychology
 2. Abnormal Psychology
 3. Practical Laboratory Course
28. *Poona University :*
 1. General Psychology
 2. Social Psychology
29. *Rajasthan University :*
 1. Experimental Psychology
30. *Ranchi University :*
 1. General Psychology
 2. Social and Abnormal Psychology
 3. Practical

31. *Sardar Patel University :*

1. General Psychology
2. Psychology of Personal Adjustment
3. Experimental Psychology—Theory & Practicals
4. Introduction to Social Psychology

32. *Saugar University :*

1. General Psychology-I
2. Developmental Psychology
3. General Psychology
4. Psychological Measurement
5. Abnormal Psychology
6. Social Psychology
- 7,8, & 9. Practicals

33. *Sri Venkateswara University :*

1. General Psychology-I
2. General Psychology-II
3. Social and Abnormal Psychology
4. Experimental Psychology (Practical)

34. *Utkal University :*

1. Abnormal Psychology
2. General Psychology
3. Developmental Psychology and Elementary Statistics
- 4 & 5. Practicals

APPENDIX II

B.A./B.Sc. Pass/General/Minor Syllabus in Psychology

(Optional Papers)

1. *Agra University :*
 1. Any one of the following—
 - (a) Industrial Psychology
 - (b) Educational Psychology
 - (c) Abnormal Psychology
2. *Banaras Hindu University :*
 1. Applied Psychology
or
 2. Social Psychology
3. *Delhi University :*
 1. Clinical Psychology
or
 2. Social Psychology
4. *Gorakhpur University :*
 1. Psychology of Human Development
or
 2. Abnormal Psychology
5. *Indore University :*
 1. General Psychology or Educational Psychology
 2. Social Psychology or Child Psychology
 3. Experimental Psychology or Applied Psychology
 4. Industrial Psychology or Educational Psychology
6. *Jodhpur University :*

Any one of the following—

 1. Physiological Psychology
 2. Social Psychology
 3. Child Psychology

7. *Karnatak University (B.A. Minor) :*
 1. Social Psychology
 or
 2. Abnormal Psychology
8. *Kerala University :*
 Any two out of the following—
 1. Statistics
 2. Logic and Theory of knowledge
 3. Sociology
 4. Biology
9. *Lucknow University :*
 Any two of the following—
 1. Psychology of Behaviour Disorder
 2. Social Psychology
 3. Child Psychology
10. *Madras University :*
 Any two of the following—
 1. Anthropology
 2. Sociology
 3. Philosophy
11. *Marathwada University :*
 General Psychology
 or
 Educational Psychology
12. *M.S. University of Baroda :*
 Any two of the following—
 1. Educational Psychology
 2. Industrial and Vocational Psychology
 3. Developmental Psychology
 4. Abnormal Psychology
 5. Mental Measurement
 6. Psychology of Adjustment and Mental Hygiene
13. *Rajasthan University :*
 1. Educational Psychology
 or
 Child Psychology
 2. Social Psychology
 or
 Abnormal Psychology

14. *Sardar Patel University :*

Any two of the following—

1. Introduction to Industrial Psychology
2. Educational Psychology
3. Child Psychology
4. Elements of Mental Measurement
5. Abnormal Psychology

APPENDIX III

**B.A./Honours/Special/Major Syllabus in Psychology
(Compulsory Papers)**

1. *Bhagalpur University :*

1. General Psychology
2. Abnormal Psychology
3. Social Psychology
4. Educational and Industrial Psychology
- 5 & 6. Practicals (including Statistics)

2. *Bihar University :*

1. General Psychology
2. Social Psychology and Abnormal Psychology
3. Animal Psychology and Child Psychology
4. Industrial Psychology and Educational Psychology
- 5 & 6. Practicals

3. *Bombay University** :

1. Basic Psychology
2. Bio-Psychology
3. Abnormal and Child Psychology
4. Applied Psychology
5. Experimental Psychology

4. *Calcutta University :*

1. (a) General Psychology
(b) Physiological Psychology
2. (a) Child Psychology
(b) Educational Psychology
3. (a) Social Psychology
(b) Mental Hygiene
4. (a) Psychometry
(b) Methods
5. (a) Industrial and Vocational Psychology
(b) Human Relations and Group Dynamics
- 6, 7 & 8. Practicals

* 1. Students must take (1) and (2) and one out of the subjects (3) and (4).

