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ABSTRACT

It was hypothesized that a visual strategy that incorporates a humorous theme and cartoons with humorous comments relevant to the content helps motivate students to focus on and retain computer-based instructional material. An experiment to assess this hypothesis was undertaken with 43 college students who received a humorous presentation on identifying the tick that carries Lyme disease. Their results on a test on tick anatomy were compared with those of 32 students who had received a conventional lesson. Results indicate no significant difference between treatment strategies in terms of learning and retention. The humor group did indicate more concern about ticks and tick-borne disease, which suggests that they might be more likely to take precautions or might have experienced a different form of learning. Although no differences in learning and retention were seen, the group receiving the humorous treatment appeared to experience more affective impact. Suggestions are given for incorporating humor into computer-based presentations. (Contains 29 references.) (SLD)

Use of Humorous Visuals to Enhance Computer-Based-Instruction

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BACKGROUND:

According to Hill (1988), "One of the most important functions of humor (in the classroom) is to create a positive learning environment...When students can relate what they learn to a memorable context, whether it is visual or emotional, they are more likely to remember the information. Using jokes and anecdotes to enhance stories provides such an association." (p.20). Keller and Suzuki (1988) state in their ARCS Motivational Model that gaining and maintaining attention of the learner is the first principle for developing motivation in a lesson.

Some research has been conducted on the use of humor in the classroom and in business settings. It has been used as a motivational objective and as an enhancement to learning and retention (McGhee, 1980; Zemke, 1991; Ziv, 1979, 1988a, 1988b); however, no investigations have focused on these issues in computer-based-instructional material.

What is humor? And what is it to be humorous? McGhee (1979) traces the Latin term "humor" to ancient, medieval and Renaissance physiology when it referred to one of four bodily fluids associated with temperament. To be in a "good mood" meant the fluids were balanced; otherwise, one would be "out of humor". (p.5) Later the term "humorist" was applied "to anyone who was highly skilled at producing amusing, incongruous, ridiculous or ludicrous ideas and events." (p.5). Freud believed humor to be important as a coping mechanism. (MacHovec 1988). He further maintained that humor permitted adults to enjoy a childlike release from societal restrictions on behavior. (Keith-Spiegel, 1972). Sorrell (1972) states "laughter lifts man above his animalistic state, sets him free, and gives his spirituality another dimension." According to MacHovec (1988) humor is a universal characteristic.

From ancient to modern times, regardless of culture, religion, geographic location, language, ethnic identity or gender, laughter is a part of everyone's experience. MacHovec (1988) calls it "a complex psychological-emotional phenomenon." (p.3). Although what is considered funny for one person or group may not be so for another, still there are classic stories and situations that transcend cul-

tures and time.

The effects of humor as a form of mass audience appeal has been seen in television programming. The effect, besides entertainment, is that humor serves as a diversion from everyday problems, a relief from frustrations and boredom. Most particularly, humor is exploited for its "drawing power." (Brown and Bryant, 1983).

In an effort to attract audiences, children's educational programs, such as "Sesame Street" and "The Electric Company" incorporate humor and elaborate visual effects. Many techniques are inspired by "MTV" or pinball arcades. Wakshlag, Day and Zillman (1982) investigated the amount and distribution of humor used in educational programs and how children select one program over another. The conclusions were that both boys and girls chose humorous educational programs over non-humorous educational programs when they were free to choose what they watch.

There is a risk in exploiting humor in educational programming. It could interfere with cognitive processing of the serious portions of the material because the viewer may not put in the mental effort required to encode facts and concepts. However, Zillman and Bryant, (1983) report that "based on Freudian reasoning, humor has been expected to alleviate tensions and anxieties; consequently it should relax students who are uptight about exams and improve performance." (pp. 177-178) But these data are inconclusive.

Bryant, et al. (1980) reviewed the literature on how humorous illustrations in textbooks affected information acquisition, appeal, persuasibility and motivation. Their conclusions were mixed. Texts were considered to be more enjoyable with humor incorporated. However, the educational value was not demonstrated to have been significant. Indeed, humorous illustrations had the potential of impairing the persuasiveness of certain arguments.

