LITTLE OR NO ATTENTION IS GIVEN TO THE LEARNER'S WELL-BEING, A FACTOR WHICH MAY CONTRIBUTE TO LEARNING PERFORMANCE.

INTEGRATING WELLNESS INTO LEARNING

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Most of the literature of instructional technology focuses on learning systems, instructional methodology or on instructional media, but very little has been written about the *wellness* of the learner. Some approaches to learning systems describe the learner as an integral part of the system. These descriptions almost always view the learner in terms of readiness to engage in the learning process based upon some form of an appraisal of his or her background or test scores by which it may be possible to determine the point of entry into the learning system. Other systems may use some type of performance on a test or in a simulated job environment to measure progress and to determine when the learner is ready to leave the instructional system.

Most learning systems assume that the learner will be functioning at the peak level of performance or somewhere near this peak as he or she interacts with the instructional system. When this does not occur, such systems treat the event as an exception and provide for remedial instruction, branching of the instruction by breaking the subject matter into smaller, more manageable segments, or by providing counseling.

The more sophisticated learning systems will try to enhance the learner's performance by producing ideal conditions of light, atmosphere and visual and physical comfort. But little or no attention is given to the learner's "wellness" or well-being factors which may contribute to learning performance. These wellness factors deal with the physical and mental physical self and include using the mind constructively, channeling stress energies positively and enhancing performance through balanced nutrition and physical fitness.

In fact, some of the most advanced environmental engineering accomplishments in which the learner is confronted with an ideal combination of light, a controlled climate and the utmost in physical comfort may be neutralized by an instructor whose teaching practices stress a student to the point of interfering with his or her learning.

Most learning experiences tend to be unintentionally inconsiderate of the students by ignoring a growing body of literature which has identified a number of factors which contribute to body dysfunctions which, in turn, impair performance in a learning situation. The three major elements which contribute to less than maximum performance are emotional stress, nutritional imbalances and the inability to convert oxygen at the necessary vitality levels. These factors may be beyond the control of the learning experience planner because the trainee has already been exposed to them for so long that he or she enters the learning experience with an already impaired performance potential and with a predisposition to continue the same habits.

Everybody is exposed to stress, bad nutrition and lack of physical fitness and there are different tolerance levels which determine the point at which performance may be affected. This makes it unlikely that a learning experience can be

individualized to the extent that it would provide for all of these individual differences. However, the day may not be far off when an individual can attach a sensing device to his or her body. The device, hooked up at the other end to a microprocessor, would read such "body language" as pulse rate, body temperature, blood pressure, brain wave activity, etc. and furnish an instant printout of all the behaviors needed that day for maximum performance, including a recommended menu, an exercise program, a meditation exercise, subject matter most easily learned for the day, how it should be learned as well as when it can best be learned. The technology for such a personalized program already exists.

While there is little that the instructional designer can do about the physical and mental qualities the learner may bring to the learning situation, he or she can become aware of the lifestyles that may contribute to less than maximum performance and can ultimately lead to decreased resistance to disease. The designer can use this awareness to provide a learning environment which could encourage better performance and serve as a model for the learner to take back to the working and the home environment. What follows, then, is a brief description of the three dysfunctional elements previously identified, together with how these can be dealt with in an instructional setting — short of engaging the learner in a formal "wellness" educational program.

Emotional Stress

Daily life events can result in a great deal of coping and adaptive behavior. However, coping goes only so far. Beyond that, anxiety creeps up, interfering with performance, efficiency and learning. Individuals exposed to too much anxiety may feel a sense of alienation, a loss of personal worth and identity. These feelings may result in the sense of loss and personal control. How an individual adapts to these feelings will differ, but most individuals will react to too much stress in terms of anger, fear, anxiety or flight from the problem. Anger and fear can create such intense stress that health is more seriously threatened by these emotions than by almost all other influences.

Researchers like Dr. Hans Selye (1974) have shown that stress creates definite biological body changes. He found that the body undergoes a three-stage process as a result of stress. In the first stage, the "alarm" stage, the body reacts by causing an enlargement of the adrenal glands, a shrinkage of the lymphatic system and the appearance of gastrointestinal ulcers. If the stress continues, the body goes into a "stage of resistance" or "adaptation" in which it will act normally. If the stress continues, the body becomes exhausted and debilitated from constant readjustment and serious illness may follow.

Stress can develop because of unusual life pressures and can affect the learner in various ways. Research is scarce, but it has been shown that college football players exposed to stress had more injuries than those whose exposure was not so high (Bramwell, 1971). High school teachers exposed to stress had higher absentee rates because of illness and injury than those whose exposure was less severe (Carranza, 1972). High school students' grades were found to be influenced by the amount of stressful life changes they experienced (Harris, 1972), (Basetti, 1973).

