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SEX DIFFERENCES IN ACHIEVEMENT MOTIVATION

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ABSTRACT

In other cultures it has been shown that the achievement motive scores of male subjects tested under arousal conditions are generally higher than the scores obtained under neutral conditions, but that this increase does not hold in the case of female subjects.

The present study is an attempt to find out if these results apply to the Arab population as represented by students at the American University of Beirut.

Three tests were given. The McClelland test of measuring motivation, a test of arithmetic and anagrams to arouse motivation and the French Attitude Student Scale to classify the girls according to the goal they value most.

The results of these tests were than analyzed, and did not confirm previous results: Male Subjects did not show an increase in their achievement scores as they changed the neutral to the aroused situation. On the other hand, women subjects showed the expected increase but not significantly so.

To account for the results, child rearing practices and cultural values were invoked. Some recommendations were, for further investigation in the same area were suggested.

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INTRODUCTION

One of the most perplexing questions raised by contemporary psychology arises from the attempt to measure motivation (23). McClelland, sought to remedy this deficiency by devising a method for measuring motives such as power, affiliation, and achievement through the analysis of imaginative stories. Many studies based on this technique have subsequently been carried out in various places to test the achievement motivation of different people. The method has yielded consistently reliable results for men, showing their achievement to increase regularly as the testing conditions changed from neutral to aroused. No such increases, however, were obtained with women subjects, leading Atkinson to conclude that "perhaps the most persistent unresolved problem on n-achievement concerns the observed sex differences." (11, p. 110).

In view of these inconsistencies, ~~the~~ experimenter applied McClelland's method to an Arab population as represented by students at the American University of Beirut, in order to see what differences, if any, exist between the achievement motivation of male and female subjects, and simultaneously to evaluate the effectiveness of the technique by using it on individuals outside of the American culture on which it was developed. (1, 35)

In order to get a clearer picture of the procedure of the experiment it is necessary to explain fully each of the concepts and variables used.

CHAPTER I

The Concept of Motivation

"The meaning of motivation is often scandalously vague. Depending upon the particular writer consulted, motivation can be conscious or unconscious, it can be the same or different from drive, it may or may not guide behavior, and all motives can be either learnt or instinctive. Arguments can be found to support the view that motivation is both crucial to behavior and a useless concept." (4, p. 24).

In short, a unified theory of motivation has not yet gained general acceptability among psychologists. Evidence has indicated, however, that many of the differences in opinion are due either to the use of conflicting methods of observation, the choice of different variables, or the study of different sexes and age groups. But a basis for agreement as regards these terms must ultimately involve a more precise analysis of their implications.

Although there is no commonly accepted theory regarding motivation, certain characteristics are shared by many of the independent theories such as the need-reduction or equilibration model, to which is added at the human level, an urge for self-actualization. (5).

Taylor's definition (18) of motivation as simply "the study of motivational phenomena" which concerns why a particular activity takes the form it does, and why we tend to do certain things and not

others at certain times, is one of the more plausible interpretations of motivation.

An attempt to answer the above-mentioned questions involves the study of the origin and particular occurrences of certain activities, and the assumption that motivation is primarily a matter of choice of action, a choice determined by the consideration of all the alternative courses of action, which are themselves greatly affected by the individual's own system of values. This system is predicated on the notion that an individual's motivation is inextricably linked to his system of values, and that these values should therefore, be studied in conjunction with one's analysis of motivation.

One fact however, must not be overlooked. Motivation is above all, the final overall tendency of a subject to produce one or more effects which have been aroused on a particular occasion by a particular situation. Hence, the particular aim of the momentary state of motivation is also situationally defined (2, p. 599).

The concept of motivation having been relatively clarified, our next step would be to indicate what the achievement motive, as used in this context, refers to.

The Achievement Motive

There is still much disagreement about the definition of the achievement motive. Some psychologists, such as Brown, offer a straightforward definition to the effect that the achievement motive

is "a learnt affective anticipation of the pleasurable consequences of success in situations where the quality and efficiency of one's performance is to be evaluated" (4, p. 240). This definition, as we can notice, takes into account the two aspects of motivation mentioned previously, namely the situational aspect and the person's own values.

Other psychologists among whom McClelland, prefer to define the concept by explaining how the achievement motive is measured and what are its effects on people's behavior. (21) This approach led McClelland to postulate that the achievement motive can be identified on the basis of the individual's expectation of success, provided he is personally involved in the task to be accomplished. McClelland also says that the achievement motive develops out of the expectation of success or failure based on various experiences the individual has had with the common problems of life from learning to walk to more sophisticated types of social learning.

The Social Origins of the Achievement Motive.

Drawing on the assumption that an individual's motivation is closely related to his system of values, a system which usually develops in childhood and early adolescence, and that his achievement motivation takes its main impetus from his past experience, we reach the conclusion that childhood is an important period in the formation and growth of motivation in general, and of the achievement motive in particular.

This conclusion is supported by a number of studies the most outstanding of which is Sontag's (35) which contends that the period from 6 to 10 years is crucial to the development of the achievement motive, and furthermore, that achievement themes produced at that age correlate very highly with adult achievement behavior.

Since this childhood period is so vital for the formation and growth of motivation, it seems necessary to consider the factors which play a major role in it.

Child Rearing Practices as Affecting the Development of Achievement Motivation.

The first contact a child has with his environment is his parents and more particularly his mother. In that respect, Winterbottom (22) found that a great part of a person's level of achievement can be traceable to the mother's attitude and the degree to which she and the father possessed achievement aspirations. Winterbottom went on to say that something must have happened in the family during the person's early childhood which has affected the level of the development of his achievement motives.

Some of the things likely to have occurred are differences in the procedures of toilet training and cleanliness in general. Indeed, it has been shown that mothers of high-achievers toilet-train their children at an earlier age than mothers of low achievers, and put much more stress on early observation of cleanliness. These practices

represent only a few examples; Yet they are important, in so far as they indicate that although the mothers of high achievers do not place many restrictions on their children, they expect them to abide very closely by the ones they do impose. These mothers also expect early self-reliant mastery and independent behavior in contrast to the mothers of the low achievers who submit their children to so many restrictions and to such dependence on adults for all kinds of help and behavioral guidance that they remove in them all independent initiative. (22, p. 342)

In an attempt to generalize Winterbottom's results to other cultures, Child et al (22, p. 343) found that achievement training ~~rather~~ than self reliance is ~~more~~ closely associated with later achievement fantasies. However, this does not imply that early mastery should be obtained at the expense of submitting the child to restrictiveness, authoritarianism and rejection by the parents because these factors, when coupled with undue rigidity concerning disobedience and irresponsibility, for example, have been found to result in low achievement imagery.

