

Learning Multi-Systems

Technology Resources for Education

LMS

LEARNING MULTI-SYSTEMS, INC.



Learning Multi-Systems, Inc.

Youth Tobacco Prevention Technology Initiative

The *Body Awareness Resource Network (BARN)*, developed at the University of Wisconsin-Madison, targets adolescents with state-of-the-art software to prevent tobacco use.

Learning Multi-Systems, Inc. (LMS), a Wisconsin company, proudly displays the *BARN's* "Best of Category" award in health education and prevention from the American Medical Association, and has received SBIR grants from the National Cancer Institute and the National Institute for Drug Abuse for on going technology development of this prevention program.

LMS would suggest that funding for an anti-tobacco initiative using *BARN* technology be directed to a non-profit organization that can implement the program on a state-wide basis. LMS would work partner with in delivery of the program.

This initiative would implement the use of computer technology as a strategy for the prevention of tobacco use and other risk-taking behaviors. Funding would:

- develop program awareness;
- provide teacher training programs;
- reimburse schools for teacher training;
- supply *BARN* software;
- provide for a project follow-up evaluation.

Funding level: \$1.8 million

Background information enclosed

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Technology to Inspire Learning

Smoking The Addictive Truth

The Tobacco Game

Reading with Progress

The Truth About Tobacco

Teen Views

This is the Main Menu. Click

State Journal photos ©/EVE AP/PS

Smoking is one of the topics for health education CD-ROMs produced by Learning Multi-Systems of Madison. Students click on one of the brightly colored, moving spheres to get more information about a particular aspect of the lure of cigarette smoking for teens.

2F

Software

Continued from Page 1F

figures guiding the way.

Action is quick, not unlike an electronic game or virtual pet so many of the kids have played.

Rather than making moral judgments, the programs present information and query about attitudes. And students can keep their involvement at arm's length — no need to make any grand confession.

Studies have shown that with higher-risk students, teens tend to tune out the lectures from parents and teachers, "sender-oriented" messages, Oltrogge said.

Using a computer program gives students control over what they want to see.

"It tended to empower them. They become seekers of information, not just recipients," he said.

The smoking program, for example, asks students why they think teens start to smoke:

- To relieve stress.
- To look and feel older.
- To feel tough and independent.
- To be part of a group.
- To feel cool and more confident.

Because family, important friends and/or sports and music stars do it.

It lists images that cigarette advertisements use to draw kids in and asks, "What do you think is the biggest lie in that ad?"

The Kenosha Unified School District has used several of the BARN programs, mostly at the middle-school level, as prevention education, said Floyd Asonwha, safe and drug-free schools program consultant.

"They like the games," said Asonwha. "Typically, there's a game or challenge on the disc

that's fun to do and sometimes informative."

Kenosha schools are using the tobacco program as an after-school activity for students caught smoking at school, he said.

More than 5,000 copies of the first version of the health education series are used in classrooms around the country.

The multimedia version, released last year on CD-ROM, adds sound effects, music, voiceovers, three-dimensional graphics and fast-paced animation. More than 1,000 copies have been sold so far, directly through the company. Special editions also have been created for two textbook publishers and are sold separately.

But funding for health education can be hard to come by at times when school budgets are pinched, said Oltrogge.

So, Learning Multi-Systems is branching out into other types of classroom topics. A series called "The Great Game Review" will debut this spring, designed to accompany texts in more basic subjects, ranging from history to algebra.

Radio announcers Jim Packard, of WHA-AM, and Kitty Dunn, of WMMM-FM, provide the voices that lead students through a game of questions using animated dogs and cats as players and virtual dice to call the moves.

With his offerings expanding, Oltrogge expects to expand staff of 10 as well, adding three or four employees in the next year.

He anticipates revenue of \$750,000 in the current fiscal year, double the figure of two years ago.

"Kids are used to TV and video games," said vice president Woodyard Chastain.

The programs are meant to complement teachers, not replace them, Chastain said. "They can generate interest in an area where it might not have been before."

Software takes on hard subjects for teen-agers

They can test situations in cyberspace.

By Judy Newman
Business reporter

It isn't easy to start a discussion with teen-agers about alcohol, drugs, smoking or sex.

But a Madison company makes software that gets students thinking not only about the choices they make, but also about the consequences.

Tara and Chad are high school students who meet and develop strong feelings for each other. Out on a date one Friday night, they find they have to make some decisions.

Should they move beyond kissing?

Is Tara worried that Chad will drop her if she doesn't want to take the next step?

Is Chad anxious about what his friends will say?



recipients.'

niques for reading education.

"We were skill-based, and skill-based at that time lost favor," president Brad Oltrogge said. "Now the pendulum is moving back."

In the meantime, though, his company was invited to apply for the license to a health education series developed at UW-Madison, based on a two-year study of 6,000 students nationwide.

Bolstered by federal grants, including a two-year, \$734,000

Small Business Innovation Research grant approved last fall, Learning Multi-Systems has turned the material into a multimedia presentation tackling tough issues in an engaging way.

Brad Oltrogge
president of
Learning Multi-Systems

Separate programs address alcohol and other drugs, smoking, nutrition,

stress management, AIDS and human sexuality.

But far from the traditional birds-and-bees type lecture, the programs are flashy, catchy, hip and interactive.

Punctuated by electronic music, the computer program lets students choose an aspect of the topic to delve into.

A simulated radio call-in show, hosted by former WMMM-FM announcer John Urban, breaks the ice as teens "phone in" questions to a panel of peers.

There are "board games" to play, multiple-choice questions to test knowledge, and colorful

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*Computer-Based Technology
in Support of Healthy Lifestyles*

BARN

THE BODY AWARENESS

RESOURCE NETWORK

Final Report

*A project of the Center for Health Systems Research and Analysis, College of Engineering,
University of Wisconsin—Madison, with funding by a grant from the W. K. Kellogg Foundation.*

W. K. Kellogg Foundation Sponsors UW-Madison Research

Adolescence is a time of curiosity. Between ages 11 and 18, young people want to know all about the things adults do—including risky behaviors that involve alcohol, drugs, smoking, and sex.

Families and society share the responsibility of satisfying teenage curiosity. Ideally, young people get the facts they need, when they need them. Ideally, parents and teachers help teenagers make sound, well-reasoned decisions.

But what happens when a teenager feels uncomfortable asking a parent or teacher for sensitive information? What if the teenager in search of an answer can't find one? What if he can't understand the technical language when he does find it?

The teenager makes a decision anyway.

Teenagers without sound information and decision-making skills are ill-equipped to pass unscathed into healthy adulthood. Whether through innocent gullibility, misinformation, or peer pressure—teens often make poor decisions about risky behaviors. The consequences of these poor decisions cost individuals, families, and society a great deal.

In 1981, researchers at the University of Wisconsin-Madison Center for Health Systems Research and Analysis (CHSRA) proposed a new way to communicate with teenagers about healthy lifestyles. They approached the W. K. Kellogg foundation to support the Body Awareness Resource Network . . . BARN.

CHSRA researchers wanted to develop and implement an interactive computer system that would satisfy teenagers' curiosity about risky behaviors. They pro-

posed that solid information, combined with the appeal and power of computers to tailor information to individuals and simulate real decision-making, could help delay or even thwart the onset of risky behavior among teenagers.

The W. K. Kellogg Foundation, established by the breakfast cereal manufacturer in 1930, invests its money in people. The goal is to help people help themselves. The CHSRA proposal met Kellogg's criteria. Over a seven-year period, the Foundation has awarded to CHSRA nearly \$2 million for the BARN project.

Between 1981 and 1988, CHSRA researchers created, implemented, and evaluated the interactive computer system they envisioned. UW-Madison experts in health policy, medicine, education, computer programming, and a variety of related disciplines contributed to BARN development.

Now adolescents and their families can rely on both Individual BARN and Family BARN programs for facts and strategies to support healthy lifestyles.

This is the final report to the W. K. Kellogg Foundation. Other reports have been submitted previously. The researchers gratefully acknowledge the W. K. Kellogg Foundation's support. Special thanks are in order to Foundation officers and staff Dr. Arlon Elser, Dr. Helen Grace, Dr. Tom Bruce, Dr. Robert Sparks, Joan Cleary, and Dorothy Bellhouse for their counsel and enthusiasm.

Madison, Wisconsin
June, 1988

Dear Journal

April 24, 1988

Dear Barry,

I think you're great in a way, that if I feel uncomfortable I can work with you privately or if I feel like laughing at something that you show me, like the scene you showed me called 'The SOAPS'.

I think that scene taught me & others who watch to just say 'No!'

It can also be helpful if you bump into a situation like that.

See you
next time
I hope

The Researchers

Center for Health Systems Research and Analysis



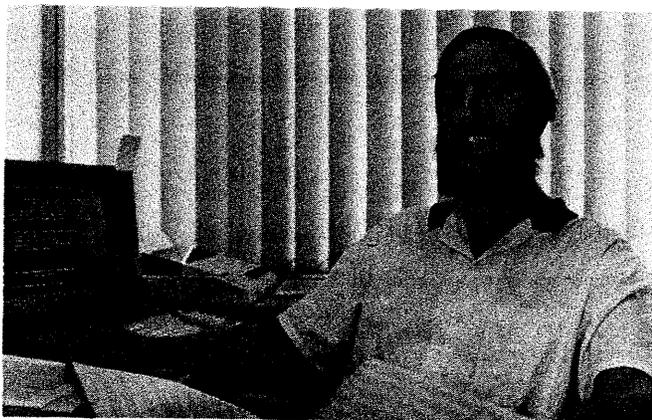
"Technology provides a nonthreatening, easy-to-use, authoritative way to give information, referral, and decision support on sensitive subjects. Industrial and systems engineering tools such as computer-based decision support systems are particularly appropriate for dealing with the problems faced by teenagers and their families."

David H. Gustafson, principal investigator, chairs the UW—Madison Department of Industrial Engineering and is also Professor of Preventive Medicine. He earned his Ph.D. in industrial engineering at the University of Michigan.



"Teenagers want to know the facts about sex, alcohol, and other drugs. Yet they're often afraid to approach adults to learn more about these and other sensitive issues. Accurate information can be scattered and may not be presented in a way teens can understand."

Kris Bosworth, principal investigator and BARN Project Director, is an associate research scientist at the UW—Madison Center for Health Systems Research and Analysis. She earned her Ph.D. in education and evaluation at the University of Wisconsin—Madison.



"Sound evaluation is imperative to measure the impact and effectiveness of any health education campaign. But when using a new communication medium, as with BARN, we also have to address the dynamics of computer use in school and at home."

Robert P. Hawkins, principal investigator, is Professor of Journalism and Mass Communications, UW—Madison. Dr. Hawkins earned his Ph.D. in communication research at Stanford University.

Acknowledgments

Two past principal investigators played important roles in the BARN project. They are Dr. Betty Chewning, now Director, Sonderegger Research Center, School of Pharmacy, University of Wisconsin—Madison; and Trisha Day, Assistant Professor and 4-H Youth Development Specialist, University of Wisconsin—Extension.

Hundreds of people contributed to the BARN project—students, teachers, administrators, parents, researchers, consultants, programmers, and office support staff. We thank everyone who made the project possible, especially the administrators, teachers, and students of the Madison Metropolitan School District and Stoughton Public Schools.

*Computer-Based Technology
in Support of Healthy Lifestyles*

BARN

THE BODY AWARENESS RESOURCE NETWORK

Final Report

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Credits

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1-800/362-7323 (toll-free number during business hours)

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BARN Encourages Healthy Lifestyles



"One of the top comprehensive health education programs . . ."