College students who experienced more stressful life changes had higher dropout rates than those who did not experience as many stressful events (Garry, 1976). The competition for grades, the difficulty in mastering the subject matter, or the association of the present situation with previous unsatisfactory learning experiences are some of the stressful events inherent in a learning situation.

All educators and trainers should recognize stress and be able to deal with stressful situations. A recent article (Moses, 1979) in *Training* recommends that trainers recognize stress by observing their students' breathing patterns (stressed

persons breathe through the chest only, not their abdomens), posture, speech patterns and relationships in the work setting.

Identifying Stressful Situations

In most cases, a potentially stressful situation can be identified and successfully dealt with before it occurs. Students should be well cared for and made as physically and mentally comfortable as possible while in the learning environment. All elements which may contribute to anxiety, including the instructor's behavior, should be controlled. However, hardly anyone who is loaded with the stimulation of the day can avoid stress, in fact, some stress may even be beneficial. The idea is to avoid the overstimulation. And the answer with most healthy people seems to be relaxation.

Dr. Edmund Jacobson (1964) learned that one of the characteristics of stress is muscular tension. This phenomenon seems to be present whenever there is nervousness, worry, irritability, hate, resentment or impatience. Relaxation seems to be the most readily available remedy to cope with stress and it is possible to relax an individual or a group of people without drugs. The most common methods used are physical, mental and electronic.

In physical relaxation, muscle tension is relieved through simple physical exercises such as deep breathing or deliberately tensing muscles and then slowly releasing them. A typical relaxation exercise may be to squint the eyes shut, compress the lips and then to let them go limp. Physical relaxation is relatively easy to learn and each instructor should have a few of these in his or her repertoire . . . planning them at various stages in the instructional process.

Another method of inducing relaxation is through a mental process. It seems that when the mind is relaxed the muscles will also relax themselves. There are many ways to achieve this relaxation including mental imagery, soothing music, meditation, autogenic training and hypnosis. The most easily learned technique is mental imagery. In imagery, the imagination is used by the instructor to take the student on a mental "trip" in which he or she will fantasize situations which will have a calmative effect. For example, the student may be taken on a "trip" through the countryside or asked to imagine a peaceful situation of his or her own choosing. Frequently, the imagery is accompanied or preceded by deep breathing or other physical relaxation methods.

In meditation, relaxation can be induced by distracting the mind from all thoughts by concentrating on an object, a mental image or a thought. Meditation is frequently accompanied by some form of imagery and advanced meditators can achieve altered states of consciousness. Like autogenic training and hypnosis, meditation takes a long time to learn and it is not suitable for group application in a classroom setting by the average instructor.

Electronic means of inducing re-

laxation are called biofeedback. This technique uses an electronic device to measure subtle changes in the body such as muscular tension. This information is displayed back to an individual, enabling him or her to achieve unusually deep states of relaxation. A typical biofeedback device which can be used outside the clinical setting and is available at reasonable prices (under $100), is a Galvanic Skin Response (GSR) Meter. This handheld, battery-operated device measures the changing ability of the skin to conduct minute electrical currents by emitting a tone, or, when attached to a small meter, by moving an indicator. The idea is to lower the tone or to move the needle on the meter. The more relaxed one becomes the lower the tone becomes or the lower the position of the needle.

People who learn control by biofeedback can seldom explain their techniques. Apparently, their subtle relaxation efforts cause the sympathetic nervous system to send impulses to the sweat glands which, in turn, lower skin resistance.

Biofeedback is easily learned but it is an expensive method to use in a group setting. It can, however, be used to relax the instructor. The author uses a GSR meter with a plug-in miniature earphone with excellent results to relax before presenting instruction, on airplanes or to overcome tension headaches.

Good Nutrition is Essential

Foods contain fats, carbohydrates, proteins, minerals and vitamins, and some balance of all these elements is necessary for optimum functioning of the body. We know that this balance is seldom fully achieved. Too many people are overweight or eat the type of food that may irritate their internal functions causing them to become ill.

Proteins are essential to good health. The best quality protein comes from fish, eggs, milk, meat and nuts. Carbohydrate foods include fruit, grain and vegetable products such as potatoes, bread, corn, spaghetti, and rice. In carbohydrates, the greatest problem seems to be sugar or sucrose. We tend to consume it to such excess that it accounts for about 20 percent of all the calories consumed in the United States. A diet of too many simple carbohydrates (sugar, for one) increased the level of fats in the blood. Very few diets that include a good balance of proteins, carbohydrates and fats are deficient in minerals.

