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ABSTRACT

A study was done to test the assumptions faculty make about the relationship between teaching methods and educational objectives. Using a survey of staff and students involved in undergraduate courses in Building, Estate Management and Psychology at the National University of Singapore, the subjects were asked to rank order a set of 13 educational objectives in terms of importance. Staff were then asked how effective they thought different teaching methods were in meeting these objectives. Students were asked how effective they thought the teaching methods actually were for particular courses. The teaching methods considered included lectures, seminars, quantitative assignments, and student project work. The educational objectives included preparing for a future career, understanding concepts, developing problem solving skills, preparing for examinations, developing communications skills, and gathering information. The results indicate some discrepancies between staff assumptions and student perceptions of the relationship between educational objectives and different teaching methods. There was clear evidence that, though much university teaching is lecture based, this is not the best method for meeting all educational objectives. Project work and other active learning approaches may be more appropriate in many settings. Twenty seven references, a copy of the survey instrument, and four tables are included. (JB)

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SELECTING TEACHING METHODS FOR DIFFERING EDUCATIONAL OBJECTIVES IN HIGHER EDUCATION

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ABSTRACT

The educational objectives of different disciplines, and the combination and sequence of teaching methods used for individual courses, can be expected to vary. When designing and implementing courses in higher education, we make decisions regarding the match between educational objectives to be set and the teaching methods to adopt. We base these decisions on implicit assumptions about the relationship between teaching methods and educational objectives.

We tested these assumptions with a survey of staff and students involved in undergraduate courses in Building, Estate Management and Psychology at the National University of Singapore. First, we asked both the staff and the students to rank order a set of educational objectives in terms of importance. Then we asked staff how effective they thought different teaching methods were in meeting these objectives, and asked students how effective they thought the teaching methods actually were for particular courses. The teaching methods considered included lectures, seminars, quantitative assignments, and student project work. The educational objectives included preparing for a future career, understanding concepts, developing problem solving skills, preparing for examinations, developing communication skills, and gathering information.

The results indicate some discrepancies between staff assumptions and student perceptions of the relationship between educational objectives and different teaching methods. Three related implications of the findings are discussed: (1) choice of teaching method should be linked more closely to educational objectives (2) account should be taken of differences across disciplines, and (3) active learning through project work and tutorials is more likely to meet important objectives than the traditional lecture method.

INTRODUCTION

EVALUATION OF TEACHING AND LEARNING IN HIGHER EDUCATION

When we are considering previous work and the need for further work, we must make a clear distinction between course delivery and design. In higher education, courses go through at least two stages in their preparation. The first is the advanced planning of what to teach, how to teach, and why. The second is the actual implementation and delivery of the material to students.

Limitations of Evaluating Course Delivery

Previous work in the field of evaluating the effectiveness of teaching and learning has concentrated on how courses are delivered. This issue was being studied as far back as the 1920s, for example Bane (1925), but has recently been reviewed and projected into the future by McKeachie (1990).

The different methods advocated for evaluating teaching delivery are discussed in detail by Abbott et al (1990). Here we confine ourselves to a brief summary of the four main research questions being asked and answered in this field: (1) whether using students for evaluation is in itself valid (2) whether students agree with tutor peers and administrators (3) whether they change their minds after graduation, and (4) whether their assessment performance affects their evaluation.

A considerable body of research suggests there is good reason to have faith in the validity and reliability of student evaluations when assessing the effectiveness of course delivery methods, [see Abrami et al (1990), Marsh (1987), McKeachie (1990)]. However, L'Hommedieu et al (1990) have demonstrated that student evaluations of delivery have a limited effect on feedback for instructional improvement and a number of limitations of this type of evaluation have been discussed by Centra (1979).

Of major concern is the confounding effect of differences in lecturer style and the fact that student evaluations of course delivery do not necessarily measure the effectiveness of course design in terms of teaching methods. Although a good lecturer may be able to manage effective learning despite the use of an inappropriate teaching method, the well known "Dr Fox effect" suggests that students evaluate a good presenter (or rather performer) as effective even when the lecture has been specifically designed to lack educational content. Hence, Murray (1983) and McKeachie (1990) note that students can think they are learning when they are simply being entertained.

Advantages of Evaluating Course Design

A viable alternative to evaluating course delivery methods is to judge the effectiveness of course design. Although course delivery evaluation should help feedback and improvement for an individual, course design evaluation should help feedback and improvement for course teams involved in designing and updating integrated educational programmes. Course design is about the decisions taken regarding educational objectives to be set and the teaching methods to use in meeting them. This distinction between the

processes of teaching that are internal or external to the instructor is recognised by McKeachie (1990). In evaluating course design we are considering an external factor. If the effect of lecturer style can be reduced by asking students to evaluate course design rather than course delivery, the validity of student evaluations of effectiveness is likely to increase further.

Gardner (1977) classifies five means by which educational effectiveness can be evaluated. These are by outcome measurement, by professional judgement, by the congruence of performance and objectives, by decision-oriented evaluation and by goal-free responsive evaluation. Percival and Ellington (1984) also consider course evaluation in some detail and present two contrasting paradigms. The first, which they term the agricultural/botanical approach, has its roots in the hard sciences with experimentation around specific variables. The second is termed the social/anthropological approach and is more concerned with studying the ongoing processes of education, educational objectives and the attitudes and opinions of staff and students.