Also associated with low achievement imagery is the father's extreme dominance which creates low self reliance and n-achievement in the child since he senses that his father alone can make the decisions. As a result, no pressure is put on the child to work out high standards for himself. (22, p. 356)

In a nutshell, neither developing too low standards of excellence in the child by treating him with excessive indulgence, nor demanding that he performs beyond his natural capacities are adequate forms of behavior for a good development of the achievement motive. On the contrary, moderate child rearing practices in all dimensions seem to have the most beneficial effects upon achievement motivation development. Therefore, it can be concluded, that external events are of primary importance in the development of the person's motivational level, especially as they affect the family, its values and child-rearing practices. (22, 32).

Differences in Values as affecting Achievement Motivation Development.

Having shown the relevance of child rearing practices, McClelland (22, p. 337) investigated some of the other variables that might affect development in achievement motivation, for he had noticed that this phenomenon tended to show fluctuations as one examined different cultures and various strata of these societies.

The author began by attributing this change in the degree to which different cultures possessed the achievement motive to race and climate; though ultimately he discarded this line of reasoning as invalid. He argued then in terms of an environmental theory which asserts that external challenge can arouse achievement motivation, such as being discriminated against or ill-treated by others.

McClelland soon found out however, that although challenge from the environment is an extremely important element, it is not the crucial

one. To demonstrate his argument, he used two minority groups in the United States, the Jews and the Negroes and showed that while one, the jews, displayed an extremely high level of achievement, no such tendency appeared when the negroes were tested, suggesting that the initial level of possessing the motive is very significant for its later development. This conclusion is also supported by the work of French (10, p. 270) who found that the reason why individuals do not respond uniformly to arousal of their motivation largely depends upon their typical level of possessing the motive.

But together with that variable, one should not forget that the degree of challenge from the environment plays a role, in the sense that if no need of improvement in some area of life is felt, people will sink into inactivity, but if it is realized that survival is impossible without hard struggle, the achievement motive will be awakened.

As has been stressed before however, neither one of the two above described variables can be effective if the other is not also present.

Rosen (31, p. 498) and Secord and Backman (32, p. 568) carried the research further into the very heart of societies and found that significant differences existed between the various strata; thus middle and upper class children are more likely to display achievement motivation than lower class children. These differences were primarily attributed to the differences in child-rearing

whereby middle class mothers use those techniques we have seen as more conducive to the production of high achievement; there were other reasons however, among which the facts that middle class children identify with the values of their parents which are more achievement related, and experience more success in their lives than lower class children. Middle class mothers also, unlike lower class mothers, have higher levels of aspiration for their children and accordingly, teach them to believe in success and take those steps that make achievement possible such as the concept that "... Given the willingness to work hard, plan and make the proper sacrifices an individual should be able to manipulate his environment so as to ensure eventual success." (31, p. 508).

Furthermore, Kagan and Moss (14, p. 120) discovered that in the middle class families, achievement behavior is as socially valued a response for boys as for girls and is not subject to differential role standards, so one would suppose that both sexes would display equally high motivation.

Sex Differences in n-Achievement.

To check on the hypothesis that boys and girls do not show differences in their achievement related responses, Kagan and Moss carried out an experiment in which the achievement motivation of a group of boys and girls was tested. The results obtained supported the assumption: boys and girls did not differ significantly in the frequency with which achievement related responses appeared in their results (14).

This conclusion was also reached by Crandall and Katowsky who studied groups of adolescent males and females (7, p. 652).

Other studies, however, clearly pointed to the fact that girls do not react in the same way as boys do under certain testing conditions. A series of similar experiments was started by McClelland et al (22), (23) who attempted to measure the subjects' achievement motivation by presenting to them a series of cards depicting situations with male and female characters respectively. The subjects were then asked to tell imaginative stories about these cards. The cards were given under two conditions, a neutral one and an aroused one in which ego-involvement was induced in the subject by means of instructions designed to challenge his intelligence and leadership ability. McClelland's assumption in giving this test was that achievement motivation would most likely be detected by the increase in the number of achievement related responses from the neutral situation to the aroused one.

This assumption was tested with males, and, sure enough, it was found that stories written under the aroused condition showed more concern over competition and good performance than stories obtained under neutral condition (22), (24).

All other experiments in the same area yielded similar results and inconsistencies did not appear until, in an attempt to generalize their results to the population at large, the experimenters tried to apply the new procedure to women subjects.

Brown (4, p. 242) reports several studies in which stories told by women under aroused conditions did not show any increase in achievement related imagery over the stories told by the same women under neutral conditions. Veroff, Wilcox and Atkinson (37) also found that while the mean n-achievement for boys increased from the neutral to the aroused condition, no such change appears in the girls' scores. These results are further confirmed by a study done by Lesser, Krawitz and Packard (15) and by another carried out by Lindzey (16) in which he reported studies on British genius and eminent men concluding that "whatever the reasons, there are tremendous differences favoring the male in overt signs of achievement." (16, p. 103).

Although the fact that boys show in general an increase in their achievement related responses when they are intellectually aroused, and girls do not, is the major finding of the above-mentioned experiments, it cannot be considered the only possible conclusion. Indeed, if we study the results closely enough, we can observe interesting facts emerging, namely that in almost all of the above cited experiments, even though girls' responses did not show a marked increase from the neutral to the aroused situation, their scores were generally higher than those of the boys. Accordingly, Veroff et al say referring to the girl's scores that "they are generally high under both conditions" (37, p. 110).

According to Milner, (37, p. 108) this phenomenon is largely attributable to the cues of the class room situation which have been found to have a more motivating effect on girls than on boys. Milner, however, did not give the reasons for this phenomenon.

Completely reversing the situation are Angelini's studies on Brazilian university women students. In 1955, already, Angelini (11, p. 119) had obtained results pointing to a slight but not significant increase in the scores of women from the neutral to the aroused situation; the results of his 1966 experiment (1) however, clearly indicate that the achievement related responses increased significantly from the neutral to the aroused condition.