Fleming (1966) rationalized that humor in pictures and text can aid in developing positive attitudes and learning in students of modern languages, much like political cartoons can "sway an entire election campaign." However, he did not test his theory.

Ziv (1988a) found significant differences in favor of learning with relevant humor compared to no humor in two studies of university students (the second replicated the first). In each case his research was based on one-semester courses as opposed to studies by others whose experiments ranged from seven minutes to one hour.

Gruner (1970) and Markievicz (1974) found that although attention and interest in a particular topic is enhanced with humor, comprehension and acceptance of a message were not. Hauck and Thomas (1972) found with elementary school children there was an increase in recall of incidental but not intentional material. Clabby (1979) found intentional learning among "low creative" students to be significantly higher using humorous captions.

Weinberg (1976) found no difference for comprehension and retention of adjacent material where humor was mixed with serious examples. Bryant et al. (1980) had similar results in textbooks using humorous illustrations. However, Weinberg (1976) found that humorous material seemed to help the "brightest and least anxious students but acted negatively for less able and

more anxious." (p.84). Kaplan and Pascoe (1977) found overall test performance of university students was not significantly different between humorous treatment and serious treatment groups, but there was better recall of humorous examples.

Powell and Andresen (1985) reviewed more than 50 papers speaking to the value of humor, but there have been few empirical studies conducted to verify the results. One of the qualities students would most hope to find in their teachers is humor. Ziv (1979) concurs that humor plays a significant role in creating a positive class atmosphere.

Zigler, Levine and Gould (1967) studied the cognitive "demands" of humor on children. They suggest that there is much gratification in the cognitive process involved in responding to humorous stimuli. There is a sense of achievement by "seeing the joke" This suggests an intrinsic motivation for humor in learning.

Davies and Apter (1980) studied 285 primary grade school children who were shown a series of tape-slides. The material incorporating humor resulted in the greatest retention of information. In a similar experiment with university students conducted by Clark (1983) the results did not indicate any effect on retention. However, the humorous material was rated for "liveliness", which may be a factor in reducing boredom.

According to Herbert (1991) humor can be categorized into four functional groups—psychological, sociological, physiological and educational (communication value.) The use of humor to create a friendly, pleasant environment in which to learn through computer-based instruction and how humor may enhance the learning experience is the basis of this investigation.

It is our hypothesis that a visual strategy which incorporates a humorous theme and cartoons with humorous comments relevant to the content will help motivate students to attend to the material, provide a warm environment and aid in encoding facts and concepts better than material presented in a standard, non-humorous way.

THE STUDY:

An experiment to assess this hypothesis was recently undertaken at a large eastern university. The study tested the effects of a CBI science lesson that incorporated a humorous theme (Fig. 1), cartoons and animation with a CBI science lesson presented in a traditional manner with no humor. (Figs. 2-3)

The topic of the science lesson, "Anatomy of the Hard Tick," was selected on the basis of a growing health problem in United States—Lyme disease, which is caused by a particular species of tick. In order to diagnose Lyme disease correctly, it is necessary to accurately identify ticks to species. The tick anatomy lesson is part of a complete computer-based courseware package being developed at Penn State.

Humor in this study was defined as: The use of a theme that is ridiculous and exaggerated based on a parody which combined a familiar Charles Addams-like cartoon with a Dracula-type character (Fig. 4); content material presented in a lighthearted manner, rather than a facts-only scientific style; inclusion of whimsical cartoons (Fig.5) and animation; inclusion of occasional informal, conversational mnemonics as memory aids versus mnemonics given as straight memory aids.