We have focused on the congruence between teaching methods and educational objectives, believing it to be particularly pertinent to course design evaluation. Hence, our study has much in common with Percival and Ellington's social/anthropological approach but it encompasses Gardner's notion of congruence between performance and objectives. So far, to our knowledge, there are no published accounts of course design evaluation in terms of objectives and teaching methods. Nevertheless, it seems clear that many of the experiences and techniques for evaluating course delivery could be applied to the evaluation of course design. We chose to use student ratings of the effectiveness of teaching methods to meet educational objectives as a means of evaluating course design.

Cross-Discipline Studies

Up to now we have been describing teaching evaluation as though all higher education is homogeneous. This is not the case and within the University sector the diversity amongst disciplines and age groups has been acknowledged by a number of investigators. McKeachie (1990) describes effective teaching and learning as:

> " .. a function of teaching methods interacting with student, group, and subject matter variables".

Perry (1990) indicates that subject differences influence instructional practices; Jones (1981) and Gow and Kember (1990) sample students from different faculties; and Murray et al (1990) make a distinction between introductory, honours, and graduate courses in their analyses. Furthermore, Donald (1983) notes differences in the relationship between knowledge structures and course content for different disciplines, and Crombag (1978) goes even further in suggesting that educational objectives **should** differ across the discipline spectrum. These studies heightened our awareness of possible discipline differences at NUS and led us to consider it as a variable in the present study.

Teaching and learning innovations elsewhere within individual disciplines have included group and individual project work in studio settings for Architecture, group discussions and seminar style meetings in the arts and social sciences, mock arbitrations and court sessions in law, and team work and problem solving workshops in some engineering disciplines. Boud (1987) gives further examples for other professional disciplines.

Teaching Methods

There are a growing range of different teaching methods used in higher education. Within the National University of Singapore, a group has considered the aims and objectives and guidelines for the lecture and small-group teaching methods (Pan et al, 1988). McKeachie (1990) describes the early research that compared these two methods and which was best suited for knowledge retention and immediate recall.

New innovations include Computer Assisted Learning, use of video and various other means of automated instruction (Spencer, 1991) and (McKeachie, 1990). Meredith (1989) suggests means of evaluating proposals like these while Davis et al (1982) describe some of the organisational constraints to instructional innovation.

Few studies have addressed the issue of which teaching methods are best suited to meet different educational objectives. Crombag (1978) makes judgements of which of lectures, reading, exercises, practical experiences, independent work and tests are best suited for knowledge, comprehension and application. This is not based on empirical data but on the author's expectations.

Educational Objectives

There has been more recent consideration of what educational objectives we are trying to meet in courses as a whole. The 'student-centred' discussion (McKeachie, 1990) and the approaches based on explicit recognition of group dynamics are examples of how objectives and teaching methods are related. Yet, in general we appear to make little consideration of what educational objectives are but rush to choose teaching methods regardless. Dee Fink (1985) shows this in surveys of Geography lecturers, in their first year of teaching.

Most considerations of educational objectives appear very subject and content based. Fewer seem to address the life skills and professional and practical abilities that higher education may also target.

The Research Problem

The problem, as we see it, is that there are no empirical data showing which teaching methods best meet which educational objectives. We also have no data regarding agreement between staff and students on this question and whether the answer differs across the disciplines. It is this gap in knowledge that we are addressing through a set of our own research questions.

RESEARCH QUESTIONS

We grouped five questions under the headings of the importance of educational objectives and the effectiveness with which teaching methods attain them.

IMPORTANCE

Question 1: What educational objectives are ranked most important by

(a) students?
(b) teaching staff?

Question 2: What is the relationship between rank order of importance for

(a) staff and students?
(b) students from different disciplines?

EFFECTIVENESS

Question 3: What factors underlie students' ratings of teaching methods in terms of effectiveness?

Question 4: Which teaching method is perceived most effective for the (ranked) most important educational objectives?

Question 5: To what extent are there differences between disciplines?

METHOD

Choice of Objectives

We were obliged to design a new instrument for data collection because the scales developed so far relate more to course delivery than course design. By consensus, a group of four academic staff from the three disciplines, compiled a set of twelve educational objectives which they predicted to be weighted in a neutral way, or towards one of the three main teaching methods (lectures, tutorials and projects) and added a thirteenth objective that they predicted would be equally weighted across all methods, (see Table 1). The choice of objectives was strongly influenced by the content of the NUS handbook on teaching (Pan et al, 1988).

TABLE 1: CHOSEN OBJECTIVES AND THEIR PREDICTED WEIGHTINGS

	EDUCATIONAL OBJECTIVES	Predicted Weighting
1.	Allow student to prepare for future career	Nil
2.	Allow student to think analytically	Tutorial
3.	Allow student to understand the main concepts	Lecture
4.	Allow student to develop problem solving skills	Project
5.	Allow student to clarify understanding of the main concepts	Tutorial
6.	Allow student to develop interest in the subject	Lecture
7.	Allow student to prepare for examinations	All
8.	Allow student to explore topics of own interest through independent study	Nil
9.	Allow student to develop communication skills	Nil
10.	Allow student to gather factual information economically	Lecture
11.	Allow student to develop practical application skills	Project
12.	Allow student to develop specialised knowledge	Tutorial
13.	Allow student to organise time and ideas	Project

Data Collection and Collation

We collected data relevant to the research questions by using a two-part questionnaire (see Appendix I). We asked students and staff from the third year of Psychology, Building and Estate Management to

(a) rank order all thirteen objectives for **Importance**

(b) rate each teaching method used in their respective disciplines in that year for **Effectiveness** for each of the thirteen objectives on a 7-point scale (1 = very ineffective; 7 = very effective)

Data were collected at the same time for each group at the end of the teaching year but before end of year examinations. Each discipline group had undergone a programme of study that included lectures, tutorials and project work. Projects in Building and Estate Management were practical, professional problem solving exercises often involving group work. Projects in Psychology were individual empirical assignments where students were allowed a choice of subject area. Hence, the exact specification of style and format for the

three main teaching methods varied a little within and between disciplines but a broad classification into lectures, tutorials and projects was appropriate.

