

Clinical Benefits of Interactive and Audiovisual Patient Education Material

Reference Document / Comprehensive

Providing interactive and / or audiovisual patient education material is superior to that of traditional paper-based programs. Articles referenced below support this contention. The potential benefits derived from using interactive and / or audiovisual material are broken down into five categories and then assigned to each reference. These categories include the positive influence on: 1) learning curve, 2) patient compliance, 3) healing time, 4) patient satisfaction, and 5) outcomes.

Use this key to match a particular category with supporting references:

Learning Curve: (1) (2) (3) (4) (6) (7) (8) (9) (10) (11) (12) (13) (15) (16) (17) (18) (19) (21) (22) (25) (27)

Patient Compliance: (4) (5) (9) (15) (16) (18) (20) (21) (22) (23) (24) (25) (26)

Healing Time: (1) (2) (3) (5) (7) (8) (9) (10) (11) (12) (21) (24) (19) (22) (25) (27)

Patient Satisfaction: (4) (5) (7) (9) (16) (24) (20) (21) (22) (23) (24) (25) (26)

Outcomes: (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27)

All references are in APA (American Psychological Association) format and present as follows:

Author(s) last name, First name initial. Middle name initial. (Year). Title of article.

Name of Journal Article, Volume (#), pages..

1. Ben S., M., Consoli, S., & Jean. J. (1994). A comparative study between a computer-aided education (ISIS) and habitual education techniques for hypertensive patients. *Proc Annu Symp Comput Appl Med Care*, 10(4).

Supports the positive influence of interactive and / or audiovisual material on: learning curve, healing time, and outcomes.

ISIS is a patient education computer program about hypertension. It aims to be complementary to the habitual educational techniques by bringing into patient education the facility of multimedia features. Its efficiency in improving the knowledge about hypertension was tested among 158 hypertensive patients. Their prior knowledge was evaluated using a questionnaire. They were then randomly separated in a control group (CG) which had the regular education program and ISIS group or (IG) which, in addition, had an interactive session using ISIS. Two months after discharge, all the patients were asked the same questions over the telephone. A total of 138 observations (69 CG, 69 IG) were reported in the final analysis. *The initial scores were significantly improved for both groups. The improvement is more evident in the IG, particularly among patients whose initial score was low and patients whose hypertension was discovered for more than 6 months. ISIS is actually used by hospitalized patients and by nurse students.*

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2. Consoli, S.M., Ben Said. M., Jean, J., Menard, J., Plouin, P.F., & Chatellier, G. (1995). Benefits of a computer-assisted education program for hypertensive patients compared with standard education tools. *Patient Educ Couns*, 26(1-3), 343-7.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, healing time, and outcomes.

ISIS (Initiation Sanitaire Informatisee et Scenarisee), a French computer-assisted hypertension and cardiovascular risk education program, was developed to provide patients at cardiovascular risk with a modern interactive educational tool combining rigorously scientific information with the aesthetic attractiveness of multimedia communication. To test the impact of this tool on patient health information retention, 158 hypertensives hospitalized for initial work-up (day hospital) or therapeutic adjustments (3 days) were randomized into control (n = 79) and ISIS (n = 79) groups. Both groups received cardiovascular education through standard means: physicians, nurses, dietitians and pamphlets. In addition, ISIS patients underwent a 30- to 60-min session on the computer with the ISIS program. Cardiovascular knowledge was tested by the same investigator administering a standardized 28-item questionnaire before and 2 months after education. Retesting was made by telephone. At the time of first assessment, all patients were aware that they would be retested. A total of 138 completed questionnaires (69 from each group) was analyzed. *Overall mean cardiovascular knowledge score before education improved significantly after education. This improvement was greater in the ISIS than the control group. These results confirm the potential of computer-assisted education in hypertensives from a specialized center.*

3. Crow, S., & Ondrusek, A. (2002). Video as a format in health information. *Med Ref Serv Q*, 21(3), 21-34.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, healing time, and outcomes.

Video is a medium that has passed through a progression of technical advances including the invention of videotape, the incremental refinements to laser videodisc technologies, and the arrival of digital imaging technologies such as CD-ROM, DVD, and the Web's video streaming. *Today, video is firmly established as a convenient and effective medium for conveying medical information.* One result of these developments is that medical reference librarians can expect to encounter information requests and professional tasks that will require an understanding of these wide-ranging and differing video technologies.

