

# HOW to STUDY EFFECTIVELY

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BY

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## INTRODUCTORY

Not long ago I was asked by a group of high-school students to present to them some suggestions on the technique of studying, with the idea that better knowledge of the methods by which school work could be prepared might increase their efficiency as students. A survey of the available literature seemed to warrant the conclusion that, despite the existence of a number of books upon the art of study, there was still room for another treatment that should be limited to the direct laying down of a series of rules or maxims, with just sufficient explanatory comment to make them readily intelligible and serviceable for the needs of the average high-school or college student. I judge that many students in our high schools and colleges are not now working under the best possible conditions, and that they would be glad to increase their efficiency, if only they knew how to do it. The rules which follow are intended to help these students. Most of the suggestions could also be profitably kept in mind by elementary-school teachers, whose business it should be as early as possible to develop right habits of study in their pupils.

While it is true that much of what is presented in the school is calculated to appeal directly to the native interests of students, to elicit their curiosity, and to challenge their attention, it is equally true that most studying is real work, and that most boys and girls have to acquire the art of studying as they have to acquire many other habits and skills necessary to success in life. Moreover, conditions in many elementary schools are unfortunately such as to promote only the most superficial kind of studying, to put a premium upon the mere committing to memory of words, to permit fickle and ill-sustained attention and the avoidance of hard intellectual work. Students in both high school and college have been studying, it is true, for years, but too often they have not been studying efficiently, have not formed right habits of mental work, and indeed, do not even know how to go about the development of an adequate method or plan for such work. They are often unable to recognize as such the problems set before them, nor do they have clear ideas as to the methods by which problems should be solved. Neither do they know fully how to deal with those 'lessons' that must be 'learned' more or less verbatim. For by 'studying' I mean to include the 'getting of lessons,' like learning a list of words in spelling, as well as studying in the sense of solving problems and making an investigatory examination and critical survey of a topic.

In what follows I propose no universal remedy for these ills. The fundamental differences between

stupid children and bright children will remain whether they are taught to study or not. No scheme of instruction will bring all students to the same level of proficiency. But the proficiency of each student may be increased by teaching him to use more skillfully what brains he has. Thus, Breslich\*, for example, shows that a weak section studying only at school, but under careful supervision, may be brought up to the performance of a strong section allowed to study at school without supervision, plus an hour and a quarter a day at home. Granting that these results are typical, how much time must have been wasted in the studying of the strong pupils?

Efficiency is the watch-word of modern industrial life. The school, after all, is a sort of brain factory. Its material is found in the subject-matter of the various studies and in the mental operations of its students. Studying is the method by which subject-matter is converted into ideas that shall be effective in the subsequent life of the students and by which at the same time the mental capacities of the students shall be drilled and trained. It is safe to say that failure to guide and direct study is the weak point in the whole educational machine. There is more than a fanciful analogy in the parallel between scientific management in modern industry and control of the technique of study in the modern school. The elimination of 'waste motion' in the

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\*See *Suggestions For Further Reading*, appended to the text, for references to books and articles dealing with studying.

factory must be paralleled by the elimination of 'waste motion' in the school. The chief source of this waste lies in the process of studying.

## THE RULES

### 1. Keep yourself in good physical condition.

Your mental efficiency depends on the efficiency of your central nervous system. This system suffers like any other part of your body from inadequate exercise, insufficient sleep, ill-digested food, or confinement in ill-ventilated rooms.

**Sleep.** More students sleep too little than sleep too much. From the averages of the six best authorities we may recommend the following duration of sleep:

Age	6	7	8	9	10	11	12	13	14	15	16	17
Hours	12.3	11.5	11.2	11.0	10.5	10.2	9.8	9.6	9.25	9.0	8.75	8.5

**Exercise.** Remember that exercise, particularly in the form of outdoor recreation and games, is valuable not merely for requiring strength, and skill, but also for stimulating the digestive, circulatory, and excretory systems of the body to the more active supplying of nutrition and removal of waste products. Further, that exercise carried on under pleasant auspices affords a useful antidote for mental weariness and monotony.

2. Attend to, remove or treat physical defects that often handicap mental activity, such as defective eyesight, defective hearing, defective teeth, adenoids, obstructed nasal breathing.

**Vision:** Thirty per cent. of school children have defective vision. In high school and college the percentage is larger. Consult a competent oculist if you have difficulty in seeing clearly objects at a distance (like writing on the blackboard) or if you experience, eye ache, twitching of the eyelids, inflamed lids, headache, nervous irritability, nervous dyspepsia and similar symptoms of eye-strain, after use of the eyes at close range, even though you see the printed page quite clearly.