2. Students taking all the 4 subjects in Psychology must take (1), (2), (5) and (3) or (4).

5. *Delhi University :*
1. General Psychology
 2. Schools of Psychology and Physiological Psychology
 3. Child Psychology
 4. Social Psychology
 5. Abnormal Psychology
 6. Psychometrics
 7. General Experiments
 8. Mental Testing
- } Practicals
6. *Gujarat University :*
1. Introduction to General Psychology
 2. Introduction to Social Psychology
 3. Psychology of Personal Adjustment
 4. Applied Psychology
 - 5 & 6. Experimental Psychology
 7. Advanced General Psychology
 8. School and Theories of Psychology
7. *Karnatak University (B.A. Major) :*
1. General Psychology
 2. Social Psychology
8. *Lucknow University :*
1. Physiological Psychology
 2. Comparative Psychology
 3. History and Systems
 4. Sensation and Perception
 5. Learning and Problem Solving
 6. Motivation and Emotion
 7. Practical
 8. Principles of Test Construction
- } Special Papers
9. *Magadh University :*
1. General Psychology
 2. Abnormal Psychology
 3. History of Psychology and Social Psychology
 4. Industrial Psychology and Educational Psychology
 5. Statistics and Testing
 6. Practical
10. *Marathwada University :*
1. Social Psychology
 2. Abnormal Psychology

3. Applied Psychology
 4. Experimental Psychology
 5. Experimental Psychology (Practical)
 6. Comparative Psychology
 7. Child Psychology
11. *Mysore University :*
1. General Psychology
 2. Social Psychology
 3. Developmental Psychology
 4. Practical
12. *Panjab University :*
1. History of Psychology
 2. Social Psychology
 3. Practicals
13. *Patna University :*
1. General Psychology
 2. Abnormal Psychology
 3. Educational Psychology
 4. History of Psychology
 5. Statistics and Testing
 6. Practicals
14. *Poona University :*
1. General Psychology
 2. Social Psychology
 3. Experimental Psychology
 4. Practical
 5. Animal Psychology
 6. Abnormal Psychology
15. *Ranchi University :*
1. General Psychology
 2. Abnormal and Clinical Psychology
 3. Social and Industrial Psychology
 4. Child and Educational Psychology
 - 5 & 6. Practicals
16. *Utkal University :*
1. General Psychology
 2. Developmental Psychology and Elementary Statistics
 3. Applied Psychology (Industrial & Educational)
 4. Social Psychology and Outlines of the History of Experimental Psychology
 - 5 & 6. Practicals

APPENDIX IV

**B.A. Honours/Special/Major Syllabus in Psychology
(Optional Papers)**

1. *Gujarat University :*
Any two of the following—
 1. Physiological Psychology
 2. Educational Psychology
 3. Introduction to Industrial Psychology
 4. Child Psychology
 5. Introduction to Indian Psychology

2. *Karnatak University (B.A. Major) :*
 1. (a) Vocational Guidance
or
(b) Child Psychology
or
(c) Educational Psychology
 2. (a) Industrial Psychology
or
(b) Abnormal Psychology

3. *Lucknow University :*
Any two of the following—
 1. Psychology of Behaviour Disorder
 2. Social Psychology
 3. Child Psychology

4. *Marathwada University :*
General Psychology
or
Educational Psychology

5. *Panjab University :*
Educational Psychology or Applied Psychology

APPENDIX V

**M.A./M.Sc. Syllabus in Psychology
(Compulsory Papers)**

1. *Agra University :*
 1. History of Psychology
 2. General and Physiological Psychology
 3. Mental Measurement and Statistics
 4. Experimental Psychology - Practical
 5. Research Methods
 6. Abnormal Psychology

2. *Aligarh Muslim University :*
 1. History of Psychology
 2. Abnormal Psychology
 3. Social Psychology
 4. Experimental Psychology
 5. Laboratory Experiments and a Research Project

3. *Allahabad University :*
 1. Advanced Experimental Psychology
 2. Psychopathology
 3. Research Methods and Survey Techniques
 4. Social Psychology
 5. Practical and Data Analysis
 6. Physiological Psychology
 7. Practical and Test Administration
 8. Viva-Voce

4. *Annamalai University :*
 1. General Psychology
 2. Psychometry
 3. Psychopathology
 4. Social Psychology
 - 5 & 6. Experimental Part I and Part II

5. *Banaras Hindu University :*
 1. History of Psychology
 2. Advanced General Psychology
 3. Research Methodology
 4. Physiological Psychology