These contradictions in the results obtained when samples of different cultures are used led Angelini to assume that it is very likely that the divergencies exist in the women's different values. His argument was that in the process of overcoming the obstacles Brazilian society produces to keep these women away from the university a natural selection takes place, so that finally, only the highly intellectually oriented girls succeed in getting into college. No such thing occurs in the American society and therefore, the average American woman is not as much concerned with such high standards of excellence. (1, p. 39).

To test this assumption, an experiment was carried out in the United States at Hunter high school for intellectually gifted girls (15, p. 62). Similar results to those obtained by Angelini were expected since the women's intellectual orientation was similar.

But the hypothesis was not proved. No overall increase in achievement related responses from the neutral to the aroused condition was obtained. The experimenters, however, were still not satisfied; they subdivided their group further into two categories, a more overtly achieving category and a less overtly achieving one and found that the achieving girls did show the expected increase under aroused conditions but only to the female stimulus cards, while the underachieving girls were only aroused by the male stimulus cards. Morrison, (11) in an unpublished thesis reported in McClelland, obtained results revealing the same trend with the exception that the girls in his experiment responded equally well for both male and female cards and did not discriminate between the sexes until the aroused condition was introduced. Under that condition, male stimuli elicited significantly more imagery related to achievement.

Until now, we have seen that men consistently show increases in their scores when intellectually aroused, but no such consistency was obtained with women; they either give the same response under both conditions, or vary their responses according to the sex of the stimulus used and their own values, or display the same characteristics as men.

To account for these differences, McClelland suggested that perhaps the scoring system is not valid for women, or else, the women's scores were already too high in the neutral condition to go higher. (22)

These arguments, however, were soon discarded and a new line of reasoning emerged to the effect that in order to generalize McClelland's

method to women, a differentiation among them should be made because not all women hold the same value; hence, there are those who are more intellectually oriented, and those who prefer the role of women in the sense of valuing housewifely qualities, and those who value both goals equally. Whereas no split occurs in the achievement motive of men.

Taking the foregoing variables into consideration, French and Lesser (11) decided to test two groups of women known for their value orientations. It was postulated that the intellectually oriented group would experience arousal when intelligence and leadership ability are stressed, while the other group tending more towards the woman's role will respond only to social arousal. Furthermore, French postulated that those girls who value both goals equally will be aroused by either situation.

The experiment yielded the expected results, namely that "Female subjects who value both intellectual and female role goals will have higher achievement motivation scores when responding to male figures under intellectual arousal condition and to female figures under women's role condition. "Female subjects who value only one goal will have higher motivation scores under the appropriate arousal when they are responding to female figures" (11, p. 121).

These general inconsistencies between the results of males and of females and among females themselves must be due to some kind of difference in the orientation value and personal conception of these women about themselves and about the opposite sex. These values, furthermore have been proved to exist since evidence has shown that women divide themselves into those intellectually oriented, those women's role oriented and those who value both goals equally.

To account for these categories, the only solution is to refer to the sociological studies on women done by Mead and others which deal with differences in sex value orientation and its possible effect on achievement motivation.

Sex Differences in Value Orientation.

Mead (28) starts off by stating that we are crossing a period of discrepancy and confusion in sex roles. Little girls, she says, are no more taught that learning how to cook or perform other domestic duties is an important asset for them; rather, they are told that, in order to live properly and face the world successfully, they should learn everything their brothers learn and perform as well as they do in all fields of life. These girls end up by conceiving of themselves as as capable as men to enter all fields and therefore develop a similar character.

Soon however, another reality springs up, Margaret Mead says, that each step forward in work means a step back as a woman, and hence a dilemma faces the modern girl: She has either to show her full abilities and lose much of her status as a woman, or tend towards the woman's role at the expense of her intellectual and work aspirations, the latter being judged too aggressive and unfeminine for a woman to endorse. A last point of difficulty however, is that the woman should not show too much incompetence less she would run the risk of being judged "slow". Therefore, a girl should know how to strike a happy medium in the sense that she should show enough of her abilities to be

considered successful, but not too successful, enough ability to get and keep a job without too much commitment to it, so as to be able to leave it in case of marriage or motherhood. (28, p. 320)

This picture, Mead has sketched, applies to the American girl. However, not very much difference exists between her and the Arab university woman student except for the fact that the dilemma is greater for the Arab woman.

Women, in the Arab world, are, considered, by the will of God as delivered in the Koran, as inferior to man (12). This Moslem value has gradually spread among the other religions in this part of the world and is now shared by all. But the rule has lost much of its force especially as far as university students are concerned. These women, by proving that they are as intellectually capable as men have gradually caused the concept to crumble. But another fact still remains, namely that the primary role of the girl here, is to marry, be a good wife and give her husband many children. And therefore, girls are constantly urged by their parents to leave education for a more homely kind of life, arguing that men prefer women perhaps not very much educated but possessing the more important domestic qualities. These values have gradually been internalized by the girls and make their dilemma even stronger.

I believe that these are the main reasons which have led experimenters to come to the conclusion that girls are divided into three identifiable groups those who stick to their intellectual orientation, those who prefer their role as a woman and the ones who value both goals equally strongly.

To sum up the above arguments and findings, we come to the conclusion that male and female subjects yielded differences in achievement motivation under certain test conditions, and that contradicting results were obtained when samples of different cultures were studied. To account for these results, child rearing practices and value orientation have been used as two concepts relating directly to the development of the achievement motive.

At this point however, it becomes necessary to present in more detail McClelland's method for measuring achievement motivation which has been used widely in the reported studies, and which will be adopted in the present experiment.

CHAPTER II

The Measurement of Motivation

The method of investigation consisted of content analysis of the subject's spontaneous thoughts or fantasies. This method grew out of the knowledge that overt behavior cannot always be accepted as a safe index of the strength of a particular drive, and also of Freud's use of fantasies and free association to assess human motives. (22), (29)

Many other methods for measuring achievement motivation existed before this particular method was devised. These are the self-rating technique which require the subject to fill out a rating scale in which he estimates the strength of his own motive; and also, the rating by outside observers whereby a good acquaintance of the subject is asked to rate him on an achievement scale. (25, p. 22).

These two methods however, were discarded on the basis that they do not meet the required criteria for scientific acceptability, namely, that the method should reflect the presence or the absence of only the motive under study, its variability in strength and should give consistent results when the test is administered under similar conditions. (25, p. 30).