Booklist

"BARN brings in a new element to health education. It says 'be inquisitive' . . . BARN makes it easy to find answers."

John Turpin, Health and Physical Education
Coordinator
School District 13
Brooklyn, N.Y.

". . . exceptional and virtually without a counterpart in the field of health education."

Phyllis Levinson, Ph.D.
Department of Health, Physical Education
and Recreation
University of Houston

". . . a new discipline of decision support systems [that] couples the power of computers with the sophistication of information theory, decision analysis and communications theory."

Ralph Wagner, President
Encyclopaedia Britannica Educational Corp.

"BARN programs add something extra to the regular health curriculum. Kids have an opportunity to ask BARNY delicate questions that they wouldn't ask a health teacher or any adult."

John Carpenter, Learning Coordinator
Robert Fulton Middle School
Milwaukee, Wis.

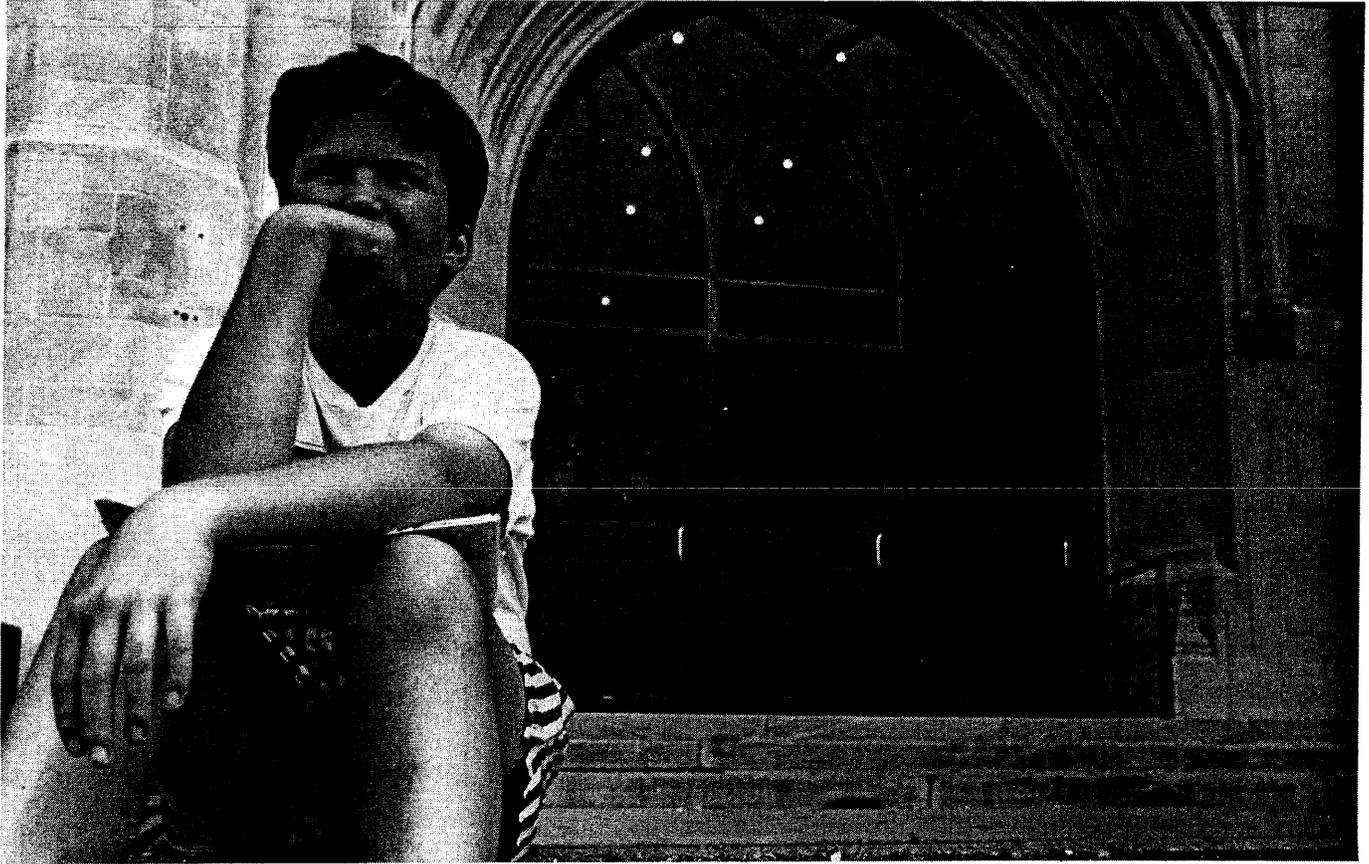
"When [BARN] was available, [students] used it. They had fun doing it. The experience lasted beyond their time on the computer. When they were walking out the door, they were talking about what they saw on BARNY."

Steve Morris, Library Coordinator
Junior High School #258
Brooklyn, N.Y.

"BARN elicits good interaction between males and females. It elicits thinking responses."

Bronwyn Des Anjes, Health Coordinator
Adolescent Health Program, Department
of Health
City of New York, N.Y.

The Problem



When they were teenagers, many of today's adults took a drink to learn about alcohol . . . took a puff to learn about cigarettes and/or marijuana . . . gossiped, read forbidden novels, or experimented to learn about sex.

Many lucky teens passed into adulthood unscathed. Others made mistakes that led to addiction, unwanted pregnancy, or other health-related misfortunes.

Today's teenagers face the same risks their parents faced—and more. Hard drugs, lethal diseases, and stressful day-to-day living threaten to overwhelm today's adolescents. The path to adulthood in the late 20th century can be rocky, indeed.

The Problem

The chart below illustrates the extent of teenage risk-taking as measured by the BARN program's survey of 1,673 teenagers.

The good news is that, more than ever before, information exists to help teenagers make healthy decisions. Unfortunately, the right information isn't always in a place or form that teenagers can readily use.

The Initial Challenge

BARN researchers addressed the challenge of bringing the two together—teenagers facing decisions and relevant facts to make a healthy choice.

Clearly, communication about health between adolescents and knowledgeable adults might help avoid or delay some risky or life-threatening behaviors. Even a single fact, available at the right time, might make a difference.

But it's hard for teenagers to approach most adults about sensitive topics. Teens fear being accused or lectured to when all they want is some basic information. Books or audio-visual presentations can be judgmental, value-laden, or incomprehensible.

For those who make mistakes, information is more available. Crisis-oriented health and social service agencies offer experts and printed materials. Unfortunately, the information usually comes only after the mistake has been made.

But what about the majority of teens—at risk but without access to comprehensive health education resources?

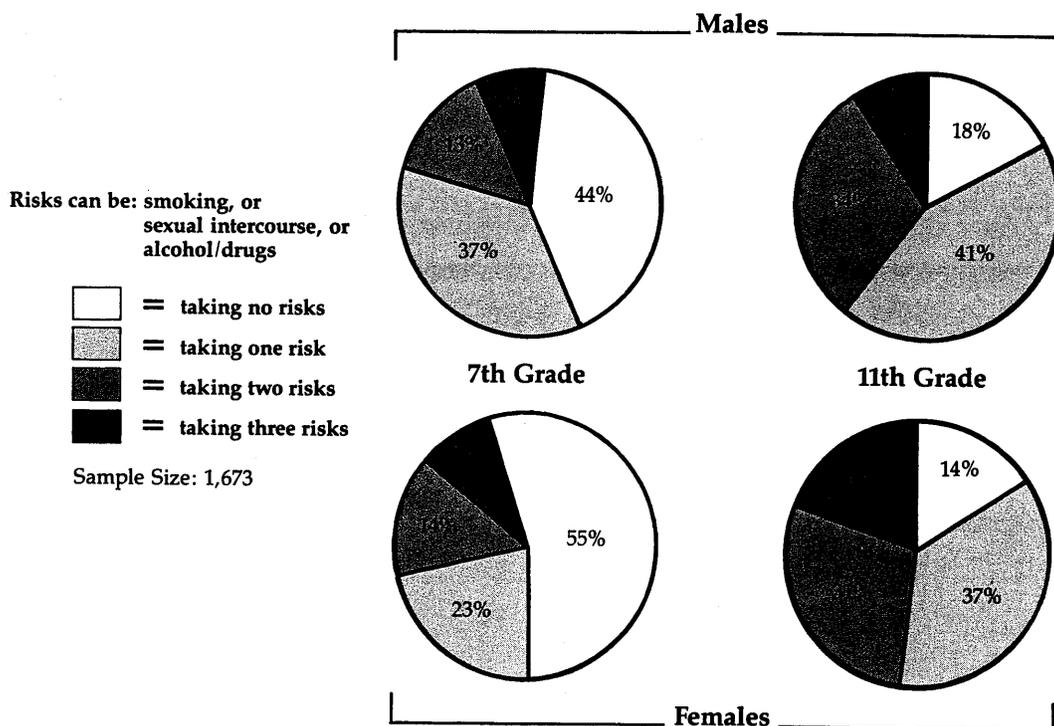
Beyond Facts to Family

Another problem involved persuading teenagers to use health facts and resources. BARN researchers proposed that a teen's family can greatly influence whether or not the teen maintains a healthy lifestyle.

In 1982, BARN researchers conducted a comprehensive survey of 1,800 students in 7th, 9th, and 11th grades. The results bore out the theory that supportive family interaction and communication patterns between adolescents and their parents had a positive effect on adolescent health.

For example, students who reported positive communication patterns with their parents were more likely to report taking an active role in coping with their own stress. Conversely, the survey found a positive correlation between the level of toleration parents express for negative behavior and the likelihood that their teens engage in risky behavior. Although causal direction, of course, was not a foregone conclusion, survey results pointed to a need for programs to strengthen the family's ability to support the adolescent seeking positive health-related behaviors.

Percent of Total Adolescent Risk Takers by Grade and Gender



Proposing a Solution

While the health information problem is a human one, the solution may lie in adapting technology to meet human needs.

BARNY, at Your Service

What if selected health wisdom and resources could be presented to teenagers in a way they would accept and use? This is the dream that led CHSRA researchers at UW-Madison to pioneer the Body Awareness Resource Network, BARN.

While BARN can't replace human interaction, BARN does help build communication bridges between adolescents and adults. As a result, people learn to help themselves toward a healthier lifestyle.

Through an Apple II personal computer and color monitor, "BARNY" communicates with teens. Some students' comments illustrate how BARN's computer system appeals to them.

Team Effort Helped Develop BARN

Members of the following academic disciplines contributed to developing BARN:

Computer Science
Counseling
Education
Educational Psychology
Health Education
Industrial Engineering
Journalism
Mass Communication
Medicine
Nursing
Nutrition
Psychology
Social Work
Statistics

Others also contributed. A brief listing includes:

Clergy
Librarians
Parents
School Administrators
Students
Teachers
4-H Leaders



It's easier and less embarrassing to seek information about sensitive topics from a computer than from parents or teachers.

- "A lot of kids don't have good enough rapport with parents to talk about these topics."
- "Parents make you feel it's so bad to ask about drugs or sex."
- "It doesn't express opinions at you . . . lets you make the decision."



"BARNY" can be operated independently and confidentially by teenagers. It's ready when you are.

- "The computer doesn't have a mouth, so it can't go blabbing all over the place."
- "BARN doesn't giggle at you. It will be serious and to the point."



The information is factual and easy to understand. Lively graphics illustrate key points.