5. Practical-I
 6. Social Psychology
 7. Practical-II
6. *Bhagalpur University :*
1. Advanced General Psychology
 2. Psychopathology
 3. Social Psychology
 4. History of Psychology
 5. Practical (Experiments)
 6. Practical (Statistics, Testing and Field Work)
7. *Bihar University :*
1. General and Physiological Psychology
 2. Psychopathology and Abnormal Psychology
 3. History of Psychology
 4. Social Psychology
 - 5 & 6. Practicals
8. *Bombay University :*
1. Advanced General Psychology (including schools)
 2. Advanced Abnormal Psychology
 3. Advanced Social Psychology
 4. Experimental Psychology (Practical)
9. *Calcutta University :*

‘A’ COURSE

1. General Psychology
2. Genetics and Physiological Psychology
3. Child and Educational Psychology
4. Abnormal and Social Psychology
- 5, 6 & 7. Practicals

‘B’ COURSE

1. General Psychology
2. Applied Psychology
3. Mental Test and Psychometry
4. Personality Adjustment
- 5, 6 & 7. Practicals

10. *Delhi University :*
1. Historical and Philosophical Background of Psychology
 2. Advanced Experimental Psychology

3. Abnormal and Physiological Psychology
 4. Social Psychology
 5. Methodology of Psychological Research
 6. Mental Measurement
 7. General Experiments
- } Practical

11. *Gorakhpur University :*

1. History of Psychology
2. Methods of Psychological Research
3. Advanced Experimental Psychology
4. Psychological Theory
- 5 & 6. Practicals

12. *Gujarat University :*

1. Systems and Theories of Psychology
2. Advanced Experimental Psychology
3. Advanced Social Psychology
4. Research Methods including Experimental Design

13. *Jabalpur University :*

1. Experimental and Physiological Psychology
2. Psychological Testing and Individual Differences
3. Research Methods and Statistics
4. Child Behaviour and Developmental Psychology
5. Psychopathology
6. Social Psychology

14. *Jodhpur University :*

1. Psychological Theories and Systems in Historical Perspective
2. Research Methods and Advanced Statistics
3. Physiological Psychology
4. Social Psychology
5. Experimental Psychology and Practicals
6. Indian Psychology
7. Practical & Viva-Voce

15. *Kerala University :*

1. History and Systems of Psychology
2. Experimental Psychology (Theory)
3. Psychometry
4. Child Psychology
5. Social Psychology
6. Clinical Psychology
7. Experimental Psychology (Practical—I)
8. Experimental Psychology (Practical—II)

16. *Lucknow University :*
 1. History and Systems
 2. Sensation and Perception
 3. Learning and Problem Solving
 4. Motivation and Motion
 5. Practical
 6. Social Psychology or Language and Communication
 7. Practicals

17. *Madras University :*
 1. History of Psychology
 2. Psychometry
 3. Experimental Psychology (Practicals)
 4. Psychopathology and Mental Hygiene
 5. Social Psychology
 6. Experimental Psychology (Practicals)

18. *M.S. University of Baroda (Scheme A--I) :*
 1. History and Schools of Psychology
 2. Advanced Experimental Psychology
 3. Methodology and Psychometrics
 4. Psychology of Personality

19. *Mysore University :*
 1. History and Systems
 2. Physiological Psychology and Psychological Genetics
 3. Abnormal Psychology
 4. Statistics, Scientific Method and Experimental Design
 5. Psychometrics
 6. Practical-General
 7. Practical-Applied
 8. Dissertation

20. *Nagpur University :*
 1. Advanced Experimental Psychology
 2. Advanced Social Psychology
 3. Research Methods and Statistics
 4. Practical Work (40 Experiments)
 5. Practical Work (Testing and Dissertation)

21. *Osmania University :*
 1. Advanced Psychology
 2. Experimental Methods and Statistics
 3. Advanced Social Psychology