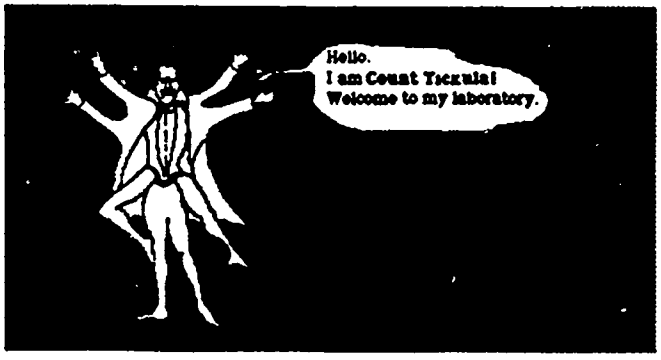

FIGURE 1.
Introductory Screen from Humor Lesson

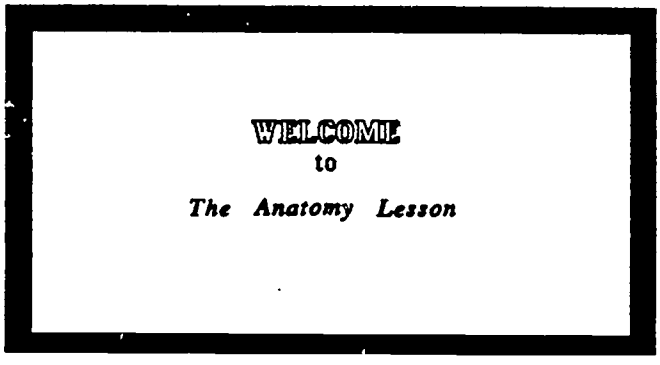

FIGURE 2.
Introductory Screen from Traditional Lesson with No Humor

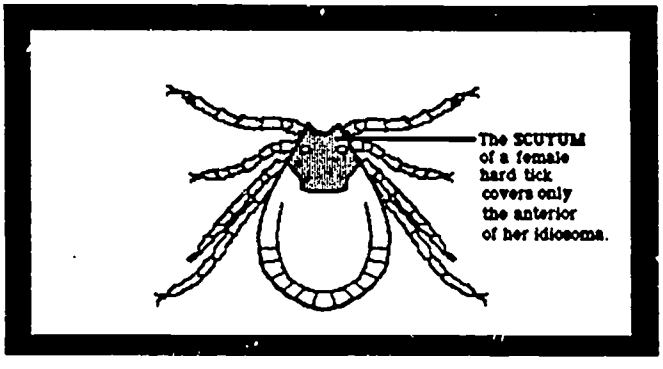

FIGURE 3.
Basic Information Screens
Used in Both Lessons

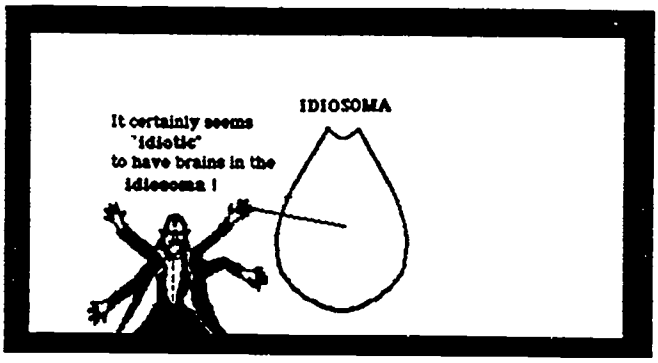

FIGURE 4.
Screen from Humor Lesson
with Narrator Giving a Mnemonic Aid

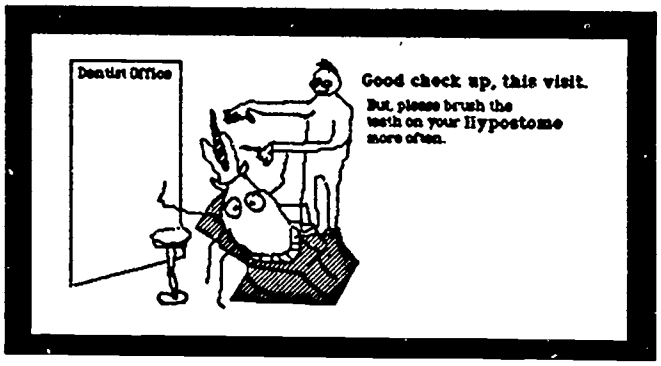

FIGURE 5.
Screen from Humor Lesson
Emphasizing the Location
of a Particular Anatomical Structure