The method devised by McClelland, in addition to meeting these criteria, is easier to administer and does not require a special setting.

A brief sketch of the method shows that two sessions are needed: In the first session, a certain number of pictures are projected on a screen before the subject for a period of twenty seconds; the subjects are then given five minutes during which they have to write imaginative stories about these pictures.

After a period of time, the same subjects are given another session of the same test; this time, however, they are first given a series of tasks to perform instructing them that their intelligence and leadership ability were involved. In this way, arousal of achievement motivation was supposed to have taken place and therefore an increase in scores from neutral to aroused condition is predicted.

The obtained stories are then scored according to a scoring system given in Atkinson and McClelland (33) and achievement motivation of the subject is judged by the increase in the number of motive related concepts ~~they~~ shown from the neutral to the aroused situation.

At this point, three factors should be taken into consideration, namely, the interscorer reliability, the cue relevance of the picture, and the external situation.

As to the first point, experiments by Feld and Smith (9) pointed to the fact that "Conscientious use of the training procedure described in Atkinson's book will make it possible to score T.A.T. type protocols with interjudge scoring reliabilities acceptable for research purposes." (9, p. 241).

Other studies yielded results to the same effect; hence Feld and Smith (9) obtained inter judge reliabilities between .66 and .95. Reitman and Atkinson (30) also got a result of over .90, while score re-score reliability was between .88 and .97. (9)

McClelland, also, came to the conclusion that other factors besides the permanent ongoing motives influence the total motive scores; for example the cue relevance of the picture has been studied by McClelland who postulated that, pictures have to be suggestive in the sense that they should present the characters in a rather obvious work situation (3); hence, the picture of a sleeping elephant will bring out considerably fewer images of achievement than a College graduation scene, (13). McClelland summarized the cues necessary to arouse achievement by saying that they are "those which have been associated with affective changes accompanying success and failure in competing with standards of excellence." (3, p. 617)

The last factor which has been seen to affect thought samples, exists in the testing situation itself and in the cues provided by the immediate external situation such as the task instructions, the experimenter, the room used and the immediate past achievement experiences.

To sum up the foregoing, we can say that motives as measured by this test are influenced by 1) the motives existing in the subject and 2) the expectations elicited by the situational cues.

CHAPTER III

The Present Study

A. Hypotheses:

The different results obtained by the previously discussed experiments together with the variables which have been found to affect reported fantasy, led the experimenter to present the following assumptions as tentative hypotheses to be tested on a sample of Arab male and female university students.

Hypothesis I: Men value intelligence and leadership qualities, so that arousal conditions which stress these are expected to produce achievement motivation score increases.

Hypothesis II: Arab women students place value on intelligence and leadership qualities (they probably have had to overcome obstacles to get into university) as well as on women's role qualities because this is required from them by society. This will cause conflict in the achievement arousal situation especially when females are used in the pictures.

Therefore, overall achievement scores under aroused conditions will be lower than for men.

Hypothesis III: When cards with male figures only are used, there may be no conflict, and women may show the same kind of increase as men.

Hypothesis IV: Girls with dominant intellectual achievement values and girls who value both intellectual and women's role goals equally

highly, will have higher motivation scores than girls with dominant social achievement values.

B. Method:

Subjects: To test these hypotheses, fifty male and fifty female Arab college students were selected from introductory psychology classes. However, after having arranged for every two subjects of opposing sexes to match on the dimensions of age, nationality and religion, only fifty-six subjects, twenty-eight of each sex could be finally retained. A new sample of twenty-two students, fifteen males and seven females matched to twenty-two of the old group were later on added, to test a derivation of the hypotheses. (Stated in page 32).

Tests: Three tests were administered in all; two of which, the McClelland version of the T.A.T., and the arithmetic and the anagram tests were taken by all subjects irrespective of their sex, while the last test, the French Student Attitude Scale was only taken by the women subjects.

Experimental design: The experiment was carried out under two conditions, a neutral condition and an aroused condition.

In the neutral condition, the experimenter started the testing session by reading to the subjects the instructions McClelland has given for this kind of test. These are the same instructions that have been used in all the above reported experiments, and they read as follows:

"This is a test of your creative imagination. A number of pictures will be projected on the screen before you. You will have twenty seconds to look at the picture and then five minutes to make up a story about it. Notice that there is one page for each picture, the same four questions are asked:

- 1) What is happening? Who are the persons?
- 2) What has led up to the situation - that is what has happened in the past?
- 3) What is being thought - what is wanted - by whom?
- 4) What will happen? What will be done?

These questions will guide your thinking and will enable you to cover all the elements of a plot in the time allotted...

...Obviously, there are no right or wrong answers, so you may feel free to make up any kind of a story about the pictures that you choose. Try to make them vivid and dramatic for this is a test of creative imagination. Do not merely describe the picture you see. Tell a story about it..." (23, p. 403).

Six T.A.T. type cards were presented to the subjects, only two of which however, related to the achievement motive under study. The other four cards were more related to power and affiliation motives, (The presence of these cards is not related to the present experiment and therefore, are not further considered). The two achievement cards represented respectively two men (inventors) in a shop working at a machine, and two women standing by a table one of whom is working with test tubes.

According to the instructions, each of these two pictures was projected on a screen before the subjects for twenty seconds, after which five minutes were given to write the story.

The stories were then scored for achievement according to a scoring system presented by Atkinson and McClelland in their book: "Motives in fantasy, action and society." (33)

About two months later, the same fifty-eight subjects were asked to take the test again. In the new aroused session however, tests of arithmetic and anagrams were first given to the subjects. The time allowed for the completion of the tests was cut short on purpose, in order to induce in the subject a feeling of failure which have been found by McClelland (24) and Angelini (1) to be most effective in the arousal of achievement motivation.

Also to arouse the achievement motivation of the subjects, the following instructions were read to them before they started:

"The tests which you are taking directly indicate a person's general level of intelligence. ...And, in addition to that, they bring out an individual's capacity to organize material, his ability to evaluate critical situations quickly and accurately; in short, these tests demonstrate whether or not a person is suited to be a leader." (26, p: 66).

When the subjects completed the first part of the arousal testing condition, they were told that they were going to be presented with some pictures to which they had to write five minute stories (the same instructions as in the neutral condition were read to them with the only alteration that the test is one of their creative intelligence.)