4. Advanced Abnormal Psychology
 5. Practicals (Laboratory Examination)
 6. Theories of Personality
 7. Psychological Testing
 8. Practicals (Psychological Testing)
22. *Panjab University :*
1. Advanced General Psychology
 2. Social Psychology
 3. Experimental Psychology
 4. Abnormal Psychology
 - 5 & 6. Practicals
23. *Patna University :*
1. Advanced General Psychology
 2. Social Psychology
 3. Psychopathology
 4. Statistics, Testing and Case Report
 5. Laboratory Experiments
24. *Poona University :*
1. Advanced Experimental Psychology
 2. Advanced Social Psychology
 3. Psychology and Mental Hygiene
 4. Advanced Experimental Psychology---Practicals
25. *Rajasthan University :*
1. History and Schools of Psychology
 2. General Psychology
 3. Experimental Psychology
 4. Research Methods and Statistics
 5. Social Psychology
 6. Abnormal Psychology
26. *Ranchi University :*
1. General Psychology
 2. History of Psychology
 3. Methodology
 4. Practical-I
 5. Social Psychology
 6. Practical-II
27. *Sardar Patel University :*
1. Advanced General Psychology
 2. Psychology of Personality and Adjustment

3. Advanced Experimental Psychology
 4. Research Methods and Psychometry
28. *Saugar University :*
1. History and Systems of Psychology
 2. Experimental Psychology
 3. Physiological and Comparative Psychology
 4. Research Methods and Statistics
 5. Practical-I
 6. Psychology of Personality
 7. Practical-II (a) Short Project
(b) Laboratory Experiments
29. *Sri Venkateswara University :*
1. Advanced General Psychology
 2. Advanced Social Psychology
 3. Principles of Psychological Measurement
 4. Research Methodology
 5. Experimental Psychology-- Practical-I
 6. Experimental Psychology- Practical-II
 7. Psychology of Personality
 8. Abnormal Psychology
 9. Dissertation
30. *Utkal University :*
1. Advanced General Psychology
 2. Advanced Study in the System of Psychology
 3. Psychopathology
 4. Practical
 5. Social Psychology
 6. Practical

APPENDIX VI

**M.A./M.Sc. Syllabus in Psychology
(Optional Papers)**

1. *Agra University :*

Any two of the following—

1. Educational Psychology
2. Industrial Psychology
3. Social Psychology
4. Indian Psychology
5. Child Psychology
6. Personality
7. Guidance—Educational and Vocational
8. Thesis

2. *Aligarh Muslim University :*

Any three of the following—

1. Experimental Psychology
2. Crime and Delinquency
3. Clinical Psychology
4. Educational and Vocational Guidance and Counselling
5. Research Methodology and Statistics
6. Physiological Psychology
7. Comparative Psychology
8. Psychology of Personality
9. Developmental Psychology

3. *Allahabad University :*

Any two of the following—

1. Clinical Psychology
2. Industrial Psychology
3. Personality Theory and Measurement
4. Test Construction and Measurement
5. Psychology of Deviant Behaviour
6. Psychology of Education and Guidance
7. Child and Developmental Psychology
8. Theories of Learning
9. Physiological Psychology
10. Comparative Psychology
11. Research Project Report

10. Psychological Theory
11. History of Psychological Thought
12. Applied Psychology
13. Industrial and Educational Psychology

4. *Annamalai University :*

Not available

5. *Banaras Hindu University :*

1. Clinical Psychology
2. Psychology of Personality
3. Industrial and Vocational Psychology
4. Educational Psychology
5. Mental Testing
6. Developmental Psychology
7. Crime and Delinquency
8. Abnormal Psychology
9. Comparative Psychology

These nine optional papers are grouped under six sets of combinations consisting of three related theory papers, out of which the candidate has to select one set. Thesis can be offered in lieu of one theory paper in special cases.

6. *Bhagalpur University :*

Any two of the following—

1. Industrial Psychology
2. Mental Measurement
3. Principles of Guidance
4. Educational Psychology
5. Research Methods
6. Social Pathology
7. Dissertation

7. *Bihar University :*

Any two of the following—

1. Industrial Psychology
2. Clinical Psychology
3. Educational Psychology
4. Psychometrics
5. Psychology of Guidance and Counselling
6. Comparative Psychology
7. Psychology of Learning
8. Psychology of Personality

8. *Bombay University :*

Any four of the following—

1. Physiological Psychology
2. Advanced Comparative Psychology
3. Indian Psychology
4. Psychometric Methods
5. Industrial Psychology
6. Psychology of Education
7. Personality—Theory and Assessment
8. Clinical Psychology

9. *Calcutta University :*

‘A’ COURSE

Any one of the following—

1. Advanced Abnormal Psychology
2. Advanced Social Psychology
3. Indian Psychology
4. Psychology of Aesthetics

‘B’ COURSE

Any one of the following—

1. Advanced Industrial Psychology
2. Social Psychiatry
3. Propaganda and Public Guidance
4. Education of Abnormal Children
5. Criminology

10. *Delhi University** :

Any one of the following—

1. Industrial Psychology and Personnel
2. Educational and Vocational Guidance
3. Educational Psychology

11. *Gorakhpur University :*

Any four of the following—

1. Physiological Psychology
2. Abnormal Psychology
3. Advanced Social Psychology
4. Clinical Psychology
5. Advanced Developmental Psychology
6. Comparative Psychology

* Research report of essay is part of practicals.