We collated the information from all correctly completed data forms (151 students and 18 staff) using a LOTUS 123 database and used the SPSS/PC+ statistical package for analysis.

RESULTS

Question 1: What educational objectives are ranked most important by

(a) students?
(b) teaching staff?

Question 2: What is the relationship between rank order of importance for

(a) staff and students?
(b) students from different disciplines?

The answers to Questions 1 and 2 are summarised in Table 2 which shows the mean rank for each objective for students and staff. **Allowing analytical thinking** was ranked as the most important educational objective by all groupings of staff and students, with **understanding main concepts** and **developing interest in subject** following close behind. **Preparing for examinations** was not seen as a key educational objective by any of the groups although predictably, students ranked it more important than staff. The ability to **organise time and ideas** was ranked (surprisingly) low by all groups.

Although there is broad agreement between the ranking of staff and students from different disciplines, five differences in rankings of individual objectives are worthy of note. **Developing problem solving skills, exploring topics of own interest** and **developing communication skills** are perceived as more important by staff than students, whilst **developing practical application skills** and **specialised knowledge** is perceived as more important by students.

These discrepancies suggest differences in thinking between staff and students of what educational programs should do. This may be of significance in student applications for courses, motivation during a course and the quality of work output.

In general there was agreement between students from all three disciplines about which objectives are important but, again, a few differences are noteworthy in view of their implications for course design. While **ability to think analytically** and **understand main concepts** was ranked high by all student groups, **develop interest in subject** and **prepare for future career** both show large variation between faculties. This suggests that different disciplines should be setting different objectives, at least in the opinion of students, and that standardisation of teaching methods across the campus may be inappropriate. This issue is investigated further through Question 3.

TABLE 2: MEAN IMPORTANCE RANKS AND OVERALL RANK FOR OBJECTIVES FOR STAFF AND STUDENTS
(Overall rank in bold; Rank 1 = most important)

EDUCATIONAL OBJECTIVE	ALL STAFF (N=18)	ALL STUDENTS (N=151)	PSYCH STUDENTS (N=64)	BUILDING STUDENTS (N=38)	EST. MGT. STUDENTS (N=49)
1. Prepare for future career	7.11 8	6.01 5	6.89 7	4.97 2	5.67 4
2. Think analytically	2.06 1	4.15 1	3.56 1	3.97 1	5.04 1
3. Understand.main concepts	5.22 4	5.15 2	5.21 3	5.16 3	5.06 2
4. Develop problem solving skills	3.61 2	6.23 6	6.38 6	5.92 5	6.28 5
5. Clarify subject understanding	6.67 6.5	6.40 7	6.25 5	6.89 7	6.22 5
6. Develop interest in subject	3.67 3	5.99 4	4.89 2	6.63 6	6.93 7
7. Prepare for exams	11.11 13	8.25 10	8.97 11	7.63 8	7.79 9
8. Explore interest by independent study	6.06 5	8.21 9	7.47 9	8.18 10	9.20 12
9. Develop communication skills	6.67 6.5	8.32 11	8.75 10	7.95 9	8.04 12
10. Gather factual information economically	9.78 10	9.28 12	9.25 12	9.86 13	8.86 10
11. Develop practical application skills	7.94 9	5.57 3	5.69 4	5.63 4	5.38 3
12. Develop specialised knowledge	10.28 12	7.63 8	7.44 8	8.74 11	7.02 8
13. Organise time and ideas	10.83 12	9.78 13	10.25 13	9.45 12	9.43 13

Question 3: What factors underlie students' ratings of teaching methods in terms of effectiveness?

We carried out three factor analyses (varimax rotation) of each teaching method's ratings across all thirteen objectives for all students. Table 3 shows the eigenvalues and factor labellings we derived:

TABLE 3: FACTOR ANALYSES FOR ALL STUDENTS RATINGS OF ALL OBJECTIVES

LECTURE RATINGS	EIGEN VALUE	CUM % OF VARIANCE	OBJECTIVES LOADING
Factor 1: "Skill Development"	5.481	42.2	9 + 11
Factor 2: "Understand Concepts"	1.634	54.7	3 + 5
Factor 3: "Exams/Information"	1.016	62.5	7 + 10
TUTORIAL RATINGS	**EIGEN VALUE**	**CUM % OF VARIANCE**	**OBJECTIVES LOADING**
Factor 1: "Own Interests"	6.699	51.5	8+6+11
Factor 2: "Exams"	0.915	58.6	7
Factor 3: "Understand Concepts"	0.863	65.2	3 + 5
PROJECT RATINGS	**EIGEN VALUE**	**CUM % OF VARIANCE**	**OBJECTIVES LOADING**
Factor 1: "Own Interests"	6.857	52.7	8
Factor 2: "Skill Development"	1.227	62.2	9 + 11
Factor 3: "Understand Concepts"	0.899	69.1	3 + 5

Factor overlap across teaching methods suggest that four key concepts, represented by eight objectives underlie effectiveness ratings for all teaching methods. These are "Skill Development" Objectives 9 + 11; "Understand Concepts" Objectives 3 + 5; "Exams/Information" Objectives 7 + 10; "Own Interests" Objectives 8 + 6 + 11. (As this is an exploratory study we have included factors with eigenvalues less than 1 simply for the sake of comparison across teaching methods).