- "It's better getting this information from the computer than off the streets."
- "You can get lost in books with big words."
- "You can stop anytime you want and don't have to sit through a whole lecture."

Proposing a Solution

BARN researchers developed a comprehensive strategy to solicit everyone's help in building BARN. Project staff divided into independent work groups assigned to BARN topic areas—alcohol and other drugs, body management, human sexuality, smoking, stress, and family communication.

Each work group gathered at least one advisory group of university experts, community practitioners, teachers, teens, and parents. The groups identified what health information teens needed, what information was already available, and skills that would help teens use the information to make decisions. Other information, such as current health curricula used by school districts, was also gathered and analyzed.

Once program content had been determined, each work group prepared flow charts outlining how the content would be presented on the computer. Throughout the project, computer programmers incorporated new suggestions, facts, and strategies from teens, teachers, parents, and content area experts into the interactive BARN programs.

Two BARN Systems Help Teens, Families

Since 1981, two distinct but related computer-based systems have been developed—Individual BARN and Family BARN. Both aim to help adolescents and their families answer questions about health, reduce health risks, and develop healthier lifestyles.

Individual BARN, developed and implemented between 1981 and 1984, focuses on adolescents. Initially, the computer programs were field tested and evaluated in schools near Madison, Wisconsin. Between 1987 and 1988, BARN was pilot tested in 24 schools with predominantly low-income and ethnically diverse populations in the following locations: Brooklyn, N.Y.; Milwaukee, Wis.; North Ashboro, N.C.; Oakland, Calif.; Orange County, N.C.; San Jose, Calif.; South Bronx, N.Y.; and Watsonville, Calif.

A sample "Dear BARNY" letter from Individual BARN appears in the accompanying sidebar.



The computerized BARN logo welcomes users to the system.

"Dear BARNY" Letters Answer Kids' Questions about Sexuality

A boy sits at the computer and selects the Human Sexuality BARN program. He then chooses "Dear BARNY."

The computer responds:

Glad you made it to this section . . . you've probably heard of Ann Landers . . . Well, one of my dreams is to take over her job!

BARN displays a list of topics, and the boy punches in the number "2."

The computer:

So BODY CHANGE IT IS! Here's my first letter in the pile.

This is one of BARN's many letters:

Dear BARNY,

It seems like the other guys are starting to shave. Not me! My voice hasn't even started to change. I feel so different. Am I going to end up different? Please answer quickly!

Worried

Dear Worried,

You have my sympathy . . . and honestly you don't have anything to worry about. I want to tell you about the male hormone testosterone. It sends a chemical message to cells in key parts of a boy's body to grow.

The results are that you grow faster . . . your shoulders become broader . . . your penis gets thicker and longer . . . your voice gets deeper . . . which brings us to your concern about the rate of body change!

Hormones give their messages at different times to kids. The pituitary gland sends testosterone earlier in some boys and later in others. Whether you mature early or later doesn't affect how deep your voice will finally be . . . or how full a beard you'll be able to grow . . . or the final size of your penis. The shape and size of your body does not depend on when it starts making these changes. (This is the same for girls.)

Just keep in mind that you're going to have a lot of time with that mature body of yours, so take good care of it.

Your friend,
BARNY

A Solution for Individuals

BARN contains more than 35 diskettes with information on five important topics:

- Alcohol and Other Drugs
- Body Management
- Human Sexuality
- Smoking
- Stress Management



Alcohol and Other Drugs

BARN presents information about emotional and physical effects, factors that influence use, the difference between use and abuse, why to avoid or minimize use, and local resources to help deal with alcohol and other drug-related problems.

- *Use/Abuse/Dependency.* Teens learn how use can change to abuse and eventual dependency.
- *Overdose: What to Do.* Here are facts about medical risks, signs of overdose, and tips on what to do to help someone in an overdose situation.
- *Quiz.* Players answer randomly-ordered questions about alcohol and other drugs and drug-related issues such as drinking while driving.
- *Should I?? (Use this Drug).* BARN helps teens assess the effects of alcohol and other drug use on achieving personal goals.

- *You Bet Your Life.* A game of chance takes players to a party where they can experience how alcohol-related decisions can affect their lives.

- *Stay on Track.* A game illustrates the consequences of driving while drinking.

- *Help.* Local and national resources listed here offer confidential help in crisis situations.

Body Management

Teenagers can get information on balancing diet and exercise—taking in appropriate amounts of vitamin C, iron, sodium, fats, carbohydrates and protein. BARN offers an opportunity to compare nutrients from a diet the teenager chooses with the recommended daily allowances.

- *Meal Selection Exercise.* Teens enter vital statistics (age, height, weight) then choose foods and estimate activity levels. The computer calculates and reports nutrition results.

- *Body Management Game.* A space adventure game evaluates the player's food and activity level selections during the past 24 hours to determine the space journey's success. The computer reports information about neglected parts of the player's diet.

- *Information on Nutrition.* This section provides clear, understandable facts on recommended daily allowances, weight control, diet.



Students tended to use BARN at school either alone or in groups of two.

Human Sexuality

BARN guides the user to consider sexuality in the broader context of values, relationships, communication and decision making.

- *Introduction.* The computer program compares user's responses to a survey of other teens about other aspects of his/her life (school, family, independence, relationships with opposite sex). BARN helps teenagers put sex into perspective as one of many dimensions in life.

- *Soaps.* This section simulates true-to-life situations where teens face sexual decisions.

- *Reproductive Anatomy.* BARN describes and illustrates male and female reproductive systems. A game tests the user's knowledge.

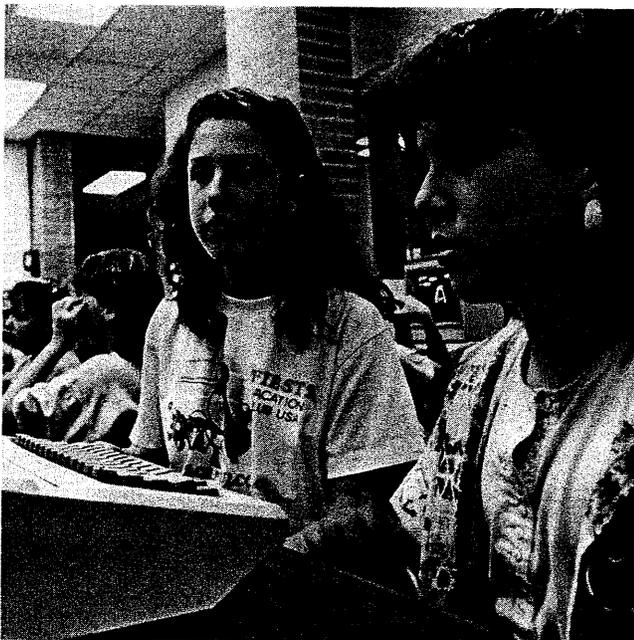
- *Pregnancy/VD Resources.* Teens can get additional help from this list of community and national resources.

- *Sexually Transmitted Diseases Triangles.* A game tests the user's knowledge about sexually-transmitted diseases.

- *Dear BARNY Letters.* BARN answers questions collected from more than 300 teens. Topics include pregnancy, birth control, menstruation, erections, sexually-transmitted diseases, relationships, dating, and physical changes during adolescence.

- *Tough Choices.* Here's an opportunity to write a play, making decisions for the characters. The computer program evaluates the user's decisions and presents consequences of various sexual choices.

- *Skunk BARNY.* In this game BARN asks questions about human sexuality. Teens enter answers and BARN responds with information to reinforce or correct. The focus here is on debunking common myths about sexuality.



BARN let students learn at their own pace.

Smoking

Teens can clarify feelings and beliefs about smoking, learn more about smoking's effects, how to quit, how to support others who want to quit, and how to say no to smoking.

- *Deciding about Tobacco: Saying "NO."* BARN discusses what influences the decision to smoke and offers ways to resist.

- *Information.* This section presents facts about active and passive smoking.

- *Tips on Smoking.* BARN assesses user's smoking habits, entered through series of questions. The user selects methods of quitting that offer the best hope for success.

- *Stay-Quit Tips.* BARN presents a listing of techniques.

- *Self-Test on Attitudes and Beliefs about Smoking.* The user enters answers and BARN compares them with answers from other teens.

- *Helping Someone Quit.* Teens get suggestions on how to help someone decide to quit, with tips on how to lend support while the person tries to break the smoking habit.

- *Tobacco Game.* A board game format presents questions about tobacco and the consequences of its use.



Stress Management

Definitions and examples show how stress can affect people. Teens get an opportunity to examine stressors in their lives. BARN gives instruction on how to manage stress, why to talk with others about certain problems, and how to get in touch with appropriate "helping" people.

- *Learn More about Stress.* This section defines stress and how it can affect people.

- *Assess Your Stress Level.* A quiz helps the user determine his/her stress level. BARN responds with appropriate information about stress symptoms and sources, along with strategies to deal with the problem.

- *Figure Out What to Do about Stress.* BARN helps the user clarify feelings about a person or situation that is causing stress. Teens get tips on how to talk to others about feelings without becoming angry or angering others. The user can write hypothetical letters to persons who are causing stress. There is also information on stress producers (caffeine, smoking, some foods) and stress reducers (exercise, sleep, relaxation).

- *Find Resources.* A decision analysis exercise helps teens determine who to talk with comfortably to solve problems.



Who to Call for Help

BARN includes a basic list of toll-free numbers that teens can call for facts or help. BARN owners can add local sources of information.

A Solution for Families

Family BARN Helps Parents and Teens Communicate about Health Decisions

Family BARN, developed and tested between 1984 and 1987, helps families with adolescents better support their teens through the years of experimentation with health risk behaviors.

The Family BARN programs are aimed at increasing a family's skills in decision making, communication, and social support for adolescents or anyone else in the family wishing to make health behavior changes. See page 8 for an example of a Family BARN Program.

The first two Family BARN programs are intended to help family members develop the skills they need to benefit most from the remaining Family BARN programs.

Let's Talk

Families get information, modeling, and practice to develop more effective communication skills. The program is intended for use by 2-8 people.

- *Communications.* BARN demonstrates the skills needed for "active listening" and "straight talk." Family members learn the importance of clear messages and good listening skills.

- *Active Listening.* BARN encourages discussion of why certain behaviors and responses inhibit communication. This section presents six listening tips illustrated with graphics and sound effects. A drawing game helps family members practice listening skills.

- *Straight Talk.* BARN introduces the "straight talk" formula for using "I" messages to express feelings. Users have an opportunity to practice writing letters or imaginary conversations to express fears, concerns, opinions, needs, or requests.

Making Choices

BARN teaches skills to make positive decisions about a personal or family problem.

- *Decision Aid.* BARN presents a step-by-step approach to decision making which can be used by 1-3 people. This program is particularly effective for resolving family conflicts.

- *Escape with Your Life.* Players try to escape from an abandoned cabin as a forest fire approaches. This game introduces steps of the decision making process. Any number can play.

The following Family BARN programs offer an opportunity to apply the communication and decision-making skills learned in the first two programs:

What's a Family For?

Any two family members have an opportunity to think about the relationships they have with one another as well as their roles and responsibilities within the family. BARN presents strategies for family members to use to increase the amount and quality of time spent together.

What If . . .

BARN helps family members discuss critical problems before they arise. Three scenarios can be addressed by two players, one parent and one teen.

- *Teen Drinking.* A 17-year-old has been brought home by police for making a disturbance while drinking. A guided discussion on alcohol and responsibility follows.

- *Teen Sexuality.* Parents doing the wash find a condom in their teenager's jeans. BARN guides discussion about sex and birth control.