7. Guidance Psychology
8. Psychology of Personality
9. Educational Psychology
10. Industrial Psychology
11. Psychological Testing

12. *Gujarat University :*

Any one of the following concentration areas, each consisting of three papers. In each area a dissertation is compulsory.

AREA I - EXPERIMENTAL PSYCHOLOGY

1. Advanced Experimental Psychology
2. Statistical Inference
3. Advanced Physiological Psychology

AREA II - CLINICAL PSYCHOLOGY

1. Advanced Abnormal Psychology
2. Clinical Psychology
3. Psychological Testing

AREA III - INDUSTRIAL PSYCHOLOGY

1. Industrial Psychology
2. Human Relations in Industry
3. Psychological Testing

AREA IV - CRIMINOLOGY

1. Psychology of Crime and Delinquency
2. Advanced Abnormal Psychology
3. Psychology of Personality

AREA V - EDUCATIONAL PSYCHOLOGY

1. Educational Psychology
2. Developmental Psychology
3. Psychological Testing

AREA VI - EDUCATIONAL AND VOCATIONAL GUIDANCE

1. Educational and Vocational Guidance
2. Psychological Testing
3. Industrial Psychology

AREA VII - PSYCHOLOGICAL TESTING

1. Psychological Testing
2. Psychometry
3. Statistical Inference

AREA VIII - INDIAN PSYCHOLOGY

1. Indian Psychology
2. Physiological Psychology
3. Psychology of Personality

13. *Jabalpur University :*

Any two of the following---

1. Educational Psychology
2. Guidance and Counselling
3. Psychology in Industry and Business
4. Clinical Psychology
5. Problems and Techniques of Social Work

Note : In addition to 8 theory papers the candidates have a practical examination in Experimental Psychology in the first year. In the second year, the candidates are required to submit a dissertation and also five projects or term papers connected with the optional papers.

14. *Jodhpur University—*

Any one of the following groups each consisting of three papers—

A. EXPERIMENTAL---THEORETICAL GROUP

1. Learning and Perception
2. Motivation and Symbolic Processes
3. Current Trends in Psychological Theory

B. CLINICAL—COUNSELLING GROUP

4. Advanced Abnormal Psychology
5. Clinical Psychology
6. Personality

C. INDUSTRIAL—VOCATIONAL GROUP

7. Industrial Psychology
8. Guidance Psychology
9. Mental Measurement

D. EDUCATIONAL—PSYCHOLOGY

10. Educational Psychology
11. Mental Measurement
12. Developmental Psychology

E. PSYCHO—TECHNOLOGY GROUP

13. Human Engineering
14. Cybernetics and Information Theory
15. Research Techniques in Psycho-technology

Note : A student can take up a research project in lieu of any one of the three papers of the group which he has chosen.

15. *Kerala University :*

Any two of the following---

1. Physiological Psychology

2. Comparative Psychology
3. Personality
4. Industrial Psychology
5. Vocational Guidance
6. Educational Psychology
7. Psychology of Crime
8. Parapsychology
9. Psychology of Religion
10. Child Guidance

16. *Lucknow University :*

Any three of the following—

1. Clinical Psychology
2. Projective Techniques
3. Industrial Psychology
4. Personality
5. Comparative Psychology
6. Psychology of Religion and Parapsychology
7. Principles of Test Construction
8. Military Psychology
9. Psychology of Criminal Behaviour
10. Thesis

17. *Madras University :*

Any two of the following—

1. Developmental Psychology
2. Physiological Psychology
3. Comparative Psychology
4. Crime and Delinquency
5. Industrial and Vocational Psychology

18. *M.S. University of Baroda*

SCHEME A-2

Any two of the following—

1. Advanced Social Psychology
2. Advanced Industrial Psychology
3. Psychological Thought in India
4. Advanced Educational Psychology
5. Clinical Psychology
6. Physiological Psychology
7. Comparative Psychology

SCHEME A-3—DISSERTATION

SCHEME A-4—VIVA VOCE

SCHEME B

The student will be allowed to take all eight papers, four from Scheme (A-1)* and four from Scheme (A-2).

