Use of the Internet and Enhancement of Self-Efficacy of a Hospitalized Student : Case Study

Shinji Watanabe, Izumo School for the Handicapped, Japan
Shigeru Narita, Ph.D. Hyogo University of Teacher Education, Japan

Introduction

Schooling in the hospital environment is clearly complex and different from regular schooling. It's unlikely that the same educational services available at schools can be offered at hospitals.

Therefore, the need arises to devise new means of support and approaches tolearning that capture the attention of young patients. Approaches which bring into play emotional, motivational and recreational factors.

The application of telecommunication and computer technology to support the schooling of hospitalized children is promising. Use of telecommunication technology can be a viable solution, particularly for the education of children doomed by muscular dystrophy Teachers working with children receiving long-term treatment can employ alternative instructional strategies and use innovative technology to augment students' communication.

Background

A major problem confronting hospital bound students is that they have few opportunities to experience a sense of worthiness, meaningfulness, and satisfaction. It is not easy to minimize aversive experiences in their lives. Most of the time, they are dependent on hospital staff, teachers and families. The isolation, the lack of communication with their friends and teachers increases depressive emotions. Depressive reactions, when they become severe and prolonged, seriously impair healthy functioning .

The use of telecommunications technology to break this cycle of isolation is rapidly becoming a viable option for students who are hospitalized. A high level of interest is reflected in the rapid advancement of personal digital equipment and telecommunications technology.

The time is right for teachers in the hospital environment to apply alternative educational strategies, including those that utilize innovative educational supports such as computers and telecommunication technologies.

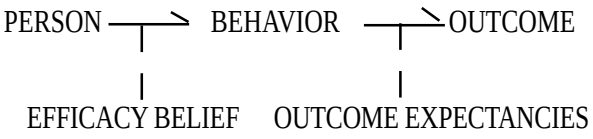
This paper reports a case study of a student with muscular dystrophy and some strategies that enabled the student to communicate

and enhance his self-efficacy through the use of telecommunication technologies.

Self-Efficacy

It is asserted in self-efficacy theory that all forms of psychological and behavioral change operate through a common mechanism, namely the alteration of the individual's expectations of personal mastery and success (Bandura,1977). An individual with a history of varied and numerous experiences of success may be expected to have positive self-efficacy expectancies in a greater variety of situations than the individual with experiences of limited success and of failure. Bandura (1977) stated that the context in which mastery experiences occur, as well as the individual's attribution of success to chance or skill, determines the extent to which these experiences influence the level of self-efficacy. From these propositions, it is predicted that individual differences in general self-efficacy expectancies exist and that these differences have behavioral correlates.

An individual's past experience with success and failure in a variety of situations should result in a general set of outcomes that the individual carries into new situations. Outcome expectations can take three major forms (Bandura, 1986). Within each, the positive expectations serve as incentives, the negative ones as disincentives. One distinct class of outcomes is the positive and negative physical effects that accompany the behavior.



Level of Strength Generality Physical Social Self-evaluative(Bandura, 1997)

Beliefs of personal efficacy regulate motivation by shaping aspirations and the outcomes expected of one's efforts. Through this influence of motivation and choice of activity, beliefs of personal efficacy make an important contribution to the acquisition of knowledge structures upon which skills are founded.

Method

Settings

This study was conducted at an inpatient unit of a local hospital by the authors, and an instructional and nursing team. This team consisted of nurses, therapists, parents, and educators who work with individual students afflicted by muscular dystrophy and other health impairments at the hospital.

Prior to the experiment, the author gathered information about the student's daily life skills and routine from the caregivers, teachers and other therapists involved in the care of the student. Parents reported that the student was totally dependent on the nursing staff's support for reading and writing letters, checking daily TV programs, et etc. Teachers reported that the student showed his interest in using computers. A functional analysis was made, consisting of various bed-side earning, needed computers and peripherals, mobile communication device.

Procedures

This study was of an exploratory-descriptive design based on a retrospective review, interview, mail exchanges and observation which were conducted by the authors, teachers, caregivers, and hospital staff.

Variables evaluated in this study included medial diagnoses on admission,changes in

medial diagnoses, and results of the functional analysis.

The student's (medical) history and clinical findings were reviewed for problems relating to his physical condition. However, specific data regarding amount of food taken, temperature count over treatment periods were not available.

Subject

The subject was a 17-year-old male with muscular dystrophy. He was confined in the hospital for his schooling. At his freshman year in high school, he was forced to use a respiratory device all the time. He has fine motor skills and so was able to use a mouse for inputting text. He started using word processor, paint tools, and spreadsheet software during his sophomore year.

Use of telecommunication devices and trouble shooting

The author gave the subject intensive instruction on the use of a mobile phone, Internet connectivity, e-mail and web browsing. The subject started corresponding via e-mail with his friends who lived outside his hospital. Computer problems sometimes hindered the experiment. The author and subject, however, were able to communicate via e-mail and solve some of the technical problems.

Results

The subject's self-efficacy was measured in two ways. First, the subject was asked to report about his perception of the self-efficacy scale. Second, the subject's teacher, the teacher's aid and supporting staff were asked to report about their perceptions of the self-efficacy scale. The author developed hypotheses regarding the relationship of telecommunication use and the enhancement of self-efficacy. In order to measure the student's self-efficacy, the author compiled several self-efficacy studies and a self-efficacy battery (Sherer & Maddux, 1982; Narita et al., 1995).