- *Privacy.* A teenage girl discovers that Mom has been rummaging through her dresser. BARN encourages families to discuss different views on privacy.

Family Trivia

By answering questions about one another, 3-4 players communicate about health values. Questions focus on health issues for three age groups: pre-teens, teens, and adults.

For example, a teen player might have to answer the question, "At what age do you think you'll become a parent?" An adult might be asked, "What worries you most about your teen's driving?" The winner is the one who first correctly answers a question about each of the other players.

Family Game

Two players build understanding and communication skills. With one player in another room, BARN asks the remaining player 11 randomly selected questions (from a total of 45).

The player at the keyboard answers as he/she thinks the absent player would. The absent player returns and answers the same set of questions. BARN then comments on agreement or disagreement between the two players.

Tic-Tac-BARNY

Two players answer health-related questions about alcohol, drugs, smoking, diet, foods, exercise, sex, and general health. Correct answers earn a token on the computer's tic-tac-toe board.

Space Adventure

Between 2-8 family members have an opportunity to discuss health risks. Through a space adventure game, the computer graphically presents the consequences of individual health risk behaviors and demonstrates how one person's health risks may have consequences for the entire group.

Topics include smoking, drinking and driving, nutrition, and birth control.

Resources

BARN offers a concise list of local and national health related helping organizations.

A Solution for Families

What If?

This is an excerpt from Family BARN.

A normal part of the teenage years is spent experimenting with adult behaviors. Sometimes this experimenting can be very risky. This section presents some situations in which teens and their parents face three possible risky situations.

By looking at these situations when there is no crisis in your family, you can talk about . . . WHAT IF.

You can see what happens if . . .

(1) seventeen-year-old Barry goes to a drinking party at a motel; (2) a parent has an unexpected opportunity to talk about sex and relationships; or (3) Sara discovers that someone has been in her room.

Which one would you like to see? Talk it over, then make a choice.

(For this example, we chose #1).

Here is a teenage drinking situation that REALLY happened to some human friends of mine.

Here's the situation:

SATURDAY - 1:30 AM

BARRY (age 17)
The police brought me home for drinking. They want to talk to you.



[?] [Q]quit [ESC]menu [^B]back [RETURN]

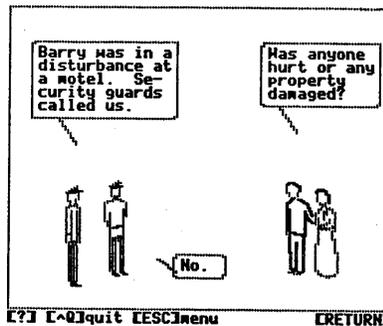
Barry (age 17): "The police brought me home for drinking. They want to talk to you."

Barry's parents' main concern is: How are we going to handle this? This has never happened before.

And the big question facing Barry is: What are my parents going to say and do?

The "incident" involving Barry and his parents is an example of
* one teenager's experimentation with alcohol, its consequences, and
* how one set of parents handled it.

Dealing with one situation will not resolve the alcohol questions for either Barry or his parents. It is one step in a continuing process.



[?] [Q]quit [ESC]menu [RETURN]

In the long run, Barry's parents, like all parents, have to answer the question . . .

How can we help Barry make good decisions about alcohol?

The question for Barry and all teens is . . .

How can I learn to make safe decisions about living in a society where alcohol is served?

These are questions with no easy answers because:

- Alcohol seems to be an important part of adult social life in our culture.

- It is illegal for young people to use alcohol. But . . . 82% of 11th graders report that they have "experimented" with drinking—many quite frequently.

- Decisions about whether and how to drink are usually made by adolescents when parents are not around.

- The consequences of bad-alcohol decisions can be serious and even life-threatening.



All this time Barry has been quiet. He looks unsteady, pale and red-eyed. Obviously, he is drunk, but he is able to keep control of himself.

[?] [Q]quit [ESC]menu [^B]back [RETURN]

How might you have felt if you had been Barry that morning? (1) angry; (2) confused; (3) scared; (4) humiliated; (5) worried. Choose one.

After the user selects a feeling, the computer follows up, encouraging teens and parents to talk about emotions and how they would handle the situation.

BARN then guides a discussion between teens and parents about how they could deal with such a crisis, when and if they ever face one. The computer presents strategies for making a quick response, getting more information, and deciding on further action.

Implementing BARN

BARN has been made available in many different settings on a test basis—including schools, homes, churches, physicians' offices, clinics, libraries, and social service agencies.

CHSRA researchers worked to evaluate where and how teenagers use BARN—before the programs were made available to the public. Those who adopt BARN can be sure it's an effective way to get accurate information to teenagers who need it. For example, the Chicago Public School System recently purchased and put into use 350 sets of BARN programs.

INDIVIDUAL BARN AT SCHOOL

During 1982 and 1983, BARN programs were tested with more than 6,000 adolescents and 200 families. The object of testing was to discover who uses the BARN system, what influences the extent of BARN use, and what impact BARN has on adolescents' health related knowledge, attitudes and behavior in regard to BARN's topics.

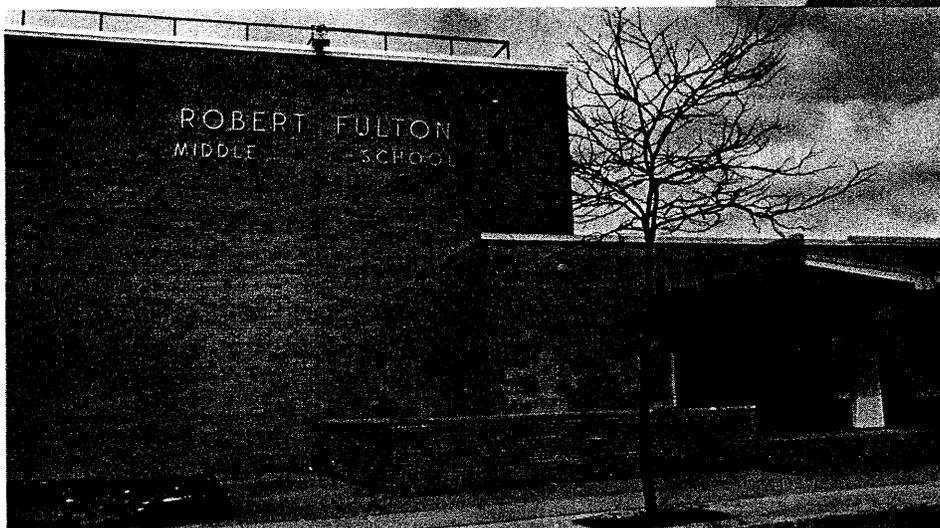
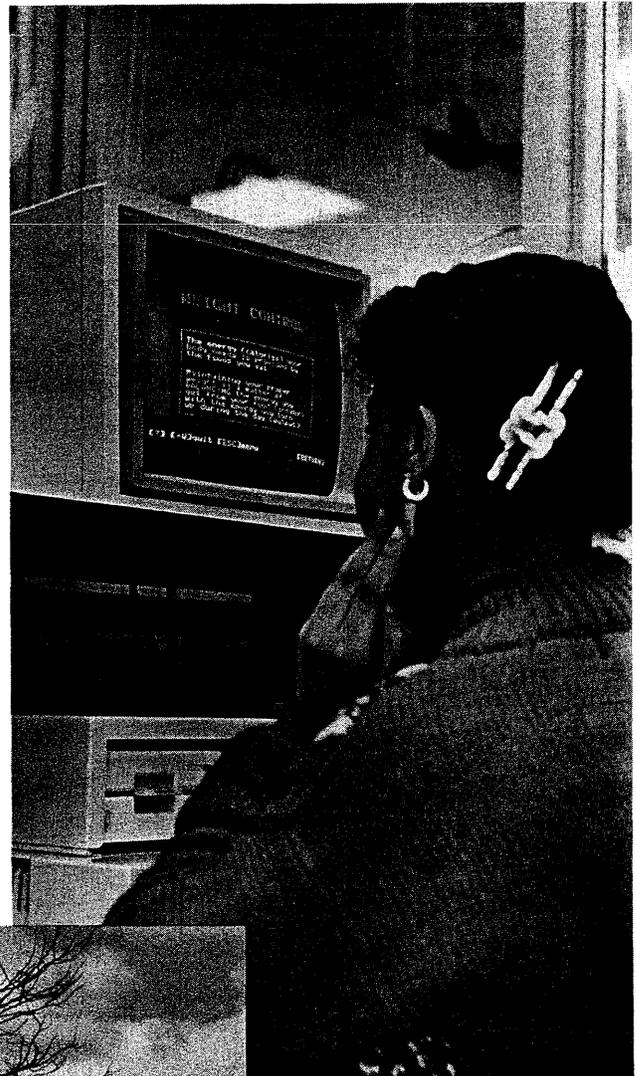
Early test sites included two high schools (one rural, one urban) and three middle schools (one rural, two urban), along with an equal number of similar control schools where no BARN was made available. Major findings are summarized on pages 10 through 12 of this report.

At the test sites, BARN staff introduced the system to parents, teachers, and administrators. Inservice training gave adults a chance to try BARN and understand its philosophy—giving teenagers facts and strategies to make decisions. A videotape of the inservice training is now available to assist schools in integrating BARN into school activities.

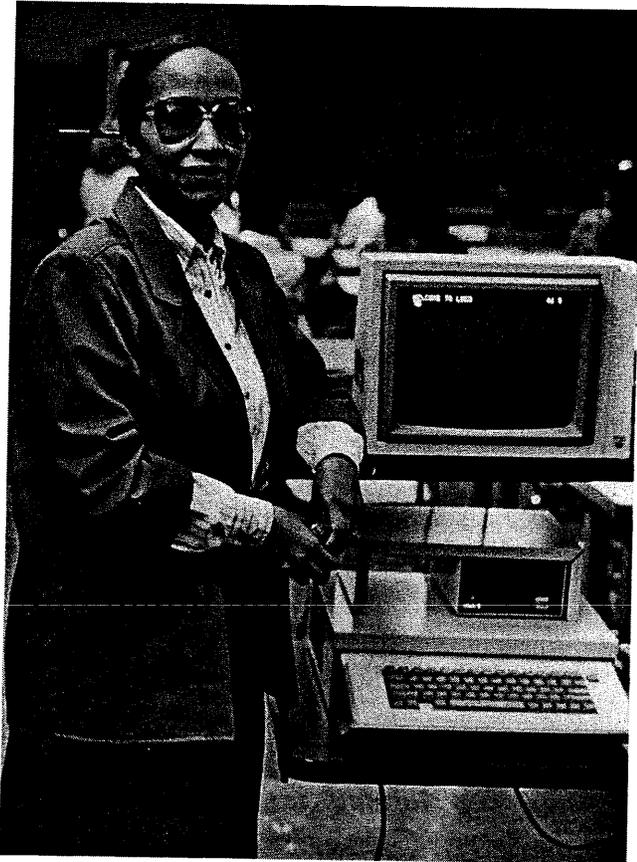
CHSRA researchers presented one class period of instruction about BARN to students. School announcements reminded students about BARN. Newspaper articles alerted families that BARN could be checked out for home use.

"Students love the program because it's saying, 'Here is information that you can have' . . . the graphics are colorful and interesting . . . the materials . . . are accurate, they're informative . . . all we need is to get the students started and they walk away with it."

Winifred French, Ed.D.
Coordinator, Guidance Department
Chicago Public Schools



In some schools, teachers assigned BARN for extra-credit work in health education or physical education.