Levy Library, Mount Sinai School of Medicine, One Gustave L. Levy Place, Box 1102, New York, NY 10029, USA. suzanne.crow@mssm.edu

4. Day, J.L., Rayman, G., Hall, L., & Davies, P. (1997). 'Learning Diabetes'--a multi-media learning package for patients, careers and professionals to improve chronic disease management. *Med Inform.* 22(1), 91-104.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, patient compliance, healing time, patient satisfaction, and outcomes.

A multi-media program for those with insulin and non-insulin dependent diabetes, and for their careers, has been produced. It is delivered on CDROM and contains an extensive amount of very high quality generated video of patients using short clips (maximum 2 min) totaling 2.5 h in 240 files using MPEG compression. The video is combined with a wide range of graphic based activities engaging the user in fully interactive processes and allowing them to obtain extensive understanding of the disease and to relate to attitudes and perceptions about it from those with the same condition. The program is robust and appears to meet the educational needs for its extent of interactivity, degree of choice for the user and provision of information based on real patient experience. It is easily used and modified to meet users of different socio-cultural needs and can be translated into different languages. *It offers the opportunity not only for increased learning and improved self-management of those with diabetes, but also greater understanding by those who care for them, both professional and non-professional.* Using the same framework, programs are being developed for other chronic diseases including asthma and hypertension

5. Fos, P.J. (1988). An alternative approach to prevention: computer-assisted patient education. *ASDC J Dent Child*, 55(1), 43-6.

Supports the positive influence of interactive and / or audiovisual material on: patient compliance, patient satisfaction, and outcomes.

Computer-assisted instruction is a reliable, viable, and increasingly popular method for patient education. CAI programs are easy to use, non-intimidating to the patient, and enjoyable. CAI is a relatively new, but effective method of "spreading the word" to those who most desperately need the information. As technology advances, more computer-based patient education programs will become available to the dental health-care profession. The computer based education center will become a useful and integral component of the dental office of the future.

Tulane University Medical Center, School of Public Health and Tropical Medicine, New Orleans, LA 70112.

6. Froman, R.D., Hence, C., & Neafsey, P.J. (1993). A comparative assessment of interactive videodisc instruction. *Comput Nurs*, 11(5), 236-41.

Supports the positive influence of interactive and / or audiovisual material on: learning curve and outcomes.

A counter-balanced design was used to compare student knowledge and self-efficacy following interactive videodisc (IVD) and traditional instruction on intravenous therapy procedures. Students were assigned randomly to treatment groups receiving either IVD instruction followed by traditional lecture or lecture followed by IVD. Subjects were pre-tested before any instruction and post-tested after each type of instruction to provide three repeated measures for both knowledge and self-efficacy. *While both types of instruction produced significant gains over baseline observation, neither method, when used by itself, was clearly superior. Combining both methods, regardless of sequence, was associated with maintained or enhanced knowledge and self-efficacy scores.* Traditional-lecture presentation first, followed by IVD instruction, produced the largest gains in self-efficacy for applying intravenous procedures in nursing practice.

University of Connecticut School of Nursing, Storrs 06269-0026.

7. Gahimer, J.E., Domholdt, E. (1996). Amount of patient education in physical therapy practice and perceived effects. *Physical Therapy*, 76(10), 1089-96.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, healing time, patient satisfaction, and outcomes.

BACKGROUND AND PURPOSE: The purpose of this study was to investigate the amount and perceived effects of informal patient education in physical therapy practice. **SUBJECTS:** Thirty-seven physical therapists from nine outpatient physical therapy settings participated. **METHODS:** Each therapist audiotaped the entire course of treatment for one patient. The frequency of patient education statements in five categories (information about illness, home exercises, advice and information, health education, and stress counseling) was counted. Therapists, patients, and supervisors completed questionnaires about the amount and perceived effects of these teaching behaviors. **RESULTS AND CONCLUSIONS:** The greatest numbers of educational statements were in the categories of information about illness ($X = 4.72$ statements per session), home exercises ($X = 3.98$ statements per session), and advice and information ($X = 2.54$ statements per session). *The therapists' teaching behaviors rarely corresponded to their perceptions of their own teaching or to their patients' or supervisors' perceptions.*

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8. Houts, P., Bachrach, R., Witmer, J., Tringali, C., Bucher, J., & Localio, R. (1998). Using pictographs to enhance recall of spoken medical instructions. *Patient Edu Couns.*, 35(2), 83-8.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, healing time, and outcomes.