In terms of question 3, there appear to be four key concepts underlying how students rate the effectiveness of different teaching methods to achieve educational objectives: "Skill Development", "Understanding Concepts", "Exams/Information", and "Own Interests". Five objectives exert little influence on the ratings of effectiveness of teaching methods. One of these **Prepare for Future Career**. This finding is alarming in that it suggests no link between a course of study and eventual employment by students in considering course effectiveness.

For students as a whole "Skill Development" and "Understand Concepts" are the key factors used for evaluating lectures. For tutorials, "Own Interests" are central and for projects "Own Interests" and "Skill Development". A second series of factor analyses suggested that there may be differences between the disciplines but, given the relatively small sample sizes in this study, further investigation is required before any meaningful conclusions can be drawn.

Question 4: Which teaching method is perceived most effective for the (ranked) four most important educational objectives?

Question 5: To what extent are there differences between disciplines in the relationship between educational objectives and teaching methods?

To answer these questions we computed a three factor ANOVA (1 between, 2 within) of the ratings for discipline (3 levels) by teaching method (3 levels) by objective (4 levels) to test whether there were any statistically significant differences. All main effects and interactions proved highly significant, (see Table 4).

TABLE 4: ANOVA SUMMARY TABLE OF RATINGS FOR RANKED IMPORTANT OBJECTIVES

	ss	d.f.	F Ratio	P
Main Effects				
Discipline	70.55	2	4.52	0.012
Objectives (2+3+6+11)	122.55	3	38.13	0.000
Teaching Method	335.59	2	63.84	0.000
2-way Interactions				
Discipline x Objectives	49.98	6	7.77	0.000
Discipline x Teaching Method	73.02	4	6.94	0.000
Objectives x Teaching Method	126.37	6	33.63	0.000
3-way Interactions Discipline x Objectives x Teaching Method	50.36	12	6.70	0.000

In sum, different disciplines rank objectives differently and educational objectives relate to very strongly. We have yet to compute a set of planned comparisons to check the significance of particular relationships but inspection of a series of histograms, shown in Appendix 2, is revealing.

When all students are combined, lectures are relatively more effective for understanding concepts and preparing for exams, tutorials are more effective for communication skills, and project work is more effective for communication skills and exploring interest by independent study.

The significance of the differences across the disciplines must be treated with caution because we cannot assume homogeneity in teaching methods. Recall that differences between the disciplines may be confounded by variation in the type of projects set, the nature of the

disciplines that they serve and the extent to which students have a chance to choose topics. Nevertheless, the patterns within disciplines are worthy of note.

For Psychology students, lectures are not the most effective teaching method for any of the important objectives. They are relatively more effective for understanding main concepts but the case for effective lecture-based courses in Psychology is difficult to make from the data collected. Tutorials are the most effective method for career preparation, understanding concepts, clarifying understanding, examination preparation, communication skills, gathering factual information and developing specialised knowledge. Project work is most effective for thinking analytically (the most important objective), exploring topics of own interest, developing practical application skills and organising time and ideas.

For Building students, lectures and tutorials are not the most effective teaching methods for any of the four most important objectives although they are relatively better for understanding main concepts, and in the case of tutorials, for acquiring problem solving skills. Project work is the most effective teaching method for all four of the top ranked objectives with its advantage for future career preparations and practical application skills particularly marked. There is a clear case for a large amount of project work in Building courses.

Again, for Estate Management students, lectures are not the most effective teaching method for any of the four top-ranked objectives but rate relatively higher for understanding main concepts. Tutorials rate highest for understanding main concepts, and project work for thinking analytically, practical application skills and future career preparations. A case for more project work in Estate Management courses is suggested by the data.

DISCUSSION

Teaching Methods for Educational Objectives

In this paper we have shown that there are differences in opinion between staff and students, and between students on different courses, of what education should achieve. There are four main factors that students use to evaluate the effectiveness of teaching methods. These can be used to make broad assessments ot which method is most appropriate for different objectives. But the results differ across the disciplines.

The main implication oi this is that staff responsible for the design of University courses should specify the agreed educational objectives on a course by course, year by year basis in consultation with students. Having done so, it will then be possible to build courses around the most appropriate teaching methods. The assumption of discipline homogeneity may not be valid for this purpose. Effectiveness should be evaluated based on the specifics of a particular teaching method and the requirements of staff and students within a discipline.

Much University teaching is still lecture based. There is clear evidence that lectures and tutorials, while suiting some objectives on some courses, are not the best methods in other situations. It seems that more provision should be made for project work in place of lectures and tutorials for certain subjects and at particular stages of courses. Existing courses may need to be modified considerably if teaching effectiveness is to be improved.