"I'm a people person, and at first I didn't want the computer. I thought it would be cold and dehumanizing. But BARNY is friendly! Now I feel confident explaining the computer to the kids and helping them use it."

Mirta Diaz de Matthews, Counselor,
Kosciuszco Middle School, Milwaukee, Wis.

Students tended to use the systems at school either alone or in groups of two. BARN was set up in libraries or instructional media centers. A private location seemed to influence the level of BARN use—students preferred an area where adults weren't able to view the BARN screen.

Teachers sometimes assigned BARN for extra-credit work in health education or physical education. Some teachers reported that students who had used BARN contributed facts from BARN to classroom discussions.

Based on evidence of test-site effectiveness, when compared with control sites, the researchers proceeded to establish pilot sites in two Wisconsin communities. During the 1985-86 school year, BARN systems were in junior and senior high schools in Baraboo and Beaver Dam, Wisconsin. Teenagers there could use BARN at school or sign up to take BARN home.

Many additional school test sites were established during 1987-88: six in Milwaukee, Wis.; two in Oakland, Calif.; two in Watsonville, Calif.; four in South Bronx, N.Y.; four in Brooklyn, N.Y.; and three in rural North Carolina.

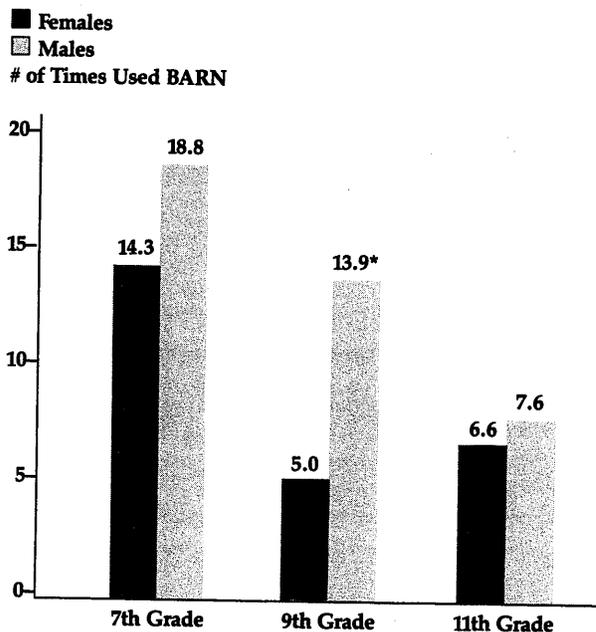
School staff reported that students of diverse economic and social backgrounds used BARN.

Contrary to traditional well-intended public information campaigns that often reach the people who least need information, BARN consistently reached students who were more likely to have undertaken a variety of risk behaviors before BARN was installed. It is clear that BARN's health information reached teens in need.

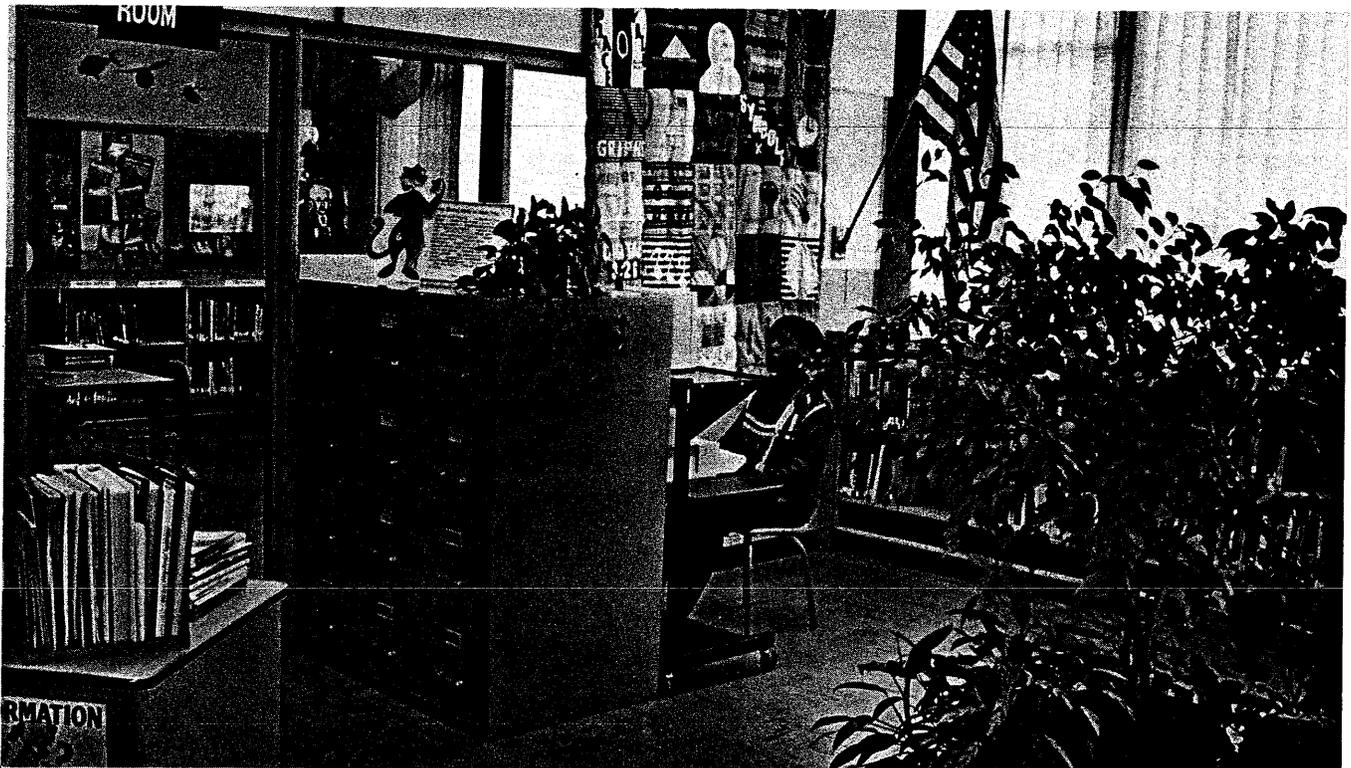
Who Uses BARN?

Figures 1, 2 and 3 illustrate BARN program use by age and gender.

Figure 1. Average Number of Times Students Used BARN during 14-Month Period over Two Academic Years



*That boys reported using BARN more often than girls, especially at the 9th grade level, could raise the issue of the computer being sex-identified. However, given that health education programs have traditionally been weak in reaching adolescent boys, the heavy use of BARN by 9th grade males could be viewed as a positive achievement. (1984 data)



For free-time use, students were attracted to BARN when it was located in a private spot in a high-traffic area such as in a library or instructional media center.

Figure 2. BARN Program Use by 7th Graders

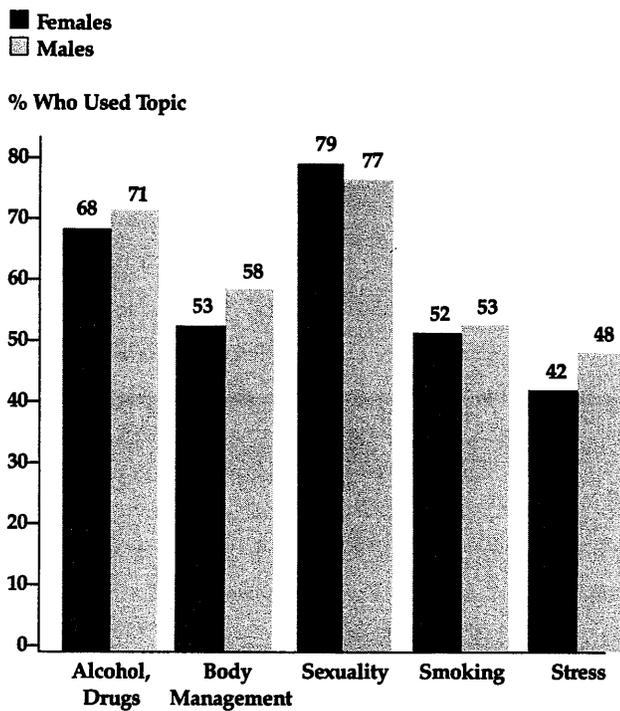
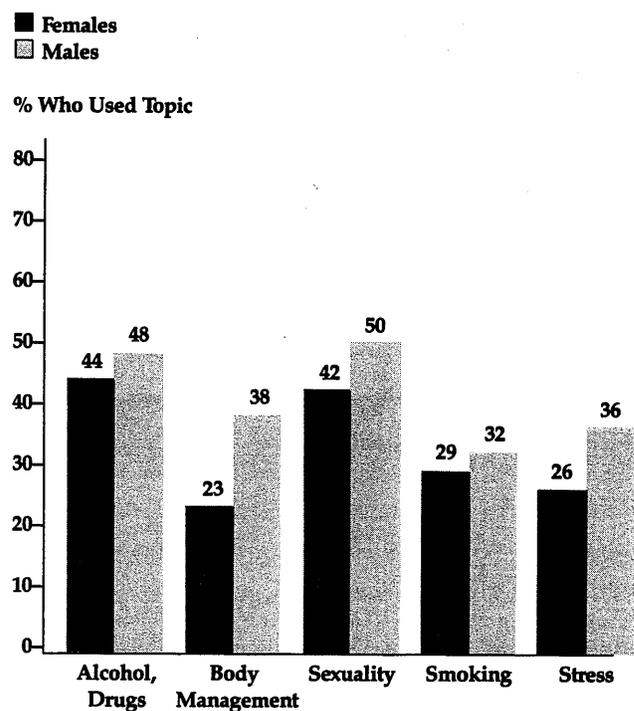
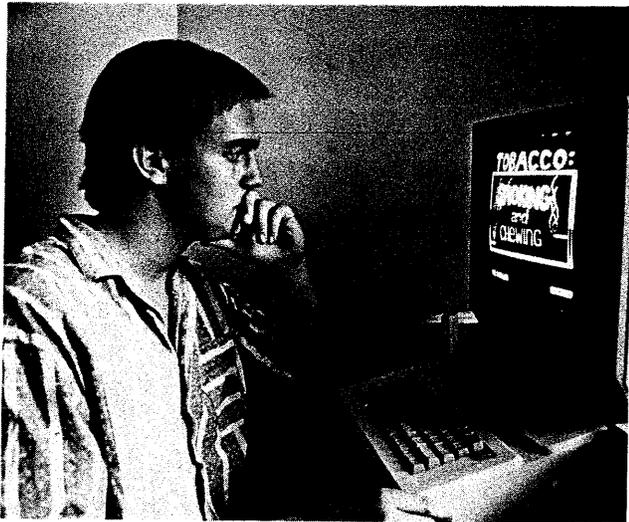


Figure 3. BARN Program Use by High School Students



Source for Figures 2 and 3: 1984 BARN survey of 2,400 7th, 9th and 11th graders in ten schools. High school figures are an average of 9th and 11th grade responses.



BARN's program on smoking offers teens reasons and ways to resist the decision to smoke.