Pictographs have been used in nonliterate societies to help people remember spoken instructions and, today, they could be used to help nonliterate people remember spoken medical instructions. This study tested the hypothesis that pictographs can improve recall of spoken medical instructions. Twenty-one junior college subjects listened to lists of 38 actions for managing fever and 50 actions for managing sore mouth. One of the action lists was accompanied by pictographs during both listening and recall while the other was not. Subjects did not see any written words during the intervention and, therefore, relied entirely on memory of what they heard. *Mean correct recall was 85% with pictographs and 14% without ($P < 0.0001$) indicating that pictographs can enhance memory of spoken medical instruction—often to a very high level.* For this technique to be clinically useful, further research is needed on how to achieve accurate recall of large amounts of medical information for long periods of time by nonliterate patients. By viewing illiteracy as a memory problem, the large body of research on learning and memory can be utilized in designing education materials for this group.

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9. Leveridge, L.L. (1983). The interactive videodisc. *Mobius*, 3(2), 68-72.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, patient compliance, healing time, patient satisfaction, and outcomes.

Dynamic audiovisual presentations that are interactive due to the use of videodisc systems provide more efficient and effective communication of those elements of medicine best learned by seeing them, than is possible via traditional modes. This is particularly true when externally interfaced electronic data processors are used to automate the process. While magnetic and stylus-type videodisc players can serve in education, it is the optical videodisc that has the greatest educational potential. The AMA has been exploring the capabilities of optical videodisc systems and demonstrating pilot programs that use good principles of audiovisual and computer-assisted instruction in tutorial formats or presented as patient

management problems. We are on the threshold of a revolution in communication potentially as significant to education as the one that followed the invention of movable type.

Using interactive videodisc programs, designed and produced with skill and care, we can solve some of medical education's most pressing problems.

10. Lewis, D. (1999). Computer-based approaches to patient education: a review of the literature. *Am Med Inform Assoc*, 6(4), 272-82.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, healing time, and outcomes.

All articles selected for review were indexed in MEDLINE or CINAHL, related to the use of computer technology in patient education, and published in peer-reviewed journals between 1971 and 1998. Sixty-six articles, including 21 research-based reports, were identified. Forty-five percent of the studies were related to the management of chronic disease. Thirteen studies described an improvement in knowledge scores or clinical outcomes when computer-based patient education was compared with traditional instruction. Additional articles examined patients' computer experience, socioeconomic status, race, and gender and found no significant differences when compared with program outcomes. *Sixteen of the 21 research-based studies had effect sizes greater than 0.5, indicating a significant change in the described outcome when the study subjects participated in computer-based patient education. The findings from this review support computer-based education as an effective strategy for transfer of knowledge and skill development for patients.* The limited number of research studies (N = 21) points to the need for additional research. Recommendations for new studies include cost-benefit analysis and the impact of these new technologies on health outcomes over time.

11. Lockyer, L., Patterson, J., & Harper, B. (2001). ICT in higher education: evaluating outcomes for health education. *Journal of Computer Assisted Learning*, 17(3), 275.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, healing time, and outcomes.

This paper presents an investigation that examined and compared the effectiveness of collaborative tutorial activities carried out in both web-based and face-to-face learning environments within an undergraduate health education subject. Effectiveness of the different learning environments was measured in terms of observed learning outcomes, analysis of learner interactions and reported perceptions of the learners regarding their experience. *Results demonstrated that web-based environments, with embedded collaborative activities,*

can effectively foster rich learning experiences that result in attaining positive learning outcomes.

12. Lorish, C.D., Parker, J., & Brown, S. (1985). Effective patient education. A quasi-experiment comparing an individualized strategy with a routinized strategy. *Arthritis Rheum*, 28(11), 1289-97.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, healing time, and outcomes.

A quasi-experiment was conducted on 127 hospitalized rheumatoid arthritis patients to determine the relative success of 3 patient teaching strategies--an individualized program, a routinized program, and a no-planned-instruction program--on patients' knowledge of their disease and treatment. *Data analysis revealed that the individualized program produced a 100% greater learning gain than the routinized program in patients who had low pretest scores. The results suggest that maximum patient learning occurs when the teaching process accommodates important patient differences.*

13. Marks, L.S., Penson, D.F., Maller, J.J., Nielsen, R.T., & deKernion, J.B. (1997). Computer-generated graphical presentations: use of multimedia to enhance communication. *Urology*, 49(1), 2-9.