The logistics of designing the learning situation frequently involves the care and feeding of the learners. For example, the traditional fare for conference, workshop and seminar breaks seems to consist of coffee, cokes, tea and doughnuts. Training logisticians should know what happens when the learners (and their instructors) eat simple carbohydrates such as doughnuts. In a few moments the entire sugar content of the pastry enters the blood. The insulin level rises causing the sugar to be burned rapidly, bringing the blood sugar level to a lower than normal stage. Students may display these symptoms by quick bursts of energetic behavior followed by a general slowing down of their activity. This lethargic behavior is typical after a display of energetic activity.

Most people tend to think of coffee and tea as safe beverages. However, there is growing evidence that the caffeine in coffee and the tea may be harmful and contribute to heart disease as well as to other diseases.

Most meals served to workshop, seminar and conference participants contain too much fat. A typical breakfast may consist of bacon (77 percent fat), fried eggs (72 percent fat), pancakes (41 percent fat) with butter (100 percent fat), coffee (0 percent fat), with cream (78 percent fat). This amounts to an average of 75 percent fat or about 2,000 calories.

A meal consisting of an avocado appetizer with mayonnaise, porterhouse steak with butter, french fries, lettuce with Italian dressing and pound cake with ice cream

adds another 5,000 calories. And don't forget the "get acquainted" cocktails with cheese dip (91 percent fat) and potato chips (63 percent fat).

There's no denying that this type of food is pleasurable to most people who expect to be well-fed when participating in workshops and seminars. Most individuals know that too many calories are harmful but tend to rationalize their eating behavior and overeat anyway.

The instructional designer who wants to enhance the student's performance by nutritional means is faced with a moral dilemma. He or she can cater to the undesirable and harmful habits of the students, or can provide an alternate diet for those who practice more healthy nutritional habits, but he or she can't force anyone to eat anything. Until more people become nutrition conscious and begin to demand more nutritious snacks and meals, the best way out of the dilemma is to provide an alternative choice of foods.

For example, raw fruits and vegetables make better snacks than doughnuts — a peach has only 35 calories. A slice of melon for breakfast has only 35 calories and is an excellent substitute for a glass or orange juice with 75 calories. And why not offer a poached egg with 75 calories instead of a scrambled egg with 110 calories? A lunch built around broiled chicken instead of chicken-a-la-king is 100 calories ahead. And if baked fish is available as an alternative to pork chops, about 350 calories can be saved. These substitute dishes can be advertised in advance together with the calorie savings, or they can be displayed on a special table to assist the students in making their choices and to reinforce good eating habits.

Physical Fitness and Mental Performance

Fitness means the development of muscular strength, muscular and cardiovascular endurance and flexibility to meet the needs of the environment. Sedentary lifestyles and lack of physical exertion lead to a gradual loss of the body's ability to convert vital levels of oxygen, the most basic measure of "vital capacity." Oxygen is the primary catalyst of all human biological activity (Cooper, 1978). What happens when an individual exercises regularly is that additional routes of blood supply are built up in the heart. The coronary arteries grow in size and the places where the arteries are blocked grow new routes for carrying the blood. These new routes of blood have the effect of keeping the heart thoroughly oxygenated and healthy.

In an inactive person blood vessels tend to be narrower and the heart has to work harder to pump blood through them. Under certain stress conditions combined with heavy exertion, this may cause an abrupt rise in blood pressure and lead to a situation associated with a heart attack or a stroke.

Fitness helps the body to tolerate stresses of all kinds and improves endurance, flexibility and strength. And physical exercise burns off calories. Pushing a lawnmower will burn off 315 calories in one hour. Jogging five miles will consume more than 600 calories.

It seems that physical fitness is only indirectly related to mental performance. People who are ill or physically unfit are capable of as great a mental effort as people who are healthy and physically fit. However, because the people who are physically fit will take longer to get tired they will be capable of keeping mental activity up for longer periods. Obviously, if the learning involves physical activity, there is no question that physical fitness will be of prime importance.

The instructional program designer can probably do very little about improving student performance by enhancing their physical fitness unless they are learning some kind of athletic performance or ballet dancing. However, he or she can and should be sensitive to the needs of those learners who have already recognized the need for physical fitness and exercise regularly. This means that the learning site should be close to golf courses, swimming pools, jogging tracks, tennis courts and other

exercise facilities. And sufficient time should be allocated for various types of physical exercise during the learning experience.

The problem of how to deal with ingrained, unhealthy student and faculty behaviors a lifetime in the making is only partially solved by wellness training or other educational efforts to change these behaviors because all the other learning experiences seem to reinforce the undesirable behaviors. The problem may be resolved by integrating wellness into the learning environment by controlling stress, by providing more nutritious food and by presenting opportunities for adequate physical exercise. But the first step in this direction should be to lend credibility to these newly integrated elements. This means that staff and faculty must serve as models to the students by practicing wellness habits. The learning experience designer, platform instructor and group leader may have to assess his or her own degree of wellness and take the extra step of changing some of his or her own personal wellness habits before attempting to deal with those of the learners.

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