SCHEME C

A candidate who wants to offer Psychology as one of the subjects at the M.A. course of examination shall undergo a regular course of study for two academic years and offer four papers from scheme (A-1) compulsory papers.

19. *Mysore University :*

Any one of the following –

1. Counselling and Guidance
2. Industrial Psychology
3. Social Psychology

20. *Nagpur University :*

1 & 2. Any two of the following

- (a) Industrial Psychology
- (b) Advanced Educational Psychology
- (c) Psychology of Crime and Delinquency
- (d) Developmental Psychology
- (e) Psychopathology and Clinical Psychology
- (f) Guidance and Counselling

3. Any one of the following--

- (a) Comparative (Animal) Psychology
- (b) Physiological Psychology
- (c) Parapsychology and Psychological Thought in India
- (d) Personality
- (e) Systems and Theories in Psychology

21. *Osmania University :*

Any two of the following :-

1. Industrial Psychology
2. Psychology of Crime and Delinquency
3. Human Development
4. Dissertation

22. *Panjab University :*

1. Industrial Psychology or Educational Psychology or Physiological Psychology
2. Child Psychology or Normal Psychology or Counselling and Guidance or Thesis

*See page 53.

23. *Patna University :*

Any three of the following—

1. Physiological Psychology
2. Developmental Psychology
3. Industrial Psychology
4. Educational Psychology
5. Psychology of Personality
6. Comparative Psychology
7. Principles of Guidance
8. Learning Theories
9. Clinical Psychology
10. Mental Measurement
11. History of Psychology
12. Thesis

N.B. : A candidate may offer a thesis including viva voce in lieu of any two of the optional papers.

24. *Poona University :*

Any four of the following—

1. Psychometrics and Statistics
2. Advanced Experimental Psychology
3. Comparative and Primitive Psychology
4. Physiological Psychology
5. Crime and Delinquency
6. Educational Psychology
7. Industrial Psychology
8. Guidance and Counselling

25. *Rajasthan University :*

Any one of the following groups each consisting of two papers—

GROUP A—EDUCATION

1. Educational Psychology
2. Educational and Vocational Counselling

GROUP B—INDUSTRIAL

1. Industrial Psychology
2. Human Relations in Industry

GROUP C—CLINICAL

1. Clinical Psychology
2. Project Techniques

GROUP D—CHILD PSYCHOLOGY

1. Child Psychology
2. Psychological Testing

GROUP E—PHYSIOLOGICAL PSYCHOLOGY

1. Physiological Psychology
2. Higher Experimental Psychology

GROUP F—SOCIAL PSYCHOLOGY

1. Group Dynamics
2. Sociometry and Attitude Measurement

26. *Ranchi University :*

Any two of the following—

1. Industrial Psychology
2. Psychopathology
3. Clinical Psychology
4. Mental Measurement
5. Social Pathology
6. Social Anthropology
7. Child Psychology
8. Educational Psychology
9. Thesis

27. *Sardar Patel University :*

Any four of the following—

1. Industrial Psychology
2. Advanced Social Psychology
3. Advanced Educational Psychology
4. Vocational Guidance and Counselling
5. Advanced Abnormal Psychology
6. Psychological Testing
7. Physiological Psychology
8. Advanced Comparative Psychology
9. Crime and Juvenile Delinquency
10. Indian Psychology

28. *Saugar University :*

Any one of the following groups---

GROUP A

1. Social Psychology or Clinical Psychology
2. Social Disorganization
3. Juvenile Delinquency

GROUP B

1. Industrial Psychology
2. Human Engineering
3. Mental Measurement---Test Construction

GROUP C

1. Guidance or Industrial Psychology
2. Mental Measurement and Test Construction
3. Social Psychology

29. *Sri Venkateswara University :*

Any one of the following groups each consisting of two papers--

1. Educational Psychology--Industrial Psychology
2. Educational Psychology--Guidance and Counselling
3. Educational Psychology--Developmental Psychology
4. Industrial Psychology--Guidance and Counselling
5. Comparative Psychology--Developmental Psychology

30. *Utkal University :*

Any two of the following--

1. Industrial Psychology
2. Psychology of Personality
3. Mental Measurement
4. Social Pathology
5. Principles of Guidance and Counselling
6. Special Study

APPENDIX VII

Pattern of Compulsory and Optional Papers at B.A./B.Sc.