Again, as in the neutral condition, the protocols were scored according to the method provided by McClelland et al. (33)

In order to test the second part of the hypothesis which seeks to differentiate between intellectually oriented girls and woman's role oriented ones, the twenty-six women subjects were given still another test, the French Student attitude scale which is "a sixty-five item true false questionnaire containing two subscales; one subscale containing 34 items measured the extent to which subjects indicated they valued various aspects of intellectual attainment, both in College and later; the other containing thirty-one items measured the value placed on various aspects of the woman's role.

Sample items from the intellectual scale are:

"...Most of the girls are really interested in taking hold of a subject and learning all they can about it."

"...Most girls' plans for after graduation include a career in which they can develop and use their talent.

Items in the woman's role scale are:

"...The girls don't spend much time talking about their boy friends or discussing dates."

"...Whether or not they know much about cooking and running a house, now, the girls expect to take pride in doing it well after marriage."

The subjects were required to mark true or false for every item.

The items avoid the necessity of choice between the two goals and it is theoretically possible to obtain maximum scores on both scales without being inconsistent.

The "most girls here" form was used to reduce defensiveness, with the assumption that the subjects would project their own attitudes. Besides, the necessary alterations and explanations in form and content were made to clarify the test to the subjects.

A series of eight questions at the end of the scale measured the degree to which the individual subject felt that the girls here were like her and shared her values. (11, p. 122)

The scales were administered to twenty-six girls and on the basis of these scores, girls were divided into those who were high on intellectual orientation, those high on woman's role orientation, and those who scored high on both subscales.

Finally, it should be mentioned, that a month after the two sessions had taken place, twenty-two new subjects, seven women and fifteen men were tested under the aroused condition only to add a further hypothesis to our study. These subjects were carefully selected so as to match twenty-two of the other group in sex, age, nationality and religion.

C. Results and Discussion:

The total achievement scores were calculated independently by two different judges and a product moment correlation was used to obtain inter-scorer reliability. The correlation coefficient yielded was .80 judged acceptable for the purpose of the experiment.

The second step involved submitting these scores to a t-test for correlated samples,* in order to see if any differences

*An analysis of variance would have been more appropriate, but since our results did not come out to be significant no further computation were carried out.

exist between the different groups tested, and within the groups themselves as they were reacting to different testing conditions and different sex stimulus cards.

Nineteen comparisons were made in order to test our hypotheses and their derivations, thus following the model used in the Hunter school experiment (15, p. 63).

The comparisons and the results are given in Table 1 [See next page].

The comparisons yield the following information about the hypotheses:

Hypothesis I: which states that arousal conditions are expected to produce motivation score increases in men, has to be discarded according to the results obtained in comparison 2 of the table. I. In fact, a close examination of the means indicates that the mean score under aroused conditions (\bar{X} : 3.9) is slightly though not significantly lower than the mean score produced under the neutral condition (\bar{X} : 4.53); therefore, the arousal condition does not produce, as in other studies the expected effect on the male subjects.

The first hypothesis having been rejected, it was argued that perhaps as in the Hunter school study (15, p. 63), further investigation of the effect of the stimulus material and testing situation can yield more meaningful results. Comparisons, 3, 4, 5 and 6 were set up for this purpose; but, as has been indicated in the above, the results revealed no significant differences leading to the conclusion

	Xn = 5	Xa = 4.81	t = 0.41	P > .05
1) All Ss Neutral vs. All Ss Aroused				
2) Neutral men vs. Aroused men	Xn = 4.53	Xa = 3.9	t = .89	P > .05
3) Neutral men (male card) vs. Aroused men (male card)	Xnm = 2.44	Xam = 1.6	t = 1.44	P > .05
4) Neutral men (female card) vs. Aroused men (female card)	Xnf = 2.22	Xaf = 2.33	t = 0.25	P > .05
5) Neutral men (male card) vs. Neutral men (female card)	Xnm = 2.44	Xnf = 2.22	t = 0.25	P > .05
6) Aroused men (male card) vs. Aroused men (female card)	Xam = 1.6	Xaf = 2.33	t = 0.99	P > .05
7) Neutral women vs. Aroused women	Xn = 5.46	Xa = 5.67	t = 0.22	P > .05
8) Neutral women (male card) vs. Aroused women (male card)	Xnm = 2.3	Xam = 2.57	t = 0.3	P > .05
9) Neutral women (female card) vs. Aroused women (female card)	Xnf = 3.21	Xaf = 3.10	t = 0.22	P > .05
10) Neutral women (male card) vs. Neutral women (female card)	Xnm = 2.3	Xnf = 3.21	t = 1.13	P > .05
11) Aroused women (male card) vs. Aroused women (female card)	Xam = 2.5	Xaf = 3.10	t = 1	P > .05
12) Compare Men Neutral vs. Women Neutral	Xm = 4.5	Xw = 5.4	t = 0.8	P > .05
13) Compare Men Aroused vs. Women Aroused	Xam = 3.9	Xaw = 5.6	t = 1.24	P > .05
14) Women high on Int. & W.R. Neutral vs. Aroused	Xm = 4.7	Xa = 5.7	t = 0.49	P > .05
15) Neutral for women (high Int.) vs. Neutral women (high W.R.)	Xi = 5.77	Xwr = 5.55	t = 0.29	P > .05
16) Aroused for women (high Int.) vs. Aroused for women (high W.R.)	Xi = 5.55	Xwr = 5.55	t = 0.15	P > .05
17) Compare New group (Men & Women) aroused vs. old group (Men & Women)	Xn' = 4.54	Xao = 2.5	t = 2.11	P < .05
18) Neutral for women (old group) vs. Aroused for women (new group)	Xn' = 4.85	Xao = 2.42	t = 1.21	P > .05
19) Neutral for men (old group) vs. Aroused for men (new group)	Xn' = 4.4	Xao = 2.53	t = 1.69	P > .05

n: neutral - a: aroused - m: male card - f: female - i: intellectual - wr: woman role - n': new group
o: old group.

that male and female pictures elicit in the Arab male subject the same achievement related thoughts under both neutral and aroused conditions.

However, one cannot help pointing out some perplexing trends such as the fact that ^{the} means of men for male cards tend to decrease as the subjects change from the neutral, (\bar{X} : 2.44) to the aroused situation, (\bar{X} : 1.6) while no such tendency occurs with the female cards (neutral \bar{X} : 2.22; aroused \bar{X} : 2.33).