**Defective teeth** seriously affect the work of students, because (a) the mastication of food is inadequate; (b) the neglected cavities afford a breeding ground for scores of varieties of bacteria (including the germs of serious infectious diseases, like diphtheria and tuberculosis); (c) the pus which develops often finds its way into the blood and alimentary canal and thus pours into the body millions of noxious germs and produces general bodily ailments, like intestinal catarrh, anemia, lowered vitality and other general disturbances which appear to be in no way connected with the local disturbances in the teeth; (d) the pain of toothache acts directly to distract attention and indirectly to induce various reflex nervous irritations. When we consider that one or more defective teeth are found in 90 per cent. of school children, the total loss of efficiency in school work attributable to this single cause is truly startling.

**Adenoids** are enlargements of spongy tissue in the upper part of the throat just where the nasal

passages open into it. They are found in some ten per cent. of school children, particularly of children from 3 to 16 years of age. They interfere with breathing, clog the Eustachian tube and thus induce hardness of hearing, mouth-breathing, snoring, projecting teeth, stunted bodily growth and imperfect development of the bones of the nose and jaw. In some persons they cause a peculiar sort of mental sluggishness, or stupidity, with inability to control and direct attention for long to a difficult mental task. They can be removed by a relatively simple operation and with marvelously beneficial results to both mind and body.

**3. See that external conditions of work—light, temperature, humidity, clothing, chair, desk, etc., are favorable to study.**

A quiet place for work that shall be reasonably free from interruption and from distracting conversation is greatly to be desired. Too many students have to do their home work under conditions that are far from ideal. Study, at least when it is begun, demands active attention. In order to get attention upon work, it must be withdrawn from other matters. Every happening in the room in which you are working makes a claim for your attention. A portion of the energy you exert in attending to your work has to be expended to shut out these distracting claims. Clearly, then, if you can work in a room in which these outside appeals are reduced to the minimum, you will gain that more energy to devote to your tasks.

As you get older, your capacity to direct all your energies upon your mental work, even against distraction, ought to increase. A profound philosopher in the midst of his meditations would never notice the little noises and movements that immediately distract the attention of the kindergarten child. However, the difference between the child and the philosopher is largely one of degree—of how much gunpowder, as some one has expressed it, would have to be exploded under his chair to wreck his train of thought. This getting used to distractions is a good thing to acquire, but still there are usually enough of them without deliberately placing yourself in conditions that will increase their number.

**Light** should never shine directly into your eyes. Don't face a window or brightly lighted wall. Don't let an artificial light hang in the immediate range of your eyes unless they are protected by an eye-shade or by a suitable shade on the lamp. Nor should the illumination be so directed as to be reflected directly from paper or books into your eyes. The direction of illumination should be predominantly from above and for desk work from a point to the front of, and to the left of, your body, in order that shadows shall not be cast on your work by your head or by your hand (in right-handed persons). For reading, when the book is held in the hands, the light may be placed above and somewhat behind, whether on the right or left is then indifferent. An ideal illumination for **desk work at night** may be secured by a single small

electric lamp (perhaps 8 candle-power) under an opaque reflector, arranged to flood the desk with light, but to be itself invisible to your eye. The cutting off of illumination from the remainder of the room is restful and assists, by lessening distractions, in concentrating attention upon the work before you.

A **temperature** between 65 and 68 degrees is conceded to be favorable to most workers. Beyond 70 degrees, particularly under artificial heating, flushing of the face, headache and other signs of discomfort are apt to appear. This discomfort is usually more a consequence of low **humidity** than of high temperature. In the winter, therefore, any sort of device that will add moisture to the air (evaporation from pans of water over furnace or on steam or hot-water radiators, etc.) will lessen the dryness of the indoor air (often exceeding that of the Desert of Sahara) and comfort the skin and mucous membranes of the body. Recent experimental studies show also that the keeping of air in motion by fans will remove the discomfort felt in ill-ventilated rooms to an extent not usually dreamed of.

**Tight clothing**, particularly tight neckwear, interferes with mental work directly by its discomfort and indirectly by impeding respiration and circulation. A tight collar checks the flow of venous blood from the head and tends toward flushing the face and increasing blood pressure in the eyes and the brain.

**The study desk and chair** should be of a height to fit your needs. Too low a desk encourages stoop-shoulders, a contracted chest and a congested head. Too high a desk is uncomfortable for your arms and brings the work too near your eyes. A little experimenting, especially with the height of the chair relative to the desk, will often make a wonderful difference in the comfort with which study can proceed.

The **equipment** of your desk should be such as to bring the various 'tools' of study conveniently before you. Have these 'tools' of study (pencils, erasers, ruler, pen and ink, blotters, dictionaries, drawing sets, pads of paper and the like) in good condition and so placed as to be at hand when wanted, but out of the way when not wanted. High-school and college students who can afford it ought to buy a typewriter, have a simple stand for it, and do as much of their work as possible upon it. A rack that will hold heavy books, like dictionaries used in translation work, at a reading angle of 45 degrees is another useful desk device.