<i>S. No.</i>	<i>University</i>	<i>No. of compulsory papers</i>	<i>No. of optional papers</i>	<i>No. of necessary optional papers</i>	<i>Total No. of required papers</i>	
1.	Agra	2	3	1	3	
2.	Aligarh	4	—	—	4	
3.	Allahabad	6	—	—	6	
4.	Andhra	4	—	—	4	
5.	Annamalai	4	—	—	4	
6.	Banaras	8	2	1	9	
7.	Bhagalpur	3	—	—	3	
8.	Bihar	3	—	—	3	
9.	Bombay	As in Appendix I				
10.	Calcutta	3	—	—	3	
11.	Delhi	2	2	1	3	
12.	Gorakhpur	5	2	1	6	
13.	Gujarat (Subordinate)	4	—	—	4	
14.	Indore	1	8	4	5	
15.	Jodhpur	4	3	1	5	
16.	Karnatak (Minor)	1	2	1	2	
17.	Kerala	4	4	2	6	
18.	Lucknow	4	3	2	6	
19.	Madras	4	3	2	6	
20.	Magadh	3	—	—	3	
21.	Marathwada	3	2	1	4	
22.	M.S. Baroda	4	6	2	6	
23.	Mysore (Minor)	2	—	—	2	
24.	Nagpur	3	—	—	3	
25.	Osmania	4	—	—	4	
26.	Panjab	3	—	—	3	
27.	Patna	3	—	—	3	
28.	Poona	2	—	—	2	
29.	Rajasthan	1	4	2	3	
30.	Ranchi	3	—	—	3	
31.	Sardar Patel	4	5	2	6	
32.	Saugar	6 + 3 practicals	—	—	6 + 3 practicals	
33.	Sri Venkateswara	4	—	—	4	
34.	Utkal	5	—	—	5	

APPENDIX VIII

Pattern of Compulsory and Optional Papers at B.A./B.Sc. (Hons. Major)

<i>S. No.</i>	<i>University</i>	<i>No. of compulsory papers</i>	<i>No. of optional papers</i>	<i>No. of necessary optionals</i>	<i>Total number of required papers</i>
1.	Bhagalpur	6	—	—	6
2.	Bihar	6	—	—	6
3.	Bombay	As in Appendix III			
4.	Calcutta	8	—	—	8
5.	Delhi	8	—	—	8
6.	Gujarat (Principal)	8	5	2	10
7.	Karnatak (Major)	2	5	2	4
8.	Lucknow	8	3	2	10
9.	Magadh	6	—	—	6
10.	Marathwada	7	2	1	8
11.	Mysore (Major)	4	—	—	4
12.	Panjab	3	2	1	4
13.	Patna	6	—	—	6
14.	Poona	6	—	—	6
15.	Ranchi	6	—	—	6
16.	Utkal	6	—	—	6

APPENDIX IX

Pattern of Compulsory and Optional Papers at M.A./M.Sc.

<i>S. No.</i>	<i>University</i>	<i>No. of compulsory papers</i>	<i>No. of optional papers</i>	<i>No. of necessary optional papers</i>	<i>Total No. of required papers</i>
1.	Agra	6	8	2	8
2.	Aligarh	5	13	3	8
3.	Allahabad	7 plus viva-voce	11	2	9 plus viva-voce
4.	Annamalai	6	Not available		
5.	Banaras	7	9	3	10
6.	Bhagalpur	6	7	2	8
7.	Bihar	6	8	2	8
8.	Bombay	4	8	4	8
9.	Calcutta				
	Course-A	7	4	1	8
	Course-B	7	5	1	8
10.	Delhi	7	3	1	8
11.	Gorakhpur	6	11	4	10
12.	Gujarat	4	32	4	8
13.	Jabalpur	6	5	2	8
14.	Jodhpur	7	15	3	10
15.	Kerala	8	10	2	10
16.	Lucknow	7	10	3	10
17.	Madras	6	5	2	8
18.	M.S. Baroda (Scheme—A)	4	7	2	6 plus dissertation and viva-voce
19.	Mysore	8	3	1	9
20.	Nagpur	5	11	3	8
21.	Osmania	8	4	2	10
22.	Panjab	6	7	2	8
23.	Patna	5	12	3	8
24.	Poona	4	8	4	8
25.	Rajasthan	6	12	2	8
26.	Ranchi	6	9	2	8
27.	Sardar Patel	4	10	4	8
28.	Saugar	7	9	3	10
29.	Sri Venkateswara	9	10	2	11
30.	Utkal	6	6	2	8