Hypotheses II and III which state respectively that women's overall achievement scores will be lower than those of men, but that when male cards only are presented, the increase might be the same as for men, have also not been supported as indicated by comparisons 7 and 13.

Hence in comparison 13, where the women's aroused scores were compared with the men's, the means were 5.6 and 3.9 in favor of the women; this result points to the exact opposite of our hypothesis, but the t-test showing no difference, no solid basis is offered for further argument. In comparison 7, the experimenter wanted to see if some kind of arousal occurs in the women's scores under the aroused condition, or, if like men, they would produce results pointing in the opposite direction. Therefore, scores of women under neutral and under aroused conditions were compared. The difference was again not significant; however, it

indicated a slight increase as revealed by means of 5.46 under the neutral condition and 5.67 under the aroused condition.

These results having proved to be so insignificant, it was decided to follow the model set in the Hunter study (15, p. 63), and previously used for further testing of hypothesis I. According to that model, subdivisions were made as to the sex of the picture and the different testing situations used. Comparisons, 8, 9, 10 and 11 were set up to this effect. But still, no significant differences between the various conditions were found. An examination of the means, however, points to the fact, that as insignificant as these results may be, the changes in the scores between the two testing conditions and the different sex cards are in the expected direction; moreover, it can also be noticed that women tend to produce more achievement related imagery for the female picture than for the male picture under both neutral and aroused conditions.

These results have been inferred from such means as:

- 1) 2.3 and 2.57 for women's responses to male cards under respectively neutral and aroused conditions.
- 2) 3.21 and 3.10 for female responses to female cards under neutral and aroused condition respectively. [Here, it should be pointed out that although in 2 above the mean score does not increase from the neutral to the aroused condition as in 1 but in general the scores under both conditions to female cards are higher].
- 3) 2.57 and 3.10 for women's responses under aroused condition to male cards and female cards respectively.
- 4) 2.3 and 3.21 for women under neutral conditions for male card and female card respectively.

Hypothesis IV: is to the effect that girls more intellectually oriented will have higher scores under the aroused condition than those with dominant woman's role values.

This hypothesis was mainly derived from French's study (1) and following the model set by this study, French's Attitude Student Scale was administered to the female subjects. The means of the results and their standard deviations were calculated thus making it possible to classify the subjects into three different categories. The intellectually oriented ones, those who tend more towards the woman's role and the ones who value both goals equally. However, these categories were very small, due the original number of the female group.

To test the hypothesis, it was therefore decided to compare the stories produced by these different categories of women, arguing that the woman's role oriented girls might not show the expected increase, evidence having pointed to the fact that social arousal is more effective with them. The hypothesis however, was not sustained, the intellectually oriented girls did not show in any way, that the intellectual arousal instructions were more effective with them than with the women's role oriented girls. Moreover, examination of the means did not reveal the slightest difference except for the girls who value both goals equally and are supposed, according to French (11), to get aroused by either kind of arousal, the intellectual or the social. These girls had a mean

of 4.7 under the neutral condition and of 5.7 under the aroused condition. (But still, the ^{difference} t was not significant and therefore, no further comments can be made.)

Although these results are very perplexing, in the sense that they contradict the results of all the above reported studies, they did not surprise the experimenter. Indeed, just reading the stories, indicated which two were produced by the same subject, and no distinction could be made between the story told under the aroused condition and the one told under the neutral condition, because of their extreme similarity both in form and content.

The above mentioned fact was attributed to the interval of time between the two sessions which was judged not to be long enough and therefore subjects ~~will~~ remembered what they had written on the first occasion. To control for this factor, a new group of matched subjects was selected and given the test under the aroused condition only.

Comparisons 17, 18 and 19 indicate how the new group compares with the old one. Significant differences were obtained between the two groups, showing however, the direct opposite of our expectations (that the new group under aroused situation would score higher than the old group under the neutral situation). This can be inferred from means of 2.5 for the new group under aroused condition and 5.54 for the old group under neutral condition.

The same trend as above, was obtained when the male and female subjects were treated independently. The reason for this last result, the experimenter assumes, is due to the fact that the testing conditions for the new group were not as stringent as one could have wished for, since the subjects had to take the test in small groups and suitable times.

D. Conclusion and Recommendations

However, without further speculations about results shown not to be significant, let us consider possible factors which might have produced the differences between the results of this study and those carried out in other cultures. These differences can be summed up as follows:

- 1) That male and female Arab students do not differ in n-achievement under neutral condition ($\bar{X}_m: 4.53; \bar{X}_f: 5.46; t: 0.8; P .05$). Moreover, the average n-achievement score of these students are lower than those obtained in other cultures such as the Brazilian, for example. the mean obtained under neutral conditions for males in Brazil was 6.43 vs. 9.73 for the aroused condition (1, p. 37). The mean scores for the Arab male students on the other hand are respectively 4.53 and 3.9 for neutral and aroused conditions. As for women, Angelini obtains mean scores of 7.55 and 11.05 under the neutral and aroused conditions respectively (1, p. 37) while our results are 5.46 and 5.67 for the same conditions (N of Ss in Angelini's study = 30 Males, 30 Females).
- 2) That n-achievement scores do not increase under arousal conditions in the manner they do for subjects of other studies (refer to the above-reported results).
- 3) That male and female cards seem to have the same effect on women and on men subjects under both aroused and neutral conditions.

Many reasons can be suggested to explain these conclusions, some of which are that religious and child rearing practices in this culture de-emphasize achievement training, and that it is highly probable that achievement motivation is more fully expressed in overt activity such as great competition for grades, rather than in fantasy. On the other hand, it might be argued that the arousal conditions may not be applicable in this culture, in the sense that our Arab subjects, as found by Melikian through verbal reports expressed in clinical sessions, are not too concerned with comparisons with other cultural groups; and, moreover, the values linked to achievement motivation seem to tend more towards the concrete which lead us to believe that arousal might have been more intense had actual grades been involved.

These conclusions are partly drawn from the discrepancies which have been noticed to exist between the students' scholastic average grades and their n-achievement scores. In fact, some of the most brilliant students produce the worst scores on our test thus suggesting that since their grades are not involved, there was no reason for them to do well. Another observation to the same effect is that the subjects often asked whether the test is going to have any bearing on their grades, and acted uneasy and worried until they were reassured that the test had nothing to do with their scholastic evaluation.

*Personal communication.

