

Safer Sex

Fay Pattee
11/11/95

M.F.A. Degree Thesis
Computer Graphics Design
Rochester Institute of Technology

Jim VerHague, Thesis Committee Chairman

Bob Keough, Thesis Committee Member ⁷⁻¹⁰⁻⁹⁶

Nancy Ciolek, Thesis Committee Member

Mary Ann Begland, Chairperson—Graphic Design Department

I Fay Pattee, hereby grant permission to the Wallace Memorial Library of R.I.T. to reproduce my thesis in whole or in part. Any reproduction will not be for commercial use or profit.

Contents

1.0	Genesis	1
2.0	Content	4
2.1	Cognitive Development	6
2.2	Verbal Skills	8
2.3	Scripts	9
2.4	Visual Scripts	11
2.5	Re-evaluating Scripts and Limits of a Relationship	12
2.6	Facts	15
2.7	Results	16
3.0	Design Decisions	17
3.1	Interface	17
3.2	Navigation	20
3.3	Visual Focus	22
3.4	Help	23
3.5	Illustrative Style	25
3.6	Three Dimension	26
3.7	Digital Video	27
3.8	Audio	28
3.9	Color	29
4.0	Conclusions	30

1.0 Genesis

The alarming increase in the spread of sexually transmitted diseases (STDs) and teen pregnancy, along with the appropriateness of teaching safer sex through interactive media, were the impetus for this thesis. Sex education is imperative to the health of our society. The thesis hopes to reveal this frequently ignored and shunned topic to an audience who is at high risk: pre- and early teens. Perhaps the taboo on the subject of sex will finally be broken, opening the floodgates to protection from teen pregnancy and STDs.

It is estimated that "fifty percent of teenagers do not use birth control the first time they have intercourse."¹ Therefore, fifty percent of teenagers are at risk of contracting a sexually transmitted disease and fifty percent of teenagers are potentially facing poverty due to early teenage pregnancy. These are frightening risks and should be addressed together, with equal emphasis. They are both potential consequences of unprotected sexual activity and have many overlapping causes and solutions. When taught as separate entities, STD and pregnancy prevention can work against each other. In an article regarding teen sexual behavior, William Fisher, PhD determines that "...as young women have more and more sexual partners, their use of oral contraceptives increases, their use of condoms declines, and their reports of previously diagnosed STDs increase astronomically."² The correlation between teen pregnancy and STDs requires an integrated approach to the subject of safer sex.

Anyone can go to the library and check out a book on sex. By doing so, that person has access to facts, diagrams and text-based discussion. Is this adequate? A personal experience exposed the answer:

"I found myself dreaming of the afternoon that my mother placed a book on my bed called "Where Did I Come From?" This was my sex education. It was such a secret topic that the whispered words needed to be sealed between the pages of the book so

they wouldn't escape. There was no discussion afterwards and the book was quickly returned to the library."

The above recollection reveals the ineffectiveness of the medium. Books provide the factual information but counteract the need for this information to be verbally communicated.

The first step in assembling an interactive CD ROM is evaluating whether or not the medium is appropriate for the subject matter. In this case, multimedia bridges the gap between society's awkwardness with discussing sex and our need to disseminate life-saving information and teach communication skills. Safer sex would be more effectively and openly communicated by integrating sound, motion and video. If used appropriately, music can ease anxiety created by the subject matter and give a contemporary feel to the piece that better communicates the urgency of the issue. Motion, in the form of animation, provides dynamic visual interest and emphasizes the impact of a user's decision. Animated feedback to the user makes decision-making more rewarding. Finally, video clips and interviews portray a reality unattainable through computer animation. The more personal the information is, the more the users will relate it to their life and the more impact it will have. Providing information is the first step, but encouraging users to alter their behavior as a result of this information is the goal. Through interactive media, this gap can be narrowed.

The task of explaining the entire realm of sex was overwhelming. Therefore, the thesis is restricted to methods of reducing the largest risks of sexual contact: STDs and unplanned pregnancy. The development of HIV into AIDS and the stages of pregnancy are not imperative to the prevention process. They are possible results of not practicing safer sex. There are, however, some unattractive consequences of pregnancy and STDs that, by making clear to the user, could deter risky behavior. Although they are not included in the computer program, they will be mentioned at the end of this discussion.

After defining the subject of this thesis, a target audience needed to be established. This project focuses on pre-and early teens, ages 11–15. At first the target audience was set between 13 and 15 but research dictated a shift in focus. “According to the 1988 National Survey of Young Men, one third of teenage males have had sex by age fifteen, and 86 percent by age nineteen.”³ Kids are having sex much earlier than imagined. Perhaps more enlightening, teens need sex education before they become sexually active. In her book on teenage sexuality, Jay Gale states that “... it does not appear that sex education programs lead to promiscuity. On the contrary, the evidence shows that they result in lower pregnancy and abortion rates, delays in date of first intercourse, and in a greater sense of sexual responsibility.”⁴ Barbara Whitehead further enforces this need for early education: “Early sex education readies grade school children for the onslaught of puberty. By the time they reach adolescence, they are cognitively as well as biologically primed for sex.”⁵ A discussion with Mani Eghbali, a sex educator at Rochester Institute of Technology, helped define a target age group of 11–15 year olds. Focusing on pre-teens would prepare those who are not sexually active, so that when they do find themselves in such a situation, they can respond maturely.

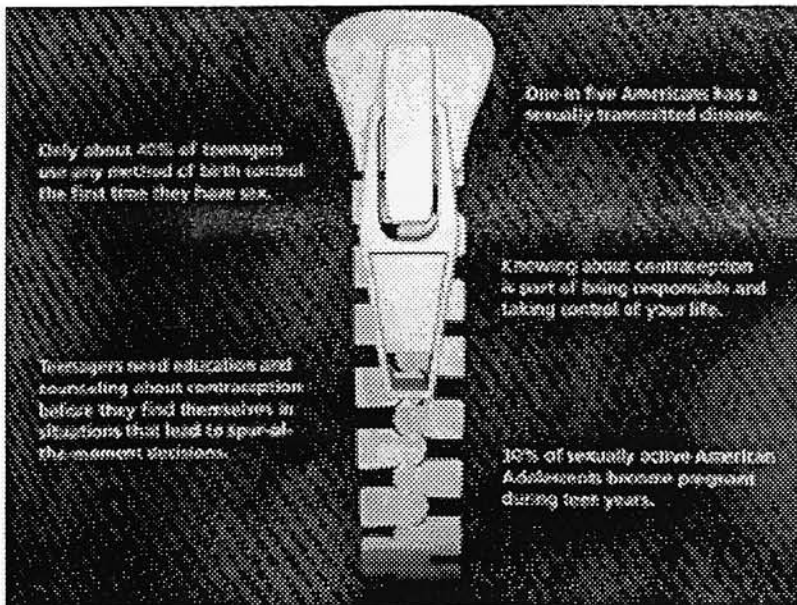


Fig.1a

The defined target audience suggests the content and artistic style of the interactive project. Young teen’s tastes, interests, and methods of approaching a CD-ROM differ dramatically from those of adults. Although the content of this project would not be compromised in order to remain politically correct, this CD-ROM could not