APPENDIX X

Topics of Doctoral Dissertations in Psychology Approved by the Universities (1963-1965)

1. *Allakabad University :*
 1. Personality study of student leadership.
2. *Aligcrh Muslim University :*
 1. Comparative study of the attitudes of adolescent students and their elders towards authority and discipline.
 2. Factors in attitude formation towards democracy.
 3. A study of differences in the attitudes and adjustment of the employees (bus drivers and conductors) of government roadways and private bus service in U.P.
 4. An investigation into various factors required for success in different types of courses at the higher secondary stage.
 5. Personality adjustment factors discriminating between criminals and normals during adolescence.
3. *Banaras Hindu University :*
 1. Preparation of standardised group test-general mental ability for school going children in Punjabi.
 2. A comparison of the personality questionnaire items presented in the first and second person.
 3. Jung.
 4. An empirical study on symbolic processes.
 5. The concept of mind in Indian Psychology.
 6. Development of M.M.P.I. scales in Indian conditions.
 7. Studies in reaction time.
4. *Bhagalpur University :*
 1. Certain personality factors in criminals.
5. *Bihar University :*
 1. Personality correlates of forgetting.
 2. A study of the academic and non-academic characteristics of the rural school pupils and the sociological correlates of these characteristics.
 3. The influence of audience upon verbal recall of high and low anxious subjects.
 4. A study of the secondary school pupils' interest in reading Hindi.

6. *Bombay University :*
 1. Youth adjustment analyser or the construction of a personality scale suitable to Indian conditions.
 2. The Muller-Iyer illusion under different conditions.
7. *Calcutta University (1963-64 and 1965-66) :*
 1. Studies in creativity.
 2. Experimental investigation into some sensory discrimination of a group of severely mentally retarded adolescents.
 3. Study into the concept formation in congenitally blind.
 4. Attitudes and other personality traits of unemployed and employed undergraduates—a comparative study.
 5. A socio-psychological study of the adolescent tribal children of West Bengal Himalayan Region for the purpose of national integration through co-curricular participation (group dynamics).
 6. An attempt to determine specific psychological factors leading to the development of schizophrenia.
 7. On concrete intelligence.
 8. Comparison of interest pattern between executive officers and others.
 9. Delinquency and the therapeutic measures.
 10. On family planning.
 11. Construction and standardization of a differential aptitude test battery.
 12. Construction of a scholastic aptitude test.
 13. A study of the psycho-social determinants of opinion regarding national planning in India.
 14. Social forms in delinquents.
 15. Sociometric variables and their correlates in multilingual nursery children.
8. *Delhi University :*
 1. Development of a non-verbal test of intelligence.
9. *Gorakhpur University :*
 1. Fatigue of school children.
10. *Kerala University :*
 1. Personality dimensions—a critical study.
11. *Lucknow University :*
 1. A study of anxiety and insecurity in professional and non-professional women.
12. *Madras University :*
 1. Women's education and traditional values.

2. Study of adjustment difficulties of bilingual children.
3. Problems of women workers in industry.
4. A study of prejudice among college students.
5. Level of anxiety among employed, unemployed and under-employed.

13. *M.S. University :*
1. 1.. Inventory.
 - 2 2.. formation and conceptual
 - 3 3.. ents.
 - 4 4.. for higher secondary
 - 5 5.. oices in relation to
 - 6 6.. es in early ancient
 - 7 7.. to Charak and
 - 8 8.. of reading as a
 - 9 9.. environment.
 - 10 10.. disorders.
 - 11 11.. lligence.
 - 12 12.. job of orphan boys
 - 13 13.. lisation and attitude towards .. ning.
 - 14 14.. Standardization and construction of a test of teaching attitude.

18. *Sri Venkateswara University :*
- 1 1.. Students' performance in relation to certain aspects of personality and academic adjustment.
 - 2 2.. ESP and personality.

19. *Uttkal University :*
- 1 1.. A comparative study of socio-cultural and personality factors of juvenile delinquents, adult criminals and normal juveniles of Orissa.

Acc. No.
 Date 29 / 7 / ..
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 Planning and Admin