The above mentioned reasons are mere observations in the testing sessions; more solid bases for argument, however, are offered by Prothro (38) in his book on "Child-Rearing Practices in the Lebanon" in which he demonstrates that there is a difference in the achievement of children according to the religious group to which they belong. Hence, the Christian Orthodox group produces a greater number of high achievers because, in general, mothers belonging to this group, emphasize discussion and reasoning, a type of discipline which places responsibility on the child; these mothers also expect from their children early independence of a competitive and achieving sort. Sunni mothers on the other hand, are characterized by either too early or too late expectations of independence, and therefore, one would expect to find less achievement need in this category, and at least half our ^{subjects} were Moslems.

However, Prothro also concludes that, Arab mothers in general are permissive of dependency in children and sometimes, even, seem to encourage it. On the other hand, and more related to a previous section on the differences in sex value orientation, is the finding that Arab mothers, in describing their hopes for the future for their children speak more of marriage for the girls and education and employment for boys. Those findings may account for:

- 1) The general low scores, and
- 2) The fact that no differences were found between the scores of intellectually oriented and woman's role oriented girls.

According to the above mentioned information, the experimenter believes that much more meaningful results would be obtained by further research, if some of the influencing variables are brought under control. Hence, similarity as to religious affiliation, in bringing together subjects supposed to have had similar child-rearing and expected to share common values, will bring more unity into the groups tested and thus enable us to obtain more meaningful results.

On the other hand, it also seems advisable that the period between the neutral testing session and the aroused one be a little longer, so as to give the subjects enough time to forget what they had already written and thus let them think in terms of new standards.

Finally, as has already been suggested, the arousal instructions are expected to produce the predicted effects on the students only if they challenge the values which affect them most, in this case, their grades and scholastic achievement in general.

The above-mentioned suggestions namely, the control of the religious groups, the interval between the testing situations and the kind of arousal instructions are believed will facilitate further research in the same area.

CHAPTER IV

Summary

Evidence has shown that the achievement motive scores of male subjects tested under aroused conditions are generally higher than the scores obtained under neutral conditions; but that this increase does not hold in the case of female subjects.

The present study is an attempt to find out if these results apply to the Arab population as represented by students at the American University of Beirut.

McClelland's method for measuring achievement motivation was used to carry out the experiment. This method involved two sessions each of which consisted of presenting the fifty-eight matched subjects of this experiment, with two cards to which they had to write five minute stories. The first session was a neutral condition where only the McClelland test was given, while the second session was made up of two parts: Tests of arithmetic and anagrams were first given to the subjects with a special set of instructions in order to challenge their intelligence and leadership ability, after which the main test was administered. According to the hypotheses, the second session was expected to yield higher achievement scores than the neutral condition.

The French Attitude Student Scale was then given to the female subjects to distinguish between those girls who are intellectually oriented, those who prefer the woman's role values and

finally the ones who value both roles equally.

The results of these tests were then analyzed in terms of the several hypotheses. The hypotheses which were to the effect that men subjects would show an increase in their achievement scores as they changed from a neutral condition to an aroused one but that women subjects would not, except when faced with a male stimulus card were not borne out. Also rejected, was the hypothesis that the more intellectually oriented girls would show more arousal than the woman's role oriented ones.

To account for the results, child-rearing practices and general religious and scholastic values of the subjects were invoked. Finally, a few suggestions were made for further investigation in the same area.

SCORES OF GIRLS UNDER NEUTRAL AND AROUSED TESTING SESSIONS

Number	Age	Religion	Nationality	Ach. Score	
				N.	A.
1)	21	Moslim	Adeny	6	8
2)	19 2/12	Christian	Lebanese	2	6
3)	19 3/12	Christian	Lebanese	6	7
4)	17 6/12	Christian	Lebanese	11	10
5)	18 10/12	Moslem	Lebanese	5	-1
6)	21 3/12	Moslem	Iranian	10	7
7)	17 8/12	Christian	Lebanese	0	-2
8)	19 3/12	Moslem	Lebanese	3	3
9)	18 1/12	Moslem	Syrian	9	12
10)	20 6/12	Christian	Lebanese	13	11
11)	18 6/12	Christian	Lebanese	6	3
12)	18 7/12	Christian	Lebanese	3	8
13)	19 8/12	Christian	Palestinian	0	0
14)	20	Christian	Palestinian	0	3
15)	18 10/12	Christian	Lebanese	6	9
16)	18 8/12	Christian	Jordanian	1	4
17)	18 10/12	Christian	Lebanese	11	6
18)	18	Christian	Lebanese	0	0
19)	19	Christian	Lebanese	6	3
20)	20	Christian	Lebanese	3	0
21)	18	Moslem	Jordanian	5	10
22)	20	Christian	Syrian	12	12
23)	21	Moslem	Lebanese	10	9
24)	22	Christian	Lebanese	7	3
25)	22	Christian	Lebanese	8	6
26)	22	Christian	Lebanese	0	8
27)	21	Moslem	Jordanian	-1	4
28)	21	Moslem	Jordanian	11	10

FEMALE SUBJECT SCORES FOR MALE & FEMALE PICTURES UNDER
NEUTRAL AND AROUSED CONDITION

FEMALE'S SCORES ON
THE FRENCH'S ATTITUDE
STUDENT SCALE

<u>NAME</u>	<u>NEUTRAL</u>		<u>AROUSED</u>		<u>INT. ACH.</u>	<u>W.R.</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>			
1)	6	0	4	5	18	20	3
2)	0	0	0	0	18	11	
3)	0	1	5	-1	11	15	3
4)	-1	1	-1	-1	24	14	5
5)	3	-1	5	1	16	14	6
6)	0	0	4	-1	17	15	4
7)	7	4	4	2	17	12	7
8)	5	8	5	6	9	27	0
9)	0	5	0	-1	19	21	6
10)	6	5	4	6	1	25	6
11)	4	2	3	4	18	10	2
12)	4	6	3	4			
13)	0	0	0	0	11	14	7
14)	4	2	0	3	11	19	2
15)	4	5	7	5	19	13	1
16)	0	3	3	5	13	21	7
17)	0	6	3	5	12	16	2
18)	-1	4	-1	4	16	22	7
19)	5	5	4	5	18	19	7
20)	-1	8	-1	4	7	22	4
21)	4	4	3	3	15	17	5
22)	0	5	3	5	12	23	5
23)	-1	0	-1	5	6	24	3
24)	-5	6	-5	5	18	21	5
25)	6	0	0	3	16	16	7
26)	3	0	0	0	5	16	4
27)	5	7	5	7			
28)	1	4	6	4	19	21	6