Supports the positive influence of interactive and / or audiovisual material on: learning curve and outcomes.

Personal computers may be used to create, store, and deliver graphical presentations. *With computer-generated combinations of the five media (text, images, sound, video, and animation)--that is, multimedia presentations--the effectiveness of message delivery can be greatly increased.* The basic tools are (1) a personal computer; (2) presentation software; and (3) a projector to enlarge the monitor images for audience viewing. Use of this new method has grown rapidly in the business-conference world, but has yet to gain widespread acceptance at medical meetings. We review herein the rationale for multimedia presentations in medicine (vis-a-vis traditional slide shows) as an improved means for increasing audience attention, comprehension, and retention. The evolution of multimedia is traced from earliest times to the present. The steps involved in making a multimedia presentation are summarized,

emphasizing advances in technology that bring the new method within practical reach of busy physicians. Specific attention is given to software, digital image processing, storage devices, and delivery methods. Our development of a urology multimedia presentation--delivered May 4, 1996, before the Society for Urology and Engineering and now Internet-accessible at <http://www.usrf.org>--was the impetus for this work.

14. May, B.J. (1991). Teaching. A skill in clinical practice. *Journal of Nursing Education*, 30(3), 109-13.

Supports the positive influence of interactive and / or audiovisual material on: outcomes.

I surveyed by questionnaire a random sample of 585 physical therapists and the administrators of all accredited and developing entry-level educational programs on record with the American Physical Therapy Association in March 1981 to determine attitudes toward, involvement in, and preparation for teaching as a skill in physical therapy. Results were based on responses from 367 (63%) of the physical therapists who spent at least 50 percent of their workday in direct patient-care activities and 95 (93%) of the administrators of the educational programs. *Although 99 percent of the physical therapists believed that teaching was an important skill in their practice, only 34 percent had received instruction in teaching as part of their basic preparation.* Ninety-eight percent were involved in teaching patients, but only 30 percent taught students in the clinic. Educational skills considered important by the clinicians included the ability to adapt teaching to individual needs, to teach by demonstration, to give and receive feedback, and to assess learner expectations. Sixty-five percent of the administrators responding to the questionnaire reported that training in educational theories and methodologies was required either as a separate course or as part of one or more other courses in the curriculum. Educational skills most frequently taught were writing learning objectives, planning the learning experience, understanding the role of the physical therapist as an educator, and teaching by lecture. Physical therapists consider teaching an important skill in physical therapy practice, but not all physical therapy programs include preparation in this area. Agreement on which skills are important is limited.

15. Neyses, L., Greminger, P., Bartsch, A., Luscher, T., Keller, U., Bachmann, L., Siegenthaler, W., & Vetter, W. (1985). A simple and effective method to teach patients about high blood pressure and obesity. *Journal of Hypertens Suppl.*, 3(1), S27-30.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, patient compliance, & improved outcomes.

It is an open question whether information about hypertension and obesity increases compliance with therapy. Nevertheless, patients increasingly demand precise but simple and comprehensive information. A simple slide program is described which can be demonstrated in any waiting room. *The learning effect was assessed in 1083 subjects, of whom 485 had seen the programme completely; 256 subjects served as controls. The percentage of subjects with good or excellent knowledge about hypertension and obesity rose from 22.8% in the controls to 64.2% in the experimental group.* Age was the only factor influencing learning, but this was of no great importance in subjects under 70. In particular, social status did not have any significant effect on learning. This program may be an ideal tool to inform patients about hypertension and obesity and to study the influence of information on compliance with therapy.

16. Reid, M., Burn, A., & Parker, D. (2002). *Evaluation Report of the Becta Digital Video Pilot Project*. Coventry, UK: British Educational Communications and Technology Agency.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, patient compliance, patient satisfaction, and outcomes.

Becta (British Educational Communications and Technology Agency) is the Government's lead agency for information communications technology in education. In 2002, Becta commissioned the British Film Institute to undertake an evaluation on digital video to gather evidence on the impact of its use on the learner's engagement and behaviors. It also aimed to identify models of effective practice. 50 schools from across the UK took part in the study. *The findings reveal the following; Integration of digital video into teaching and learning has the potential to increase learner engagement, promote and develop a range of learning styles, and motivate and engage a wider range of learners than traditional teaching methods.*

17. Rickelman, B., Taylor-Fox, J., Reisch, J., Payne, P., & Jelemensky, L. (1988). Effect of a CVIS instructional program regarding therapeutic communication on student learning and anxiety. *Journal of Nursing Education*, 27(7), 314-20.