Changes in Educational Objectives

Educational objectives within professional courses are evolving because of the expanding scope of many disciplines including Building, Estate Management and Psychology. A common response to this has been to develop courses with general applicability and not specific information if the student is to be well-equipped for their profession throughout their career. The half life of specific information is very short. The range of educational objectives for higher education is expanding and new teaching methods must evolve to meet these changes.

One aspect of this change has been the greater emphasis to group work. Working in groups on projects is more akin to the real professional world. It is likely to be more useful in employment and assists in the development of communication skills. At an interpersonal level, active participation with feedback prepares students to contribute ideas and develop leadership qualities appropriate to their chosen profession. It does this in a better way than absorbing part of an ever growing body of facts about a discipline. The need to do this for Building students was made by Betts and Pollock (1988).

Active Learning

A particular implication of this study is that a case can be made for encouraging more active learning. The ability to think analytically, develop problem solving skills and interest in subject were seen as important objectives by staff and students alike. This is not easy to achieve as it requires that Universities must provide the correct physical and intellectual atmosphere including tools and instruments and research material for independent study. It also requires that University staff who have until now been lecturers and tutors, must develop skills of supervision and discussion as required in projects and seminars. A shift in teaching methods to active learning also would require a fair and systematic mode of evaluation, [see Morrison (1991) for details of how this issue is currently tackled in the Psychology department at NUS]. In the long term, fair assessment may entail oral cross examinations or hypothetical project planning in place of the more traditional examination methods. There will also be implications for intake procedures to the Universities, particularly where there is a high degree of competition for places. Aptitude for active learning may become as important as A level grades which often reflect more passive rote learning.

Introducing Changes to University Courses

If changes can be made, it will be important to introduce heuristic methods of learning by gradually replacing didactic method across the years. We are not advocating a complete replacement of lectures and tutorials by project work and seminars. The best solution would be to introduce active learning methods gradually in line with the way educational objectives on courses change from year to year. First years may be still largely lecture based while we maximise active learning for honours students and others in the later years.

There will inevitably be problems in bringing about these changes. The most important one may be in getting conservative staff and students to change. Both groups perceive project work as high risk compared to traditional teaching methods. The evaluation of project work is problematic. The performance of students may differ for evaluations made from different

teaching methods.

Asians as Rote Learners

Many of the reviewed studies were conducted in a western cultural environment. Their applicability for Asian students is uncertain. One preconception is that Asian students are different from Western students in that they follow rote learning approaches and they are not equipped to deal with more innovative teaching methods. Work by Watkins et al (1991) suggests strongly challenges this stereotypy and Kember and Gow (1990) found only small differences between learning approaches of students from Hong Kong and Australia. On this basis it is held that the results of this study may well be applicable to western students and Universities.

CONCLUDING REMARKS

This study has shown differences between the way that educational objectives and teaching methods relate for different disciplines in two different Faculties in NUS. It shows that project based learning may be more beneficial for the most important objectives. This is likely to be true for disciplines other than psychology, building and estate management, and for higher education in countries other than Singapore. We would therefore welcome feedback from any interested faculty members or those with experience in this area. We hope to pursue this research further as a multi-disciplinary, multi-institutional and multi-cultural project with the long term aim of improving the quality of higher education courses to suit the requirements of the dynamic professional disciplines they feed.

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APPENDIX 1 - THE QUESTIONNAIRE

As you may know, we are constantly interested in gaining feedback from you all on the effectiveness of the teaching methods we employ. With this in mind I would be grateful if you could complete the attached questionnaire to help us evaluate the teaching methods we have used on our course this year. Thank you very much for your cooperation.

Please rank the following statements as educational objectives according to the order of importance in which you would place them according to the following ranking scale (please do not use tied rankings but give each objective a unique rank):