Total:	366	468
N. :	26	26
\bar{X} . :	14	18
S.D. :	5.3	2.15

SCORES OF BOYS UNDER NEUTRAL AND AROUSED TESTING SESSIONS

<u>Number</u>	<u>Age</u>	<u>Religion</u>	<u>Nationality</u>	<u>Ach. Score</u>	
				<u>N.</u>	<u>A.</u>
1)	21	Moslem	Adeni	8	9
2)	19	Christian	Lebanese	2	3
3)	19	Christian	Lebanese	0	0
4)	18	Christian	Lebanese	8	3
5)	20	Moslem	Lebanese	4	4
6)	21	Moslem	Iranian	2	4
7)	18 9/12	Christian	Lebanese	7	5
8)	20	Moslem	Lebanese	4	4
9)	19 1/12	Moslem	Lebanese	9	5
10)	20	Christian	Lebanese	4	0
11)	18 8/12	Christian	Lebanese	8	7
12)	19	Christian	Lebanese	0	4
13)	18 4/12	Christian	Palestinian	10	5
14)	20	Christian	Lebanese	11	0
15)	18 9/12	Christian	Lebanese	4	2
16)	19	Christian	Lebanese	5	6
17)	18 7/12	Christian	Lebanese	-1	-2
18)	19	Christian	Lebanese	4	6
19)	19 6/12	Christian	Lebanese	4	6
20)	19 10/12	Christian	Lebanese	8	9
21)	20	Moslem	Jordanian	111	4
22)	22	Christian	Syrian	0	4
23)	21 4/12	Moslem	Lebanese	6	8
24)	20 5/12	Christian	Lebanese	4	6
25)	23	Christian	Lebanese	-1	0
26)	19 11/12	Christian	Lebanese	3	3
27)	20	Moslem	Jordanian	3	0
28)	22	Moslem	Jordanian	0	5

MEN'S NEUTRAL AND AROUSED SCORES FOR MALE AND FEMALE CARDS

	<u>Neutral</u>		<u>Aroused</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
1)	4	4	4	5
2)	0	2	0	3
3)	0	0	0	0
4)	4	4	0	3
5)	4	0	0	4
6)	0	2	0	4
7)	3	4	0	5
8)	4	5	0	5
9)	0	4	0	0
10)	4	4	3	4
11)	0	0	0	4
12)	4	6	0	5
13)	6	5	0	0
14)	4	0	2	0
15)	5	0	6	0
16)	0	-1	-1	-1
17)	4	0	0	6
18)	4	0	3	3
19)	3	5	5	4
20)	6	5	-1	5
21)	0	0	4	0
22)	3	3	4	4
23)	4	0	6	0
24)	0	-1	0	0
25)	0	3	3	0
26)	0	3	0	0
27)	0	0	5	0

NEW SCORES OF THE FEMALE SUBJECTS
(new groups) under aroused situation

<u>Number</u>	<u>Aroused</u>
1)	-2
2)	5
3)	0
4)	6
5)	4
6)	5
7)	-1

NEW SCORES OF THE MALE SUBJECTS
(new groups) under aroused situation

1)	4
2)	0
3)	0
4)	8
5)	0
6)	4
7)	3
8)	2
9)	0
10)	5
11)	8
12)	0
13)	3
14)	-2
15)	3

SAMPLE OF STORIES TOLD UNDER NEUTRAL AND AROUSED CONDITIONS

BY A SUBJECT AND HIS MATCH

Subject A. Neutral condition (Picture: The inventors)

Two carpenters are trying to finish a job on the machine. Carpenter X is tired and feels hot. Carpenter Y is busy. The job seems to be a table.

The wood was cut by a fellow named woodcutter. He sold the chopped wood to Carpenter X.

X thought that this wood would be good for making a table. He discussed his project with Y, and Y seemed to approve.

X and Y started on the project, they are about to finish the table. They will probably sell it in the carpenter's "souk" at a good profit.

Subject A. Neutral condition (Picture: Women in a Laboratory)

Miss Kasparian is watching Suha getting few drops of a solution by means of a burette test tube.

Students were used to get their solution by pouring the bottle into their test tubes, thus making the solution dirty. This led Miss Kasparian to watch every student when he wants to get his solution. Suha is very careful in her operation. She fears that if she makes a mistake, she will have a (-5) on her lab. report.

Eventually, Suha will obtain her solution properly as well as other students, which will lead Miss Kasparian to stop watching the operations.

Subject A. Aroused condition (inventors)

Harry is blaming little Joe for his inability to do any job, "You are not fit to be a mechanic" said Harry. "You have broken the machine for the second time.

Poor little Joe tried last week to run the machine alone. He, however, could not run it, and obviously broke it.

Harry wants to fire little Joe, but he has not the heart to tell him. So he satisfied himself by just blaming him all the time.

Little Joe will become so bored with Harry's blaming all the time that he will fire himself out of the work at the end. This is the ultimate hope of Harry.

Subject A. Aroused condition (Women working with tubes)

Watch it Suha! Miss Kasparian is behind you looking for one mistake to catch you in and to lower your grade.

Miss Kasparian, although a loving teacher, is very strict in the laboratory. Last year, she tried to be mild, but this led up to a great mess in the lab.

Suha is taking the solution carefully. Her average in chemistry cannot suffer any more push downs.

Suha will try her best to accomplish the lab. with no mistakes. She may even ask the help of her neighbour in order not to face Miss Kasparian's abuse of her report.

Subject A'. (Matched with subject A) Aroused situation (inventors)

Probably a war had been taken place, because the working place was not in its proper state.

The master of the job is working to prepare something for the man who is waiting. But it seems that he has not finished it, because the waiter is angry.

Probably if the master do not want to agree.

Subject A'. (Matched with subject A) Aroused situation (women with test tube)

A girl student is experimenting something in the laboratory, and her teacher is watching it. Probably, the girl is giving a laboratory test.

The student has been absent during a class, and now the teacher is watching how would the girl do her test.

The student wants to find and what will be the result of her experiment and the teacher too is waiting for the result of it. The later is waiting to grade her.

After finishing her test, the teacher will study it and grade her work.

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