Supports the positive influence of interactive and / or audiovisual material on: learning curve and outcomes.

This quasi-experimental, pretest-posttest design study explored the effect of a computer video-interactive system (CVIS) instructional program regarding therapeutic communication on senior baccalaureate nursing students' learning and anxiety as they anticipated interaction with patients in psychiatric settings. The 75 subjects were randomly divided into two groups.

Group I received a basic lecture and a supplementary CVIS instructional program on therapeutic communication, while Group II received the same lecture discussion on therapeutic communication and a videotape. Two hypotheses were tested, using analyses of covariance. Hypothesis I, that Group I would score significantly higher on a therapeutic communication posttest than would Group II, was supported (P less than .001). *This finding validates previous observations that computer-video interaction programs do enhance learners' application of knowledge.* Hypothesis II, that Group I would evidence significantly less state anxiety at posttest than would Group II, was not supported. Although there were no significant differences for state anxiety scores between the groups at either pretest or posttest, these scores remained higher than reported normative state anxiety scores. This finding suggests that anticipated interaction with psychiatric patients is an anxiety-inducing situation for nursing students.

School of Nursing, University of Texas, Austin.

18. Rouse, D.P. (1999). Creating an interactive multimedia computer-assisted instruction program. *Comput Nurs*, 17(4), 171-6.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, patient compliance, healing time, patient satisfaction, and outcomes.

An interactive multimedia computer-assisted instruction on congenital heart disease was developed to increase nursing students' understanding of congenital heart disease. *Computer-assisted instruction, with its ability to incorporate sound, visuals, and interactivity, provides a multimedia and interactive learning environment that enhances the teaching and learning process. Computer-assisted instruction is a cost- and time-effective teaching and learning strategy that can be tailored to the subject and student population.* This article presents information regarding the process of developing an interactive multimedia computer-assisted instruction program on congenital heart disease

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19. Rubens, A.J. (1992). Interactive videodiscs: a new approach to healthcare education. *Comput Health*, 13(7), 42-4, 46.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, healing time, and outcomes.

Linking computer and video technology has produced a new way to educate healthcare providers. *These keyboard classrooms offer faster comprehension, better retention and lower costs than most traditional methods.*

Northern Illinois University, Dekalb, IL.

20. Schare, B.L., Dunn, S.C., Clark, H.M., Soled, S.W., & Gilman, B.R. (1991). The effects of interactive video on cognitive achievement and attitude toward learning. *Journal of Nursing Education*, 30(3), 109-13.

Supports the positive influence of interactive and / or audiovisual material on: patient compliance, patient satisfaction, and outcomes.

The purpose of this experimentally designed study was to determine the effects of an interactive videodisc program, entitled "Diabetic Health Assessment," versus traditional lecture on cognitive learning and affective behaviors of baccalaureate nursing students. It was hypothesized that: 1) there would be no significant difference in the cognitive achievement scores between those students taught by an interactive videodisc program (experimental group) compared to those students taught by a traditional lecture method (control group), and 2) there would be a statistically significant difference in student attitude toward learning between those students taught by an interactive videodisc program compared to students taught by a traditional lecture method. Eighty-three third-year baccalaureate nursing students at a major urban university served as subjects and were randomly assigned to either a control (n = 41) or an experimental group (n = 42). The multivariate analysis of covariance with two criteria and the pretest as the covariate was significant ($p = .000$, $df = 4, 140$) indicating that the adjusted posttest scores on the two measures were significantly different for the experimental group compared to the control group. The univariate F for the cognitive measure was nonsignificant ($p = .283$, $df = 2, 72$) indicating that students' achievement under interactive video is not significantly different than under traditional lecture. *The univariate F for the affective measure was significant ($p = .000$, $df = 2, 72$) indicating that the students learning by interactive video possessed a more positive attitude toward learning than those learning by traditional lecture method of instruction.*

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21. Sechrest, R., & Henry, D. (1996). Computer-based Patient Education: Observations on Effective Communication in the Clinical Setting. *Journal of Biocommunication*, 23(1), 8-12.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, patient compliance, healing time, patient satisfaction, and outcomes.