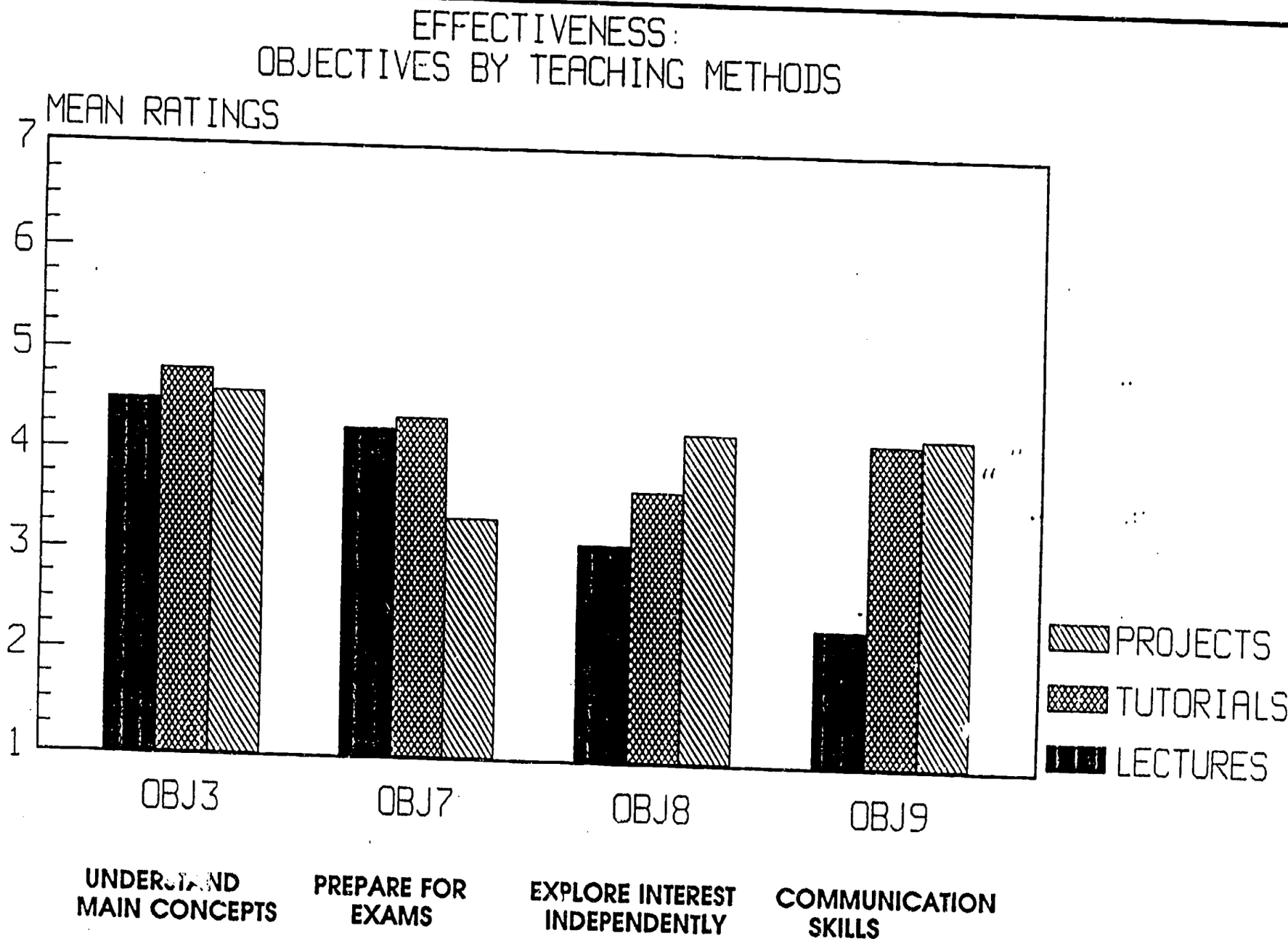
1 = most important, 2 = second most important, 3 = third most important, etc

STATEMENTS	YOUR RANKING (1-13)
1. Allowed you to prepare for your future career.	
2. Allowed you to think analytically.	
3. Allowed you to understand the main concepts.	
4. Allowed you to develop problem solving skills.	
5. Allowed you to clarify your understanding of the subject.	
6. Allowed you to develop your interest in the subject.	
7. Allowed you to prepare for examinations	
8. Allowed you to explore topics of your interest through independent study.	
9. Allowed you to develop communication skills.	
10. Allowed you to gather factual information economically.	
11. Allowed you to develop practical application skills.	
12. Allowed you to develop specialised knowledge.	
13. Allowed you to organise your time and ideas.	

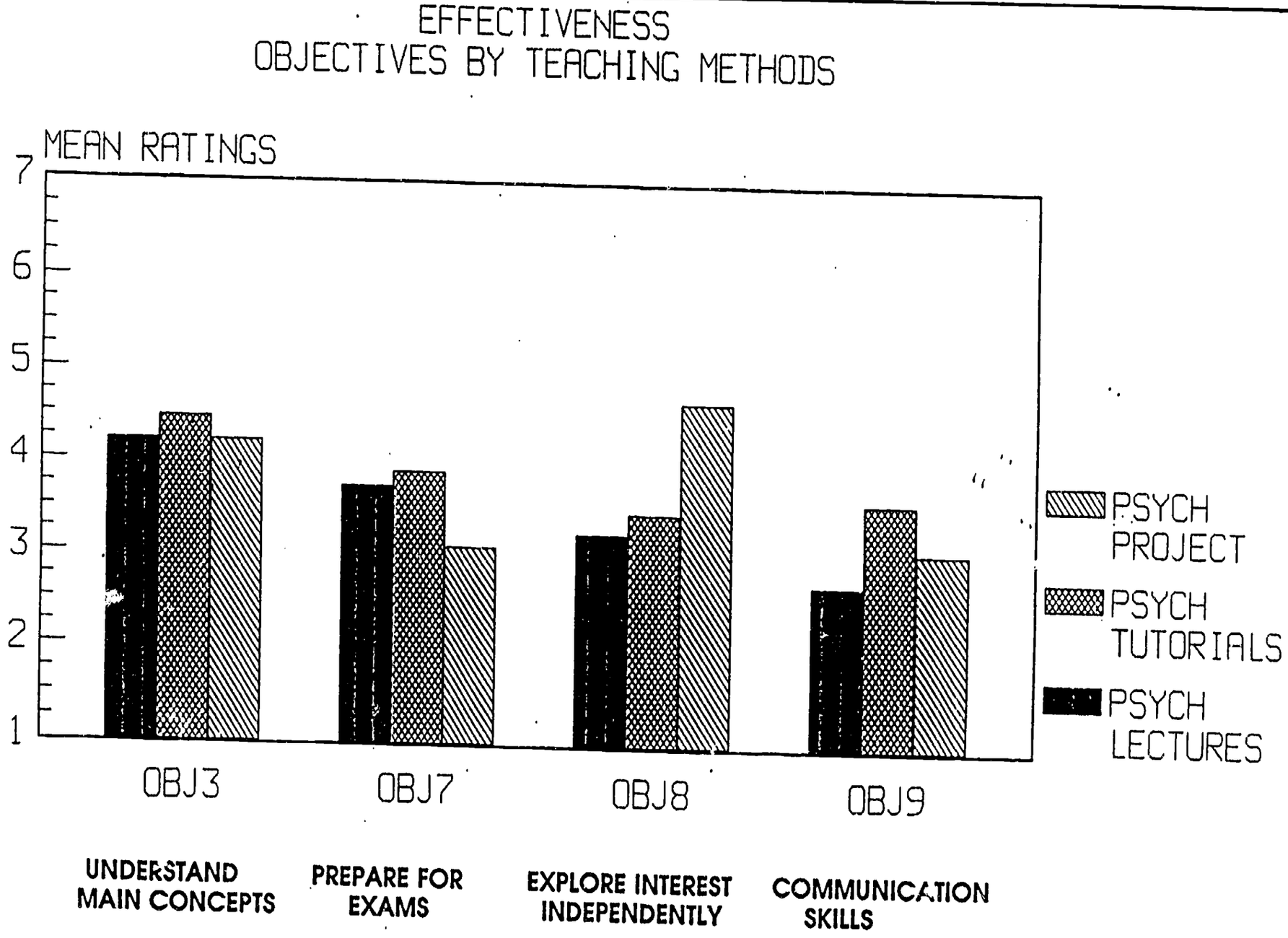
Please rate how effective you think the teaching methods were in allowing you to meet the statements of educational objectives according to the following rating scale:

Very Ineffective 1 2 3 4 5 6 7 Very Effective

STATEMENTS	LECTURES	MODULE A TUTORIALS Discussion Type	MODULE B TUTORIALS Quantitative Assignment	MODULE C TUTORIALS Project Work
1. Allowed you to prepare for your future career.				
2. Allowed you to think analytically.				
3. Allowed you to understand the main concepts.				
4. Allowed you to develop problem solving skills.				
5. Allowed you to clarify your understanding of the subject.				
6. Allowed you to develop your interest in the subject.				
7. Allowed you to prepare for examinations.				
8. Allowed you to explore topics of your interest through independent study.				
9. Allowed you to develop communication skills.				
10. Allowed you to gather factual information economically.				
11. Allowed you to develop practical application skills.				
12. Allowed you to develop specialised knowledge.				
13. Allowed you to organise your time and ideas.				



N.B. Objectives 3, 7, 8, and 9 load highest on the first four factors



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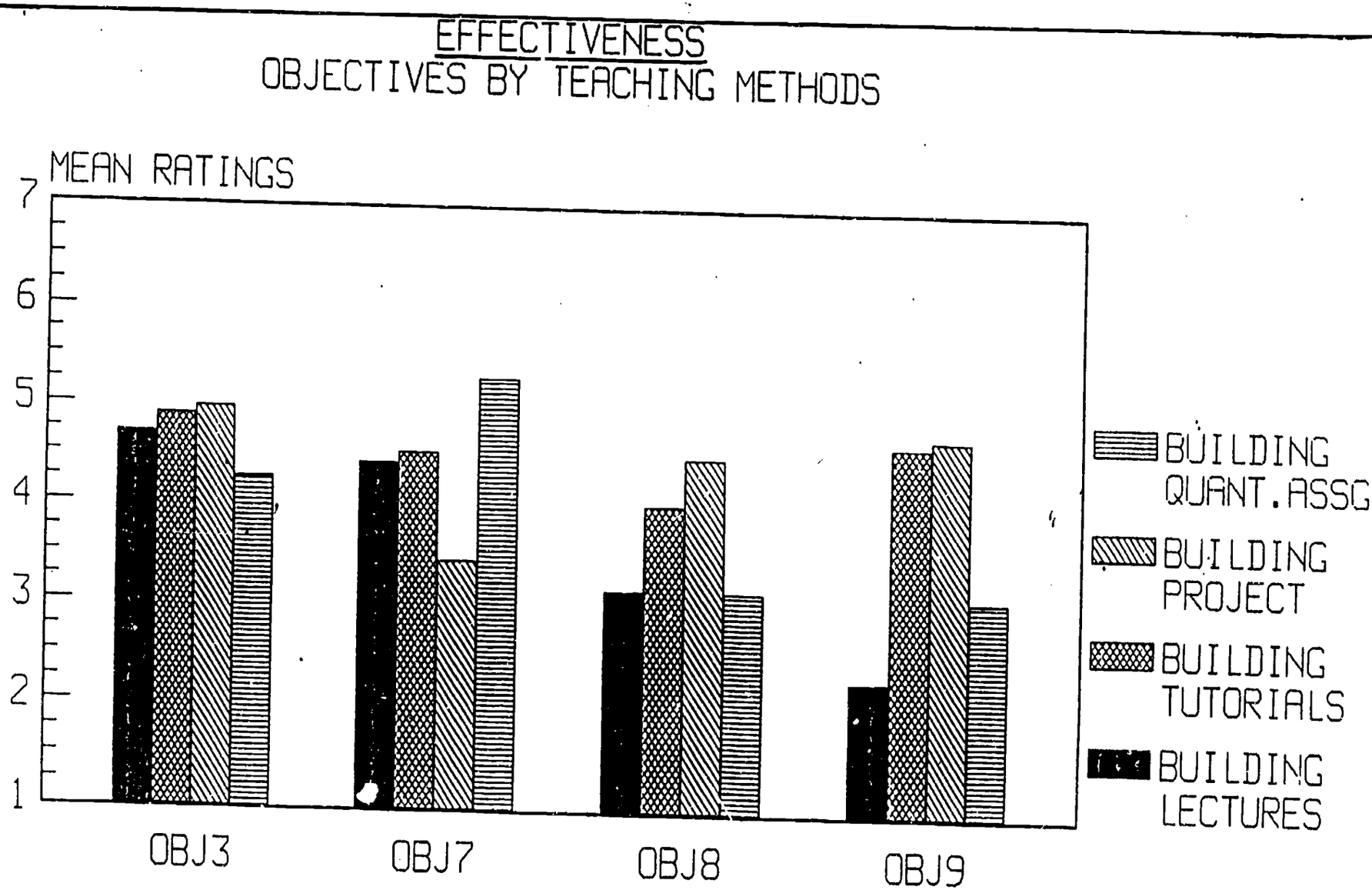
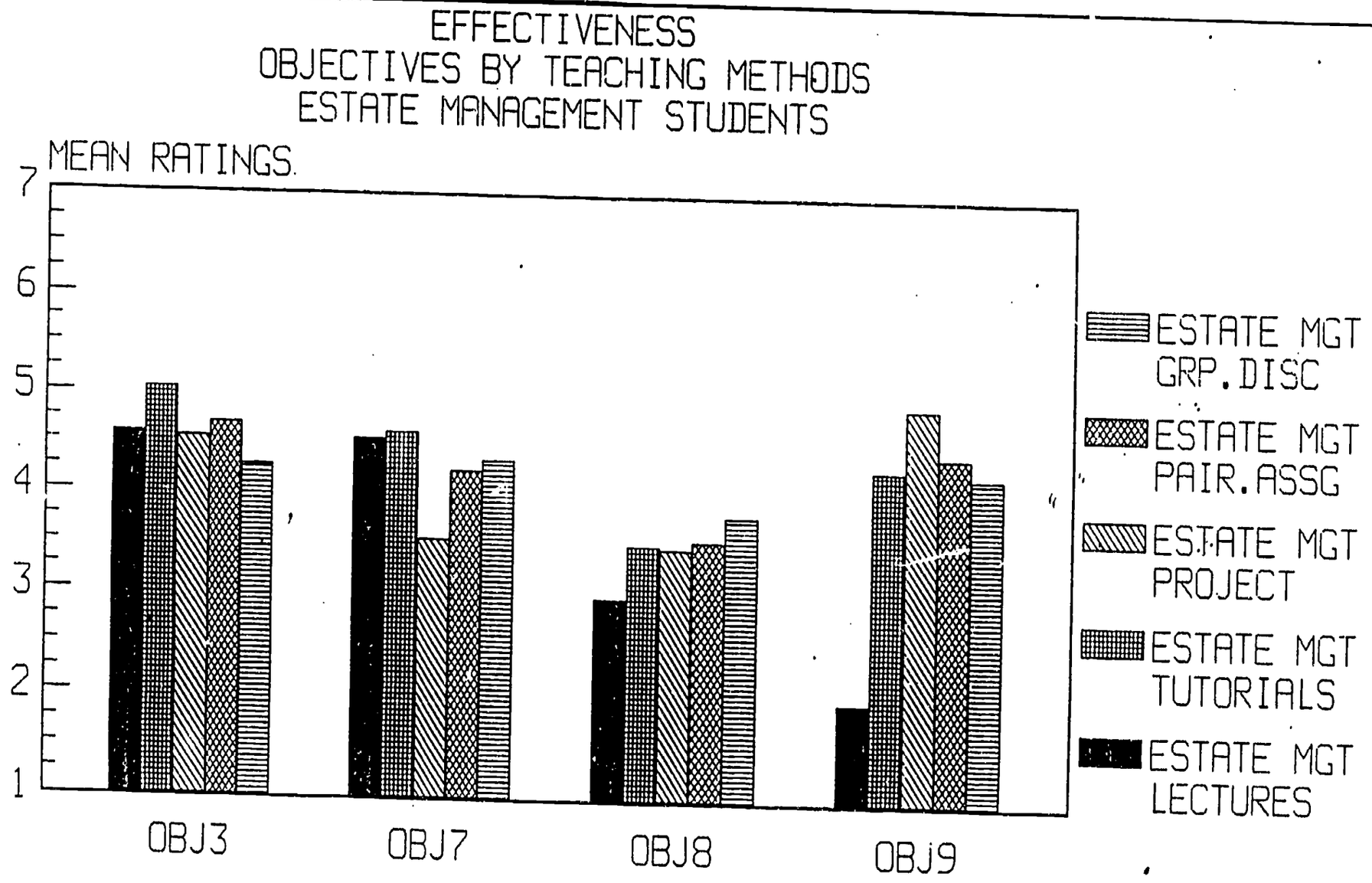


UNDERSTAND MAIN CONCEPTS | **PREPARE FOR EXAMS** | **EXPLORE INTEREST INDEPENDENTLY** | **COMMUNICATION SKILLS**

N.B. Objectives 3, 7, 8, and 9 load highest on the first four factors



UNDERSTAND MAIN CONCEPTS | **PREPARE FOR EXAMS** | **EXPLORE INTEREST INDEPENDENTLY** | **COMMUNICATION SKILLS**

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