Key Individual BARN Evaluation Results

Project evaluation involved three procedures:

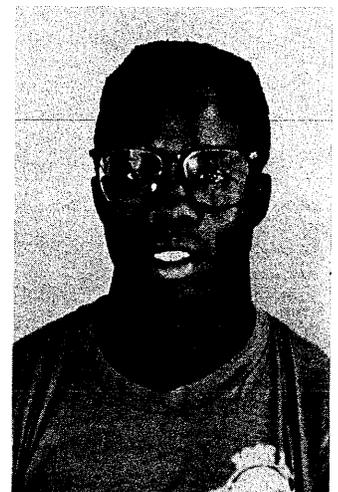
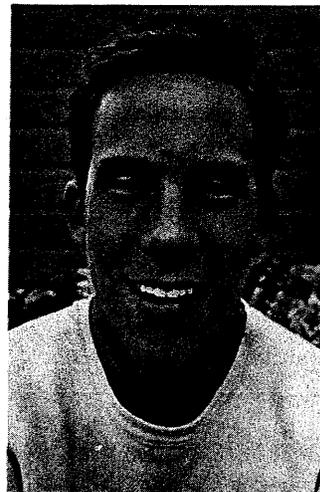
- *Computer-collected data.* The computer collected data on user characteristics and patterns for 1,472 users—answers to questions on age, gender, how many times the teens had used BARN, and whether they were using BARN as a group or individually. Then the computer recorded which programs were used and the paths users chose within a specific program.
- *Interviews.* During the first two years of implementation, BARN researchers interviewed more than 250 students and 40 faculty to elicit responses about how BARN was functioning, what students were learning from BARN, and what effect BARN had on students' lives. Suggestions gleaned through interviews also helped BARN programmers streamline the programs.
- *Surveys.* Before BARN was installed and again two and four years later, BARN researchers administered comprehensive surveys to students at both test and control schools. The 360-question pre/post surveys measured students' health knowledge, attitudes, and behaviors. Other questions covered intervening variables such as peer pressure, family communication and attitudes, self-concept, mental health, and values. The survey also collected demographic data such as age, gender, parental education, parental employment, and race. Random samples of 7th, 9th and 11th graders participated in the surveys—1,600 in 1982, 2,400 in 1984, and 1,500 in 1986. Of the first two surveys, 800 were part of both surveys. These matched cases—400 from experimental schools and 400 from control schools, allowed BARN researchers to draw a profile of health attitudes and behavior changes for these 800 adolescents as they grew older.

Key significant findings are outlined below:

- BARN was used by the students who needed it most. Students already taking health risks were more likely to use BARN than those who weren't. More importantly, risk-taking students used BARN content relevant to the particular risks they were taking.
- Students who used BARN early in adolescence (grades 8 and 9) were less likely to begin risk behaviors than those who did not use BARN.
- Sexually active students who used BARN were more likely to adopt effective contraception than nonusers (94% vs. 70%).
- Students who had experimented with smoking were more likely to quit if they used BARN, but only if they were light smokers. Frequent (and thus more likely to be addicted) smokers continued to smoke despite BARN.
- Of the students who reported a problem with stress in 1983, more BARN users than non-BARN users reported reduced stress in 1984. The BARN stress program appeared to help girls at a younger age than boys.
- Students who used BARN reported a slower progression toward involvement with alcohol and other drugs. BARN appeared to inhibit the progression to heavier and more problematic use for every subgroup tested, except those who reported drug-related problem behavior in the 9th grade (pretest).



BARN guides teens to consider sexuality in the broader context of values, relationships, communications, and decision making.



What Students Say About BARN

After the BARN system had been in 30 test schools for a year, researchers interviewed BARN users and nonusers to learn first-hand the impact the programs had on the students' lives. Here is a sampling of what some students had to say.

"I was having real problems getting along with my mother. I was crying myself to sleep every night.

"I used the stress program, and it said that talking with someone helps. So now my cousin and I talk on the phone every night and we're helping each other a lot."

14-year-old girl

"I have meetings about four times a week and I edit the school paper. I was having trouble sleeping and concentrating on anything. I was really stressed, but I didn't realize what it was or what to do about it.

"Some friends told me about BARN, so I tried it. I found out a lot about my diet and how to help manage my stress. The programs were long, so I got permission to take them home over the weekend—I used them at a library."

18-year-old boy

"I used the smoking program because my dad smokes a lot and I was worried about him. I told him the facts I found out and he's cutting down. He was smoking a pack a day, and now he's down to half."

12-year-old boy

"I used the alcohol and drugs program because two of my friends had been trying to get me to take drugs, and I wanted to know how to argue with them.

"I told them the facts and then I gave them the 800-number the program gave to call about drugs. They called the number and now they've stopped using drugs."

13-year-old girl

"I liked the programs. They gave me lots of things I could tell my friends. It's interesting—a lot of people should use BARN."

14-year-old girl

"It helped me understand how boys are different."

15-year-old girl

FAMILY BARN AT HOME



Children in the family are usually the first to suggest that BARN be brought home. They're familiar with BARN from school and they serve as the family "expert" on equipment and programs.



Most families hosted BARN for more than one week. Many borrowed it two or three times.

CHSRA researchers embarked on a novel plan to place BARN in homes. Computers and BARN diskettes were made available for check-out through a variety of outlets in the community—including libraries and churches.

To test family use of BARN, they placed 10 computers in each of two rural communities with populations of about 10,000. These computers were heavily used during the test period, November 1985 through August 1987.

Here's what families say about BARN.

"I was shocked that anyone would let him bring home a costly computer."

Father of high school senior

(During the seven years of BARN implementation, no equipment was stolen or vandalized. Damage to disks and equipment was minimal.)

"BARN gets the kids away from television and gives them something to do together without bickering. Everyone, including Dad, learned new information about health . . . and about each other."

Mother of four (ages 1-13)

"I did dishes for the girls all week so they would have the chance in the evening to use the computer. Sometimes we got into family discussions that lasted well after the computer was turned off."

Mother of 7th and 9th graders

"Although we had talked briefly about sexuality before BARN came into our home, the programs reinforced the idea that it's OK to discuss sex. We had an opportunity to compare BARN's subjects with our own family values."

Parents of 13-year old

Other Family BARN Sites

CHSRA researchers made a special effort to blanket the two rural Wisconsin communities of Beaver Dam and Baraboo. They wanted to offer teenagers and their families varied opportunities to become familiar with BARN and benefit from the information BARN had to offer. The experience in Baraboo is described here.

The Baraboo Public Library became the focal point of much of BARN's use by the community at large. Over a 10-month period, (November 1985–August 1986), more than 200 uses were recorded at the library, many by more than one person. Library users tended to be junior high school students who came in after school or on Saturday to view programs in groups of two or three, boys with boys and girls with girls. Take-home BARN was checked out by 46 families over the same time period.

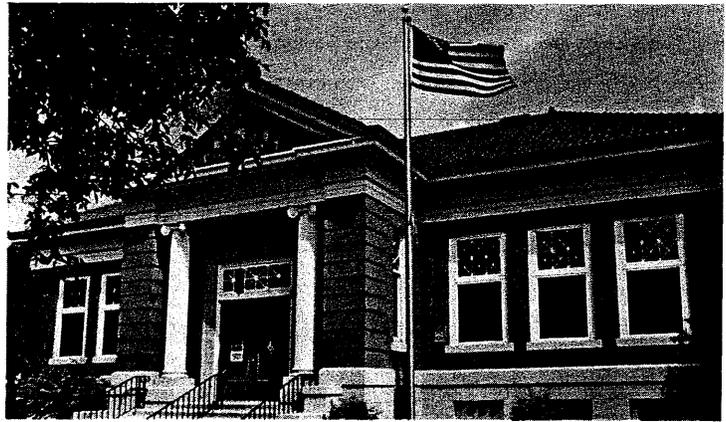
In November, 1985, nine pastors of the Baraboo Ministerial Association asked to use BARN among their congregations. BARN computers and software were left with the pastors to use in church-related classes in parenting, ethics, and confirmation as well as at youth retreats and Bible camps. An enthusiastic congregation member at one church donated an Apple system; the BARN project supplied diskettes.

One pastor made direct referrals to families that he thought might be open to viewing BARN at home. Soon families began circulating BARN among themselves without the pastor's intervention. An additional set of disks was placed with this church so that families with Apple computers could view the programs.

In the two Wisconsin test communities, BARN computers and diskettes were also placed in health-related offices and facilities such as medical clinics and social welfare agencies.

BARN was stationed in the lobby of Medical Associates of Baraboo. A take-home system was later installed. Under the direction of an R.N. with a strong commitment to health promotion, plans were formulated to encourage medical staff to make direct referrals to BARN from among patients and families.

At a family counseling agency, BARN located in a room with a couch and easy chairs emerged as a potential therapeutic counseling tool among the agency's teenage clients and their families. Communication between family members about the issues BARN covers seemed extremely beneficial.



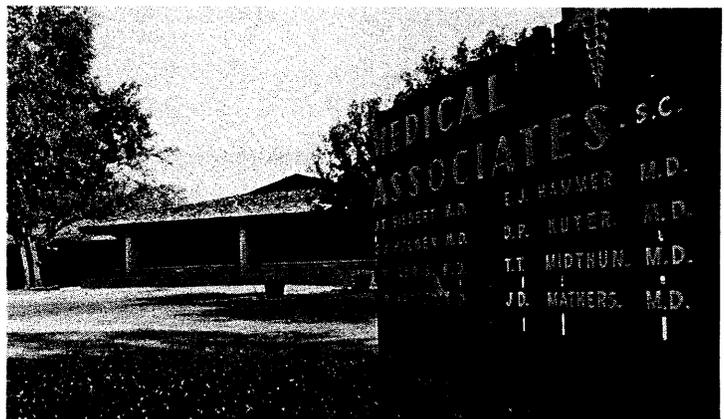
"Kids aren't self-conscious about using BARN . . . it brings necessary information they need as they grow, and it's a fun way to learn."

Ann Adkins, Circulation Librarian, Baraboo Public Library



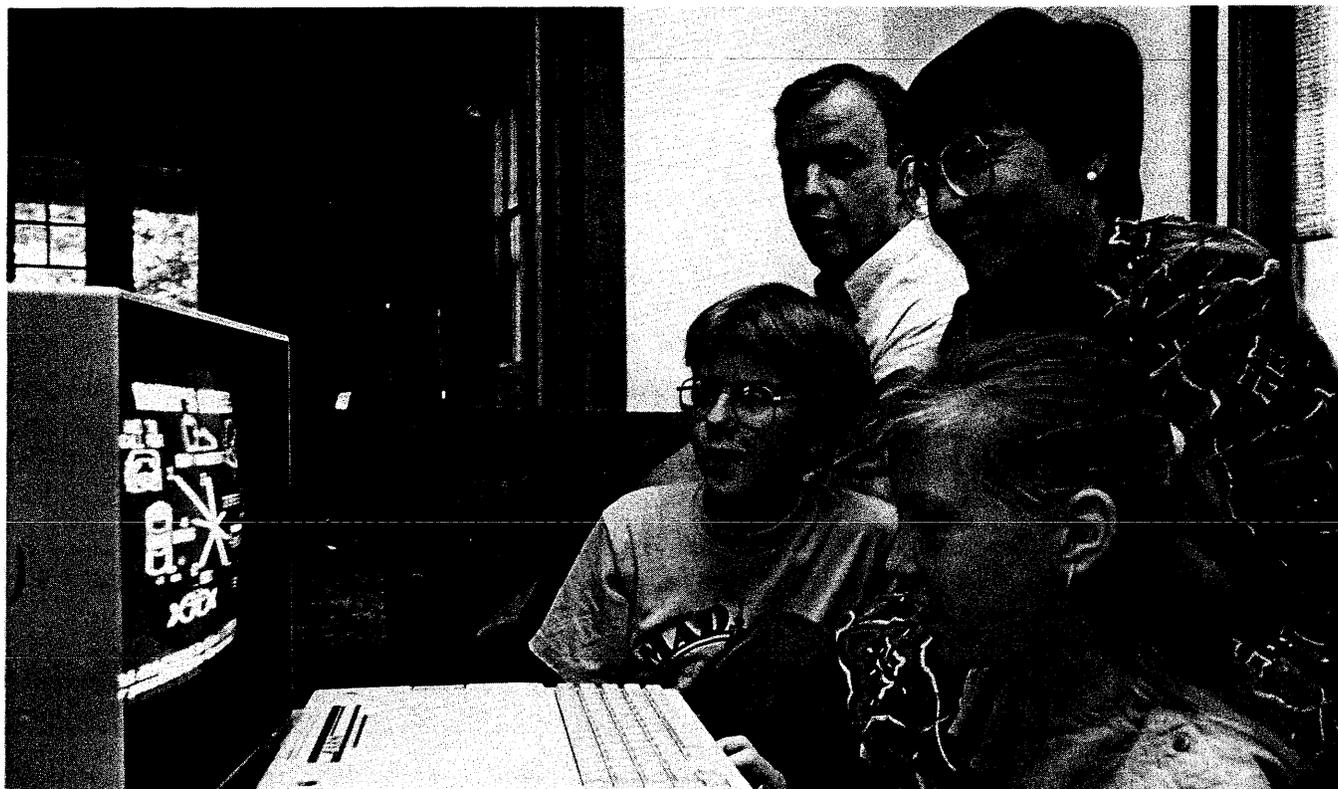
"BARN gives teenagers a chance to choose alternatives . . . in a safe way . . . and to see the consequences of those choices."