The following summarizes the above referenced article: Over the past five years, these authors have been involved in developing patient education software for use in surgical orthopedics. The article reports their experience with this medium and suggests considerations for others who may be developing similar materials. Per the authors: ‘One of the most critical elements in designing patient education materials is presenting the necessary material in order to achieve a balance between the amount of material covered, and the level of complexity of the material. Also, to maximize clinical efficiency, computer-based solutions must minimize staff involvement. Points to consider are audience, content, and interface considerations. Creating programs that rely on simple graphics and animation to illustrate key concepts makes the programs available to as wide an audience as possible. Clarification of concepts at an understandable level is important as is an interface that encourages or discourages browsing, depending on goal of program. *Others studies have shown that patients desire information concerning their conditions (Brody 1980; Brody et al. 1989; Edne et al. 1989; Greenfield et al. 1985). When the quality of the information a patient receives improves, awareness of treatment goals increases and compliance with treatment objectives improves (Greenfield et al. 1985; Kahn 1993; Vickery et al. 1983; Wetstone et al. 1985).*

This ultimately creates a higher level of patient satisfaction (Waitzkin 1984) and may reduce the incidence of malpractice claims. Computer-assisted learning techniques can have an impact on both the efficiency of providing health care services and meeting patient demand of having a more active role in making health care decisions.’

22. Shaw, M.J., Beebe, T.J., Tomshine, P.A., Adlis, S.A., & Cass, O.W. (2001). A randomized, controlled trial of interactive, multimedia software for patient colonoscopy education. *Journal of Clinical Gastroenterol*, 32(2),142-7.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, patient compliance, healing time, patient satisfaction, and outcomes.

The purpose of our study was to assess the effectiveness of computer-assisted instruction (CAI) in patients having colonoscopies. We conducted a randomized, controlled trial in large, multispecialty clinic. Eighty-six patients were referred for colonoscopies. The interventions were standard education versus standard education plus CAI, and the outcome measures were anxiety, comprehension, and satisfaction. Computer-assisted instruction had no effect on patients' anxiety. *The group receiving CAI demonstrated better overall comprehension (p < 0.001).* However, Comprehension of certain aspects of serious complications and appropriate

postsedation behavior were unaffected by educational method. *Patients in the CAI group were more likely to indicate satisfaction with the amount of information provided when compared with the standard education counterparts ($p = 0.001$).* Overall satisfaction was unaffected by educational method. *Computer-assisted instruction for colonoscopy provided better comprehension and greater satisfaction with the adequacy of education than standard education. Computer-assisted instruction helps physicians meet their educational responsibilities with no decrement to the interpersonal aspects of the patient-physician relationship*

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23. Sluijs, E.M., Kok, G.J., & Van der Zee, J. (1993). Correlates of exercise compliance in physical therapy. *Physical Therapy*, 73(11), 771-82.

Supports the positive influence of interactive and / or audiovisual material on: patient compliance, patient satisfaction, and outcomes.

BACKGROUND AND PURPOSE. This correlational study describes factors that are related to patient compliance with exercise regimens during physical therapy. We investigated whether patient compliance was related to characteristics of the patient or the patient's illness, to the patient's attitude, or to the physical therapist's behavior. **SUBJECTS AND METHODS.** Of a random sample of 300 physical therapists in private practice in the Netherlands, 222 therapists responded to a questionnaire survey. Eighty-four respondents also made audio recordings. Materials of the study were 1,931 registration forms, 1,837 audio-recorded sessions of physical therapy sessions, and 1,681 patient questionnaires. **RESULTS.** *The results show that the three main factors related to noncompliance were (1) the barriers patients perceive and encounter, (2) the lack of positive feedback, and (3) the degree of helplessness.* The first factor, the barriers patients perceive and encounter, shows the strongest relation with noncompliance. The results also show that noncompliance is more strongly related to the characteristics of the illness than to the illness, a bad prognosis is negatively related to compliance, and much hindrance of the complaint is positively related to compliance. There was no difference between men and women with regard to patient compliance, but less educated patients were slightly more compliant than more highly educated patients. **CONCLUSION AND DISCUSSION.** These correlational findings can be used to formulate hypotheses of cause and effect in future clinical research. Future research

should take into account the type and efficacy of therapeutic exercise for different diseases. For physical therapy practice, it seems important that physical therapists carefully explore which problems patients encounter in their efforts to comply and that they seek solutions to those problems in mutual cooperation with their patients.