Self-Efficacy Scale - General Self-Efficacy

1. When I make plans, I am certain I can make them work.
2. One of my problems is that I cannot get down to work when I should.
3. If I can't do a job the first time, I keep trying until I can.
4. When I set important goals for myself, I rarely achieve them.
5. I give up on things before completing them.
6. I avoid facing difficulties.
7. If something looks too complicated, I will not even bother to try it.
8. When I have something unpleasant to do, I stick to it until I finish it.
9. When I decide to do something, I go right to work on it.
10. When trying to learn something new, I soon give up it I am not initially successful.
11. When unexpected problems occur, I don't handle them well.
12. Failure just makes me try harder.
13. I feel insecure about my ability to do things.
14. I am a self-reliant person.

15. I give up easily.

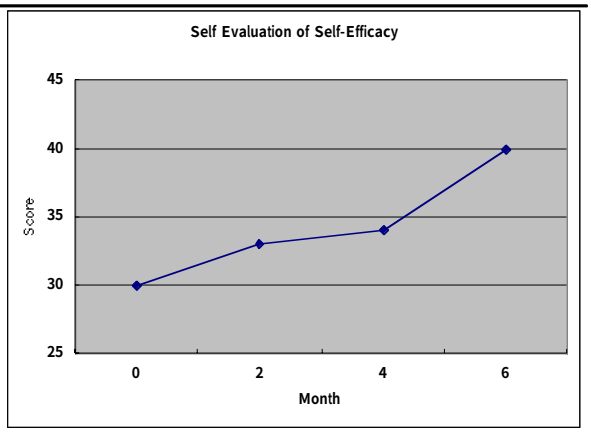
The following Self-Efficacy Scale was modified by the authors to measure general self-efficacy observed by hospital staff and other caregivers including teachers.

Self-Efficacy Scale by Staff

1. When he makes plans, he is certain he can make them work.
2. One of his problems is that he cannot get down to work when he should.
3. If he can't do a job the first time, he keeps trying until he can.
4. When he sets important goals for himself, he rarely achieves them.
5. He gives up on things before completing them.
6. He avoids facing difficulties.
7. If something looks too complicated, he will not even bother to try it.
8. When he has something unpleasant to do, he stick to it until he finishes it.
9. When he decides to do something, he goes right to work on it.
10. When trying to learn something new, he soon gives up if he is not initially successful.
11. When unexpected problems occur, he doesn't handle them well.
12. Failure just makes him try harder.
13. He feels insecure about his ability to do things.
14. He is a self-reliant person.
15. He gives up easily.

The subject's self-evaluation showed a significant change in his self-efficacy level.

Inefficacy sometimes involves a perceived vulnerability to a total loss of personal control rather than momentary lapses in functioning. The subject underwent the traumatic experience of a friend's death during the experiment. The posttraumatic reactions included depression,self-devaluation, emotional detachment from others, and disengagement from the aspects of life that can provide meaning and fulfillment. Though the friend's death might well have overwhelmed the subject's coping capabilities, he managed and maintained a high sense of efficacy.



Discussion

Personal change

Examination of the log of e-mail exchanges with the author shows an increase in the subject's competence in coping with depression. After news of his friend's death, he asked his mother to send a condolence message to the friend's family. He used a mail service on

the web that handled digital text, converting into a printed document and mailing it through a regular postal service. He also had an opportunity to demonstrate his use of technology in front of all of his classmates and teachers at his school auditorium.

The subject was also instructed on the use of the WWW for information searchand retrieval. Before he used the WWW, he was totally dependent on hospital staff for finding out TV program scheduling, reading the newspaper, and correspondence with friends. The subject started using a Web dictionary to look up English words. He wanted to exchange a letter with his former nurse who moved to other hospital. He succeeded in finding her address and phone number on the web. He learned how to use "hybrid postal services" on the web (mentioned above) in which the web site service forwards digital mail via the regular post.

Some thoughts

The student's belief that he could motivate himself and regulate his own behavior played a crucial role in his decisions to change behaviors detrimental to his health and pursue rehabilitative activities.

His perceived barrier to efficacy, the inability to carry out daily routines by himself, could be identified in his resignation of positive emotions.

However, modeling effective strategies in the use of telecommunication and Internet services overrode the effects of negative emotions, and the subject was able to adopt a healthy daily routine. This despite the emotional state induced at the loss of his friend, the computer and Internet connectivity problems and the occasional lapse in prompt support from the author. Increases in successful efforts at communication with other people and in management of his daily life prompted the subject to adhere to healthy behaviors. The subject's efficacy belief and positive outcome expectations could be seen to rise.

Anecdotal self-recording of experiences showe that use of telecommunication technology produced good results in aspects of self-efficacy. The subject's sense of satisfaction was derived from the process of mastering alternative communication methods rather than being tied down to disability.

Limitation

Though a sense of efficacy is thought to activate a wide range of biological processes, this case study did not examine the relationship between perceived efficacy belief and biochemical effects of the subject.

Conclusion

The subject managed to gain control of his daily life through the use of telecommunication technologies. This perceived self-regulatory efficacy was found to be a significant predictor of adherence to communication with others and to learning experiences on the Internet. The subjects successful efforts to manage environmental demands produced cognitive changes in beliefs about his personal coping efficacy.

In this study, telecommunication, computer and networking technologies were applied in the hospital setting. These technologies enabled the student to keep in touch with the outside world, overcoming an isolation that can often

last for prolonged periods. Telecommunication technologies also supported and lent continuity to the student's learning activities. It was found that use of these technologies improved the hospitalized student's self-efficacy.

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Contact

Shinji Watanabe
m97332h@students.hyogo-u.ac.jp

Shigeru Narita, Ph.D.
naritas@ceser.hyogo-u.ac.jp

Hyogo Unversity of Teacher Education
2007 Yamakuni, Yashiro-cho,
Hyogo 673-1421, Japan