#### 4. Form a place-study habit.

Have a particular place—a particular desk, a particular chair—at which you study. Do your studying there unless special conditions warrant doing it elsewhere. At least, don't permit yourself to do anything but work at this particular place. Don't ever loaf or read novels or newspapers in the chair dedicated to study. This advice may strike

you as a bit far-fetched. By no means. Once get this place-study habit formed and you have only to take your place to start up the studying attitude.

### 5. Form a time-study habit.

When school work follows a regular schedule there can be discovered a natural schedule for studying. For most persons there is a real advantage in doing mental work by schedule, in setting aside given periods for study and in following this schedule rather closely. For one thing, you are not likely then to get behind in your work. And again, a tendency appears to be developed in the nervous system of turning to mental work at times ingrained by habit.

Whether this time-study habit should be more *specific*, so that a particular subject is studied at a given day and hour (geometry, daily at 11; Latin, Monday, Wednesday and Friday at 8 p. m.) is open to question. I doubt that the nervous system can be trained to habits of working with particular subjects at particular hours. However, many students are convinced that such a plan is valuable because of the advantages of pursuing daily work methodically, of laying out a program and sticking to it.

Whether, again, different people are by nature so constituted as in general to do mental work best at different portions of the day, so that A is a "morning worker," B an "afternoon worker," C an "evening worker," is also open to question. Habit would appear to play a considerable role here. I think that

most evening workers could become morning workers if they had to. Several of the writer's friends think they do creative and constructive work better late in the evening and 'hack' work better in the day time. By preference they would write an essay at night and revise it in the morning.

**6. When possible prepare the advance assignments in a given subject directly after the day's recitation in it.**

This is a special case under Rule 5: "Form a time-study habit." The reasons for it are these: (a) The mind is 'set' or 'tuned up' for the particular subject; there is a special fitness for work in physiology or history or whatever the work may have been, and this 'swing' should be utilized.\* (b) The assignment for the work to follow is fresh in mind. (c) The study of a given topic is separated from the recitation on that topic by an interval—probably twenty-three hours or more. As is explained below (Rule 25) two impressions of a given material are more effective for permanent memory when separated by an interval. It follows that the transposed order—study x, then at once recite x, which is so much favored by students on account of the benefit of 'recency'—cannot be recommended for the best permanent results.

**7. Begin work promptly.**

Observation of high-school students† shows that

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\*There is little danger of loss of 'swing' through being bored. The actual material studied will be different from that dealt with in the recitation.

†See Breslich, Reference 1, page 105.

even when they know that only a short period is available for studying a given lesson, nearly every one is slow to start. Some of them take ten or fifteen minutes to go through the motions of getting started. Here is a woeful waste of time. Get before yourself the ideal of a quick 'get-away.' Reduce your starting time from minutes to seconds. One help to this is to:

**8. Take on the attitude of attention.**

Get your materials laid out before you. Take your pen or pencil. Sit up straight. Open your book. Carry out all the 'motions' of getting to work. If you have drilled yourself well, this will be enough to start you to work. The beginning is often the hardest point; once begun, you can keep on without much effort.

**9. Work intensely while you work: Concentrate.**

You are not likely to remember what you deal with half-heartedly. Vivid impressions are most lasting. Ideas flow most rapidly when you work 'at white heat.' Put as much 'steam' into your work as into your play. Don't dawdle. When E. B. Andrews was President of Brown University he used one phrase in his Chapel prayers that might well voice the attitude of all good students: "Help us to apply ourselves with unremitting assiduity." Note, too, that this means be attentive in class as well as in your home work.

**10. But don't let intense application become fluster or worry.**

You can be intent without being anxious, earnest without being flustered. There is a kind of hurry that "defeats its own end." In especial, don't worry because you can't keep pace with the best student in your class. No two of us are alike. Do your best and admit your limitations if others learn faster, recite more readily and secure higher marks.

**11. Do your work with the intent to learn and to remember.**

Laboratory experiments with memorizing under different conditions show very clearly that one of the most important conditions of good memory is the taking of the attitude of 'intent to remember' when the materials to be learned are presented. Closely allied with this is the attitude of 'confidence' in one's ability to remember what one is learning. An illustration may be seen in the following incident. I once had occasion to read aloud a list of words to a student enough times so that he could recite them correctly. I repeated the process with a second and with a third student. I then discovered to my amazement that I was unable to recite the list by heart myself. Here not only the most charitable, but also the psychologically correct explanation, is that I never *intended* to learn the list myself. I had repeated it mechanically and not in the memorizing attitude.

**12. Seek a motive or, better, several motives.**

Some school subjects are intrinsically interesting. You would rather study them than not. Without