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24. Stenmar, L., & Nordholm, L.A. (1994). Swedish physical therapists' beliefs on what makes therapy work. *Physical Therapy*, 74(11), 1034-9.

Supports the positive influence of interactive and / or audiovisual material on: patient compliance, patient satisfaction, and outcomes.

BACKGROUND AND PURPOSE. The purpose of this study was to find out what practicing physical therapists believe to be the most important factors in successful treatments.

SUBJECTS. A national random sample of 187 Swedish physical therapists received the survey instrument by mail. The response rate was 76%. **METHODS.** On the basis of a pilot interview study and literature review, a survey instrument was constructed consisting of 22 Likert-type items and various demographic variables. **RESULTS.** *The findings indicated that a majority of the respondents believed that the patient's own resources and the patient-therapist relationship rather than the treatment techniques are the most important factors in explaining why physical therapy works.* Most physical therapists endorsed a holistic view of treatment (pertaining to the whole person, not just body parts), although significantly more women than men supported this viewpoint. Other background factors had no relationship to the beliefs and attitudes expressed. **CONCLUSION AND DISCUSSION.** The findings are discussed within the framework of attribution theory, and in the context of viewing physical therapy as an applied biomedical science or a caring profession.

In this study, the view of physical therapy as a caring profession prevailed among the majority of the physical therapists.

Goteborg College of Health and Caring Sciences, Sweden.

25. Stromberg, A., Ahlen, H., Fridlund, B., & Dahlstrom, U. (2002). Interactive education on CD-ROM-a new tool in the education of heart failure patients. *Patient Educ. Couns.*, 46(1), 75-81.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, patient compliance, healing time, patient satisfaction, and outcomes.

The study aimed to develop and evaluate whether a computer-based program for patients with heart failure was user-friendly, could be operated by elderly patients and gave sufficient information about heart failure. The program was developed by a multidisciplinary group and

designed with large, clear illustrations and buttons. A total of 42 patients aged 51-92 years tested the program and completed afterwards a questionnaire. Three heart failure nurses evaluated how the patients used the program and their attitudes towards the computer. *All patients could use the program, despite the fact that only six had used a computer before. The patients were satisfied with the computer-based information and appreciated that the program was interactive, flexible and contained a self-test. They thought it was a better way of receiving information than reading a booklet or watching a video about heart failure. The nurses reported that the patients were positive towards the computer and seemed to understand the information and that the patient education was less time-consuming, when the patients could seek knowledge on their own.*

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26. Tomita, M., Takabayashi, K., Honda, M., Yamazaki, S., Suzuki, T., Tomioka, H., Nishimoto, M., Nakano, M., Satoh, Y., & Nojiri, M. (1995). Computer assisted instruction on multimedia environment for patients. *Medinfo*, 8(2), 1192.

Supports the positive influence of interactive and / or audiovisual material on: patient compliance, patient satisfaction, and outcomes.

Computer Assisted Instruction (CAI) is a valuable tool that not only encourages patients, but also provides medical information and the motivation for self management. We developed three modules within a multimedia environment for patients with diabetes or bronchial asthma; positive results were obtained. By using CAI, a reduction in the nurses' workload is achieved along with patients gaining profound and standardized knowledge. We also found some substantial characteristics in the patients' learning behavior and the value of "active learning" in CAI.

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27. Wetstone, S., Sheehan, T.J., Votaw, R.G., Peterson, M.G., & Rothfield, N. (1985). Evaluation of a computer based education lesson for patients with rheumatoid arthritis. *J Rheumatol*, 12(5), 907-12.

Supports the positive influence of interactive and / or audiovisual material on: learning curve, healing time, and outcomes.

A computer based education (CBE) lesson was developed for patients with rheumatoid arthritis (RA) and evaluated using a controlled experiment. *There were statistically significant differences in the CBE group compared with controls in knowledge gained (p less than 0.01), improved outlook on life (p less than 0.01), hopefulness of a good prognosis (p less than 0.01), decreased belief in the role of luck or fate in determining their health (p less than 0.05) and reported increase in use of behaviors such as joint protection (p less than 0.02) and rest (p less than 0.05). The lesson was accepted and enjoyed by the patients.*

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