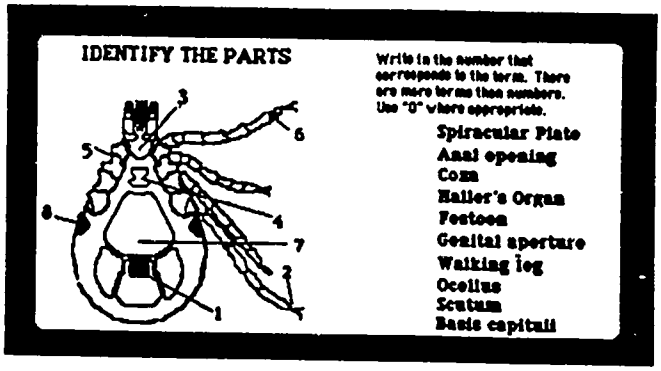

FIGURE 6.
One of the Screens
Used to Test All Study Participants

The computer-based instructional lesson (CBI) "Anatomy of the Hard Tick" was presented to two treatment groups. One group comprising 43 students received the lesson with the inclusion of a humorous theme and humorous comments related to the content. The second group comprising 32 students received the lesson "Anatomy of the Hard Tick" without the inclusion of any humor. A third group comprised of 40 students served as a control and received no lesson.

One week after the initial treatment, all three groups were given identical tests on factual and conceptual knowledge of tick anatomy (Fig. 6). In addition they were also given a brief survey of questions based on their college major, background experience with ticks and Lyme and other tick-borne diseases and opinions of the instructional material.

RESULTS:

Statistical one factor analysis of variance was used to determine the difference between groups in terms of total scores on the delayed post test. No significant difference was found between humor and non-humor groups, only between the control group and treatment groups. Both treatment groups were equal in terms of enjoyment of the lessons. Not surprisingly, the control group, which did not receive the lesson, measured significantly lower at the p=.05 level in enjoyment level.

A two factor analysis of variance was used to determine differences in total scores based on having been bitten by a tick or having contracted Lyme disease. The theory for these questions was that personal experience with ticks may increased interest and attention in the lesson material. However, no differences were found between those subjects who had been bitten by a tick and those who had no been bitten. None of the participants in the study had contracted Lyme disease.

Whereas certain regions of the country are more vulnerable to ticks and tick-borne diseases than others, the location of the participants' home residence did not seem to factor into the results. Also, none of the participants had associations with anyone who had been sick with a tick-borne disease.

On the affective measures, the extent to which participants were afraid of insects, spiders and ticks, no significant difference was indicated between any of the three groups. However, in terms of the degree to which subjects' were worried about ticks and tick-borne diseases, there was significant difference at the p=.05 level with the humor group being more worried.

DISCUSSION:

The results of this study indicate that there was no significant difference found between treatment strategies in terms of learning and retention. These findings are supported by Sewell (1979). His study in part compared comprehension and evaluation of five different treatment strategies including humor in the form of cartoons that accompanied textual material.

It is theorized by the authors, however, that the scientific, sequential use of graphics were sufficiently meaningful to produce highly positive results without the use of humor to enhance learning. This is useful in terms of allowing choice without compromising quality of instruction.

In terms of affective results of the study, the humor group indicated significantly

more worry about ticks and tick-borne disease. This is important since being concerned about potential dangers may imply that precautions are more likely to be taken in vulnerable areas and medical advice sought, if bitten. These data also imply that another form of learning took place as a result of more dramatic reinforcement of concepts.

Questions for further research were raised as a result of the current study. Would separating the groups into different meeting times make a difference to the learning and retention outcome? During this study only one third of the subjects received humorous material at any session. However, with subjects who took the humor lesson when no one besides the author was present, there was more outer expressions of amusement observed, such as smiles and laughs. In a group situation, perhaps there is a need for a "critical mass" attending the same information to be amused.

Would treatments more diverse be a better means of assessing the effect of humor? It would be interesting to compare treatments that have a wider degree of variability in terms of graphics enhancements with or without humor and text alone without graphics but with or without humor. There is also a possible need for a warm-up to humor just as audiences receive to set the tone and stage for the big performer.

CONCLUSION:

The theory behind designing computer-based-instructional courseware with the inclusion of humorous visuals, was to attempt to recreate the warm and comfortable feeling that one might experience in a classroom with a friendly, upbeat teacher. Creating a inviting atmosphere is important for general appeal. Learners are more apt to use and enjoy computer-based instructional programs that meet individual preferences. In this way, it was thought that greater learning and retention would take place. The fact that both humorous and non-humorous groups were found to have no significant difference in test performance can be interpreted as meaning that both presentations were equally effective. Both contained clear and sequential graphics and the humorous theme and animation apparently did not enhance the learning in this study. However, the advantage of this finding is that if the subjects were given a choice of lesson approaches, the could expect to achieve equal outcomes.

The study did indicate that on the affective level, the humor group was more impacted by the dangers of ticks and tick-borne diseases, and thus may be expected to be more cautious in vulnerable outdoor locations and seek appropriate aid if bitten.

SUGGESTIONS for INCLUDING HUMOROUS GRAPHICS in CBI:

Based on the literature regarding humor and the strategies incorporated in the treatments of this study, the following guidelines are proposed for including visual humor in CBI:

* Use a humorous theme as an analogy to the content.
* Relate cartoon characters to content.
* Avoid offending through slurs or put-downs of a target group.
* Pace humor strategically throughout the lesson.
* Incorporate humorous mnemonics.
* Ensure clarity so the point is made and

humor is not lost.

* Use puns or humorous comments.
* Use humorous animation to highlight certain important features.
* Create special effects through graphics applications.
* Text can be humorous to make a point, even if the illustration is not humorous.
* Make characters lifelike and likable where appropriate.
* Use first person to give the narrator personality.
* Get serious within the context of humor by using a disclaimer.
* Use supplemental cartoons related to content.
* Have narrator introduce mnemonics as memory aid.
* Be cautious using "risque" comments.
* Use humor to point out differences.
* New characters, relevant to the theme can introduce additional facts and concepts.
* Use humor to address sensitive points or issues.
* Use a humorous announcement to do something the learner may not wish to do—like take a test.

REFERENCES:

Brown, D. & Bryant, J. (1983). Humor in the mass media. (In McGhee, P.E. and Goldstein, J.H. Eds., 1983).

Bryant, J., Brown, D., Silverberg, A. and Elliot, S.M. (1980). Humorous Illustrations in textbooks: Effects on information acquisition, appeal, persuasibility and motivation. Paper presented in the Instructional Development Division's Top Three Program, Speech Communication Association Convention, New York, Nov. 13-16.

Clabby, J.F. (1979). Humour as a preferred activity of the creative and humour as a facilitator of learning, *Psychology: A quarterly Journal of Human Behavior*, 16, 5-12. (In Powell, J.P. and Andresen, L.W., 1985).

Clark, J. (1983). *The Effect of Humorous Content in a Slide-tape Program in Information Acquisition, Attitudes to Content and Program Ratings*, Unpublished M.Ed. Thesis, Macquarie University. (In Powell, J.P. and Andresen, L.W., 1985).

Davies, A.D. and Apter, M.J. (1980). Humor and its effect on learning in children. (In McGhee, R.E. and Goldstein, J.H. (Eds., 1985).

Fleming, G. (1966). Humour and language teaching, *Audio-Visual Language Journal*, 3(3), pp.1-7.

Goldstein, J.H. & McGhee, P.E. (1972). *The Psychology of humor: Theoretical Perspectives and Empirical Issues*. New York: Academic Press.

Gruner. C.R. (1970). The effect of humour on dull and interesting informative speeches, *Central State Speech Journal*, 21, 160-166. (In Powell, J.P. and Andresen, L.W.,1985).

Hauck, W.E. and Thomas, J.W. (1972) The relationship of humour to intelligence, creativity, and intentional and incidental learning, *Journal of Experimental Education*, 40, 52-55. (In Powell, J.P. and Andresen, L.W.,1985).

Herbert, P.J. (1991). *Humor in the Classroom: Theories, Functions, and Guidelines*. Paper presented at the Annual Meeting of the Central States Communication Association, Chicago, Ap. 11-14.

Hill, D.J. (1988). *Humor in the Classroom: A Handbook for Teachers and Other Entertainers*. Springfield, IL: Charles C. Thomas, Publisher.

Kaplan, R.M. and Pascoe, G.C. (1977). Humorous lectures and humorous examples: some effects upon comprehension and retention, *Journal of Educational Psychology*, 69, 61-65.

Keith-Spiegel, P. (1972). Early conceptions of humor: Varieties and issues. (In Goldstein, J.H. & McGhee, P.E., 1972).

Keller, J.M. and Suzuki, K. (1988). The use of the ARCS motivational model in courseware design. In Jonassen, D. (Ed.) *Instructional Designs for Microcomputer Courseware*. Hillsdale, New Jersey: Lawerence Erlbaum Associates, Publishers.

MacHovec, F.J. (1988). *Humor, Theory, History, Applications*, Springfield, Illinois: Charles C. Thomas Publisher.

Markievicz, D. (1974). Effects of humour on persuasion. *Sociometry*, 407-422. (In Powell, J.P. and Andresen, L.W., 1985).

McGhee, P.E. and Chapman, A.J. (Eds.) (1980). *Children's Humor*. Chichester: John Wiley and Sons.

McGhee, P.E. and Goldstein, J.H. (1983). Handbook of Humor Research, Vol. 2, New York: Springer-Verlag.

Powell, J.P. and Andresen, L.W. (1985). Humour and teaching in higher education, *Studies in Higher Education*, 10(1), 79-90.

Sewell, Jr., E.H. (1979). Effect of cartoon illustrations on the comprehension and evaluation of information presented in the print and audio mode. Research *and Theory Division, Association for Educational Communications & Technology Conference Proceedings*. New Orleans.

Sorrell, W. (1972) *Faces of Comedy*. New York: Grossett and Dunlap.

Wakshlag, J.J., Day, K.D., & Zillman, D. (1982). Selective exposure to and acquisition of information from educational television programs as a function of appeal and tempo of background music. Journal of Educational Psychology, 74, pp.666-677.

Weinberg, M. (1976). Comedy in the classroom. In Chapman, A.J. and Foot, H.C. (Eds.) *It's a Funny Thing, Humour*. Oxford: Pergamon.

Zemke, R. (1991). Humor in training: Laugh and the world learns with you--maybe, *Training*, 28(8), pp.26-29.

Zigler, E., Levine, J. and Gourld, L. (1976). Cognitive challenge as a factor in children's humor appreciation, *Journal of Personality and Social Psychology*, 6, pp.331-336. (In Powell, J.P. and Anresen, L.W., 1985).

Zillmann, D. & Bryant, J. (1983). Uses and effects of humor in educational ventures. In McGhee, P.E. & Goldstein, J.H. (Eds.) *Handbook of Humor Research*, Vol. 2, New York: Springer-Verlag.

Ziv, A. (1979) The teacher's sense of humour and the atmosphere in the classroom, *School Psychology International*, 1(2), pp.21-23.

Ziv, A. (1988a). Teaching and learning with humor: Experiment and replication, *Journal of Experimental Education*, 57(1), pp.5-15.

Ziv, A. (1988b). The influence of humorous atmosphere on divergent thinking, *Contemporary Educational Psychology*, 8(1), pp.68-75.