Pastor Thomas E. White, Emanuel United Methodist Church, Baraboo, Wisconsin



"We find that adults as well as teenagers use BARN—especially the sex education program. There's a generation of parents who received little if any sex education. BARN offers the facts they need, in a nonthreatening way. This helps facilitate communication between parents and their teens."

Judy Ellington, R.N., Medical Associates of Baraboo, Wisconsin



Once BARN enters the home it quickly becomes a family tool, drawing most if not all family members to its use.

BARN Makes a Difference for Families

Even though families used BARN heavily during the 1985–86 test year in Baraboo and Beaver Dam, only about 20% of the families responding to a random survey after the test year was completed had actually used the computer at home. This number was too small to provide statistical differences in the researchers' family function measures (e.g. level of family communications, parenting style, rule-setting) used on the survey.

During the Spring of 1987, BARN researchers conducted interviews in the two test communities with 20 families who had borrowed BARN for use at home. The following conclusions were extracted from the interviews:

- BARN's appeal to families cuts across a wide range of socioeconomic classifications and lifestyles—from a rural economically disadvantaged household to a prosperous urban physician's family.
- Program content prompted significant reactions:
 - One parent said she had gained an understanding of the drug addiction process.
 - A teenage girl reported developing new ideas about how to make better decisions concerning alcohol and drug consumption.
 - An adolescent boy, with considerable embarrassment, admitted that BARN's programs had

convinced him not to drink and drive.

—One family reported using a new approach they learned from BARN to negotiate household rules and consequences.

—Other positive outcomes included learning how to say "no" to drugs, discovering how to go about making important decisions, and—in the case of one adult—reducing his three-pack-a-day smoking habit in half.

- BARN fits into diverse family value systems. For example, a devoutly religious family was among BARN's heaviest users. The mother pointed out that the programs permitted families to approach health issues within their own particular value system.
- Children in the family usually are the first to suggest that BARN be brought home. They're familiar with BARN from school and serve as the family "expert" on equipment and programs.
- Once BARN enters the home, it quickly becomes a family tool, drawing most if not all family members to its use.
- BARN frequently attracts an extended family of neighbors, friends and relatives. One family took BARN along to a family reunion hundreds of miles away.

- Families tend to use BARN in groups rather than as individuals. A father reported that all the teenagers at the family's Thanksgiving get-together sat down and used BARN and no one squabbled after dinner.
- At home, BARN usage tends to be of considerable duration. Most families hosted BARN for more than one week. Many families borrowed it two or three times.
- BARN appears to stimulate families to spend more time together—learning about each other rather than watching television.
- BARN enhances family communication. One mother said that implicit in BARN's sex programs was permission for her to talk with her daughter about sex. A child said she had tried, with great success, some of BARN's tips on communicating with parents.

In summary, all the families interviewed expressed positive reactions to BARN. Comments ranged from expressions of enjoyment of particular programs to enthusiasm about recommending all of BARN to other families.

It appears safe to conclude that the entry of BARN into a household marks the placement of a potent health promotion tool within the family.



BARN appears to stimulate families to spend more time together learning more about each other rather than watching television.



Family BARN presents strategies that family members can use to increase the amount and quality of time spent together.

Setting Up a BARN Site

Before BARN was introduced in a school, library, or other location, CHSRA researchers carefully thought through where and how it was to be used. They also notified all people involved that BARNY's on the way!

Free-Time Use

Research showed that the highest use rates result when BARN is located in a private spot in a high-traffic area. A friendly, welcoming environment such as an instructional media center or library worked well.

Students liked to have their privacy respected, but teachers were concerned about supervision. Therefore, the best location had students in a relatively open area, facing the computer screen, but with their backs to a wall or window.

The researchers found that adequate space and chairs for two or three users should be available, with counter space for the computer and diskettes.

Classroom Use

Many teachers and counselors brought BARN into the classroom in conjunction with health education lessons. Students used BARN in a group as a full class, or individually when work assignments were completed. Some schools identified students to use the computer after school.

Supervision, Scheduling

Research at BARN test sites relied upon the students' interest in using the computer. The BARN materials and the microcomputer were easily accessible to students, allowing them to be drawn to the material by its availability.

Students needed sufficient time for each viewing session—20 to 30 minutes. Some schools used a sign-up sheet for scheduling. Others let study hall and classroom teachers control who used the system.

Equipment

BARN's diskettes run on any Apple II system with minimum 64K memory, one disk drive, and monitor (color preferred but optional). A standard 3-prong outlet is required for the computer.

Getting Started

The commercially-available BARN package includes diskettes, introductory videotape, and an administrator's guide. The guide has program specifications (objectives and content), suggestions for setting up the BARN site, first-time user instructions on how to start the BARN program, and instruction sheets that can be reproduced and displayed around the computer site.



BARN's diskettes run on any Apple II system with minimum 64K memory, one disk drive, and monitor—color preferred but optional.

Getting the Word Out

In any school or library setting, teachers or other responsible adults appreciated having time to view BARN before student orientation. Some schools set up the computer in the teacher's lounge for a week prior to student orientations. The videotape can be helpful here.

BARN was sometimes introduced to students in health-related classes, or during library periods. Some schools introduced BARN to one grade at a time so that individual students could have access to the system following training.

Many schools found it essential to inform parents and the community at large about BARN before the system was set up at a school or library. Some schools wrote to parents before implementing BARN. Others made special efforts to get media coverage for an open house and BARN demonstration.

The sensitive nature of BARN's topics occasionally roused misgivings of parents, clergy, faculty, or others. But CHSRA researchers discovered that once those concerned about BARN's appropriateness see and use the system, it becomes clear that BARN provides context and guidance to teens. BARN's benefits are easy to recognize.

The commercially-available BARN package contains an outline for teacher and student orientations and a sample letter to parents.

The Future of Computer-Based Health Promotion

BARN is a pioneer in bringing information to those who need it to make health decisions. Through BARN, teenagers and their families can benefit from the combined power of personal computers, decision theory, and expert knowledge

The future of computer-based health promotion efforts such as BARN looks promising. Computers offer intriguing, captivating, and unique avenues to give people the tools they need in a manner they can use. The following text* outlines the possibilities.

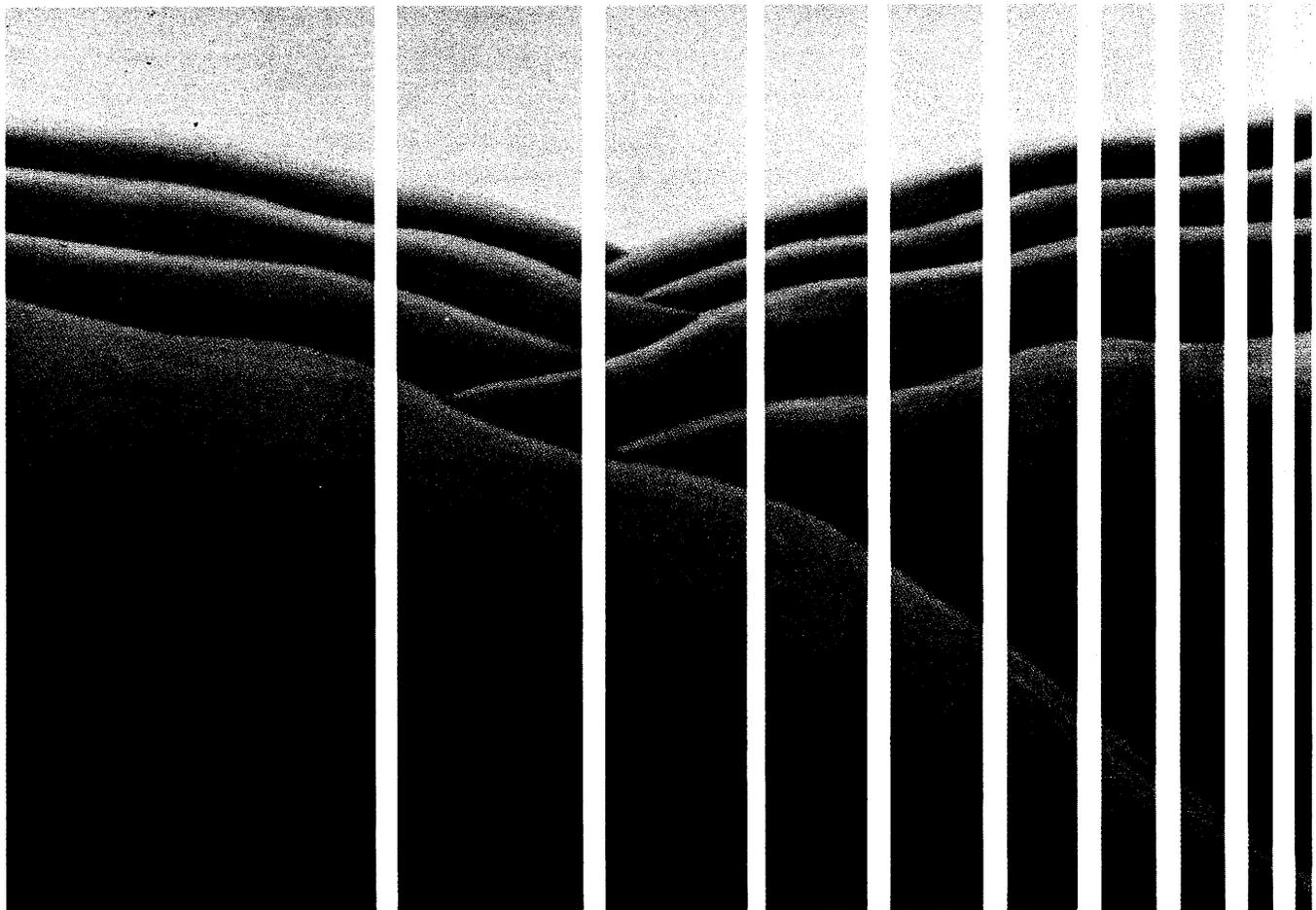
Health promotion campaigns have typically stated their goals in terms of changing or reinforcing health behaviors. In many campaigns the immediate goal was public learning of the campaign messages (e.g. "cigarette smoking may be hazardous to your health") in the hope or assumption that further thought by the individual would lead to attitude and/or behavior change (e.g. attempting to quit smoking). In the past decade or so, the trend has been to shift away from individual conclusion-drawing and to attempt to enlist other psychological and social mechanisms to assist in behavioral change.

Realizing that individuals do not exist in a social

vacuum, health campaigners have recently tried to enlist social networks, reference groups, and various organizations to which the individual already relates. Campaigns have also become more sophisticated at providing change and retention strategies that link desired behaviors to preexisting patterns in an individual's life.

The fundamental weakness of most current computer-based health promotion programs is that they have not used the insights from this new goal-oriented approach to update their own concepts of computer-aided health promotion. They still, by and large, attempt to duplicate the functions of health promotion campaigns, literature, and courses.

* From David H. Gustafson, Kris Bosworth, Betty Chewning and Robert P. Hawkins, "Computer-Based Health Promotion: Combining Technological Advances with Problem-Solving Techniques to Effect Successful Health Behavior Changes." Reproduced, with permission, from the Annual Review of Public Health, Vol. 8, ©1987, by Annual Reviews Inc.



On their own, people seem to be particularly effective decision makers without help when a variety of evidence points to one particular choice as being best, or when there is little difference in quality between several alternatives. However, the world around us suggests (given the rate of unwanted pregnancies, the level of alcohol and other drug abuse, the prevalence of suicide among teenagers, etc.) that health-related behavior decisions are more difficult than many others. In addition, the costs to the individual and society of wrong decisions can be greater than in many other types of decisions.

One of the exciting findings of the BARN project is that BARN reaches adolescents who, in the pretest generally reported more risk-taking behavior (e.g. more smoking, higher rate of sexual intercourse, more serious consequences from alcohol or other drug use), than the nonusers.

The computer can be useful in three phases of problem solving:

1. **Problem exploration**—deciding when change is needed, gaining social support, diagnosing the source of the problem.

2. **Solution exploration**—generating options to consider, making a choice.

3. **Implementation**—testing the chosen solution and evaluating its effectiveness.

Several major advances in computer hardware and software are particularly well suited to the development of a set of computerized problem-solving tools for health promotion.

1. **CAD.** Computer-aided design offers users control over graphic displays of images, as well as the power to bring such images "to life." Using CAD, the computer can draw a three-dimensional image (e.g. a heart), rotate and zoom in on parts of that image (e.g. ventricle), calculate important parameters (e.g. pumping capacity of a heart), and see how those parameters change with modifications to the image (e.g. heart damage). For example, the user could simulate and graphically display the flow of blood through a damaged heart as part of a program to help people quit smoking.

2. **Optical Storage Disks.** An inexpensive and durable technology, optical storage disks offer vast increases in information storage capacity. CD-ROM (compact disk/read only memory) systems are a frequently mentioned version; they can store as much as 600 megabytes of information on one compact disk. Storage and rapid search of massive databases means that users can probe the database without predicting what questions will be asked. For example, a large but not easily accessible literature on health education could be immediately available to users of a computer-based health education program.

3. **Networking.** Computers can be linked so users can communicate with geographically distant people who have common concerns. Such links can also

provide anonymity while discussing sensitive subjects with experts.

4. **Simulation Languages.** Simulation languages have advanced to the point where highly complex processes can be replicated and manipulated on computer. For example, simulation language could replicate a visual display terminal operator's environment, show the health risks that could result from extended exposure, and provide alternative solutions.

5. **Expert Systems.** A branch of artificial intelligence, expert systems enable the computer to be a consulting expert. Doctors now use AI systems to provide a second opinion on treatment of bacterial infections. An expert system can organize and process a vast amount of data and can query a user in the same way a consultant would. A certain response triggers a certain line of further questioning.

6. **Decision Analysis.** Decision analysis software provides methods to help people understand their decision problem, generate alternative solutions, evaluate efficacies of the alternatives and understand the odds that a particular alternative will lead to a particular outcome. One BARN program uses decision analysis to address any type of decision problem (what smoking cessation program to implement, what steps to take in dealing with an alcoholic parent) while another program presents a set of factors and factor weights that experts feel one should consider when evaluating career alternatives. The user can then change the factor set or weights to fit personal beliefs prior to using the program.

7. **Interactive Interviewing Systems.** Computers can help people think through and document issues as an aid to decision analysis. Inquiry systems can help users identify, understand, and select the problem that makes most sense to solve.

8. **Project Management Software.** Users can schedule and track any project (such as implementing a plan to quit smoking). Specific activities required for implementation can be identified, ordered, timed, and displayed in various formats. If the activity involves others, the software could create a schedule for each person.

BARN is the first step in developing a comprehensive computer-based health promotion system. While some components of the ideal system remain to be developed, most should be available within the next two years.

Anticipating such developments, researchers at the UW-Madison Center for Health Systems Research and Analysis have proposed a computer-based Comprehensive Health Enhancement Support System (CHESS). The system, which would be of great use in settings with many people at risk (such as a university campus), would provide access from one location to a wide variety of integrated services such as risk assessment, decision analysis, literature, skills training, crisis prevention, social support, advice and referral.

Credits

Writer/Editor

Marsha Cannon, director of marketing and promotion services, Management Institute, The School of Business, UW-Madison, prepared this report as a special outside assignment. She drew on various materials prepared by BARN researchers.

Cover Art

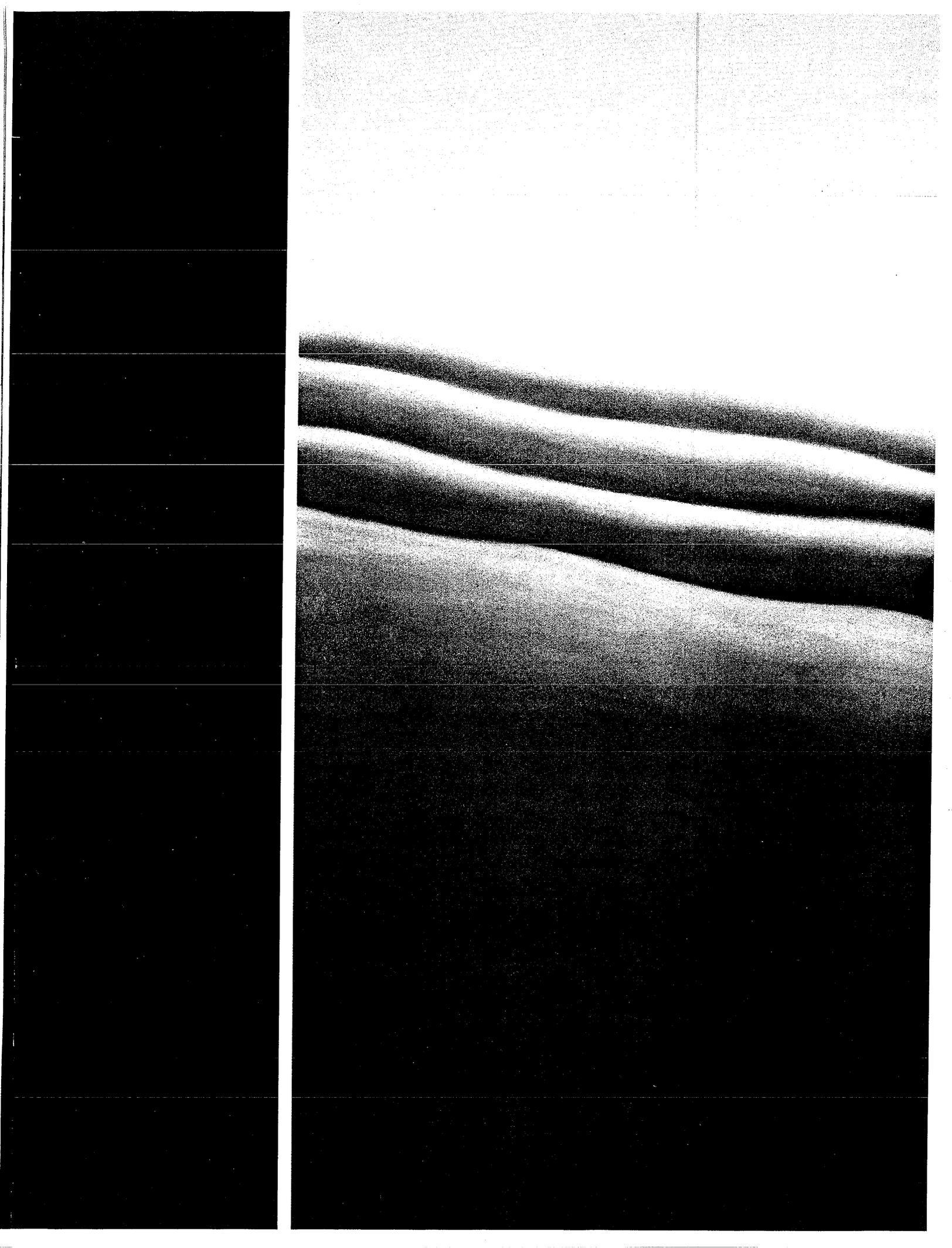
Spring Light, Yellow Light, © 1988 by John Sheean, Madison, Wisconsin. The commissioned 25" x 35" pastel conveys hopefulness—the feeling that results when we know we can make informed choices for the future.

Photos

All photos and prints by Timothy Schneider, except those on pp. 9, 10, and 11, by Marsha Cannon.

Typesetting, Production

Typeset in Palacio at UW-Madison
Office of University Publications



- Halbrooks - bar in Milw. - motorcycles
 - creates procedure for solving these problems
 - end up w/ lien
 - ~~causes~~ causes infighting w/ banks
- ↓ article in today's paper - City of Madison - case
- lender can foreclose
- ↓ used in Oregon
- Bldg Code Problems Ch. 823 - public nuisance (human health hazard)
 - → or a nuisance

- now
- Judge appoints
officer to abate
nuisance

- traffic - gridlock

- Martin Collins

- Good repair clause
- Lender can take
action against U
- helps them define
waste

Ald. Gordon

- More - concern
on allow receiver
if dilap or
health haz.

↳ concern on Seizing
not that well-defined
- cash-flow problem

- Any protections
for long-term
tenant?

Any code violation?
no
↳ Judge has to
order

Bob Anderson

- Legal Action

1) does add
additional procedure

↳ any violation
of a bldg code

- go overboard

any violation

could apply to
something minor

↳ Statutes already
define untenable

- 704.07(4)

- sub viol. of code
materially affecting
violation of it,

2) Automatic
eviction of
tenants. Some
kind of protect.

Not quite sure
how to address

"Should have
known"

- nuisance - "unreasonable
use of prop."

- could be very
subjective

* limit it to

inhabitability

- confusing as to
who can bring these
by equity or legal ind.

823 - some references
to anybody

- some to cities,
towns & villages

- uncut grass,
no \$ paint

Moore

Orville Seymour

- Apt Assoc. -

Letter to local
apt owners
were wkg w/
Seymour
(Ken Hassler)

Moore. - enhances
drug abatement

~~~~~

AB 189

~~~~~

- SB 112

Senate already
has an
amendment

- already
approved by
Conf Committee

- Temple Theatre
Viroqua

- Racine - 1st
M, 1 - 2nd

AB 227 -

SB 146 -

SB 161 - agreed to
and worked up by Daz

SB 142 -

1st + 2nd class

- Assembly? whether
should be statewide

- Prob. prop not owned by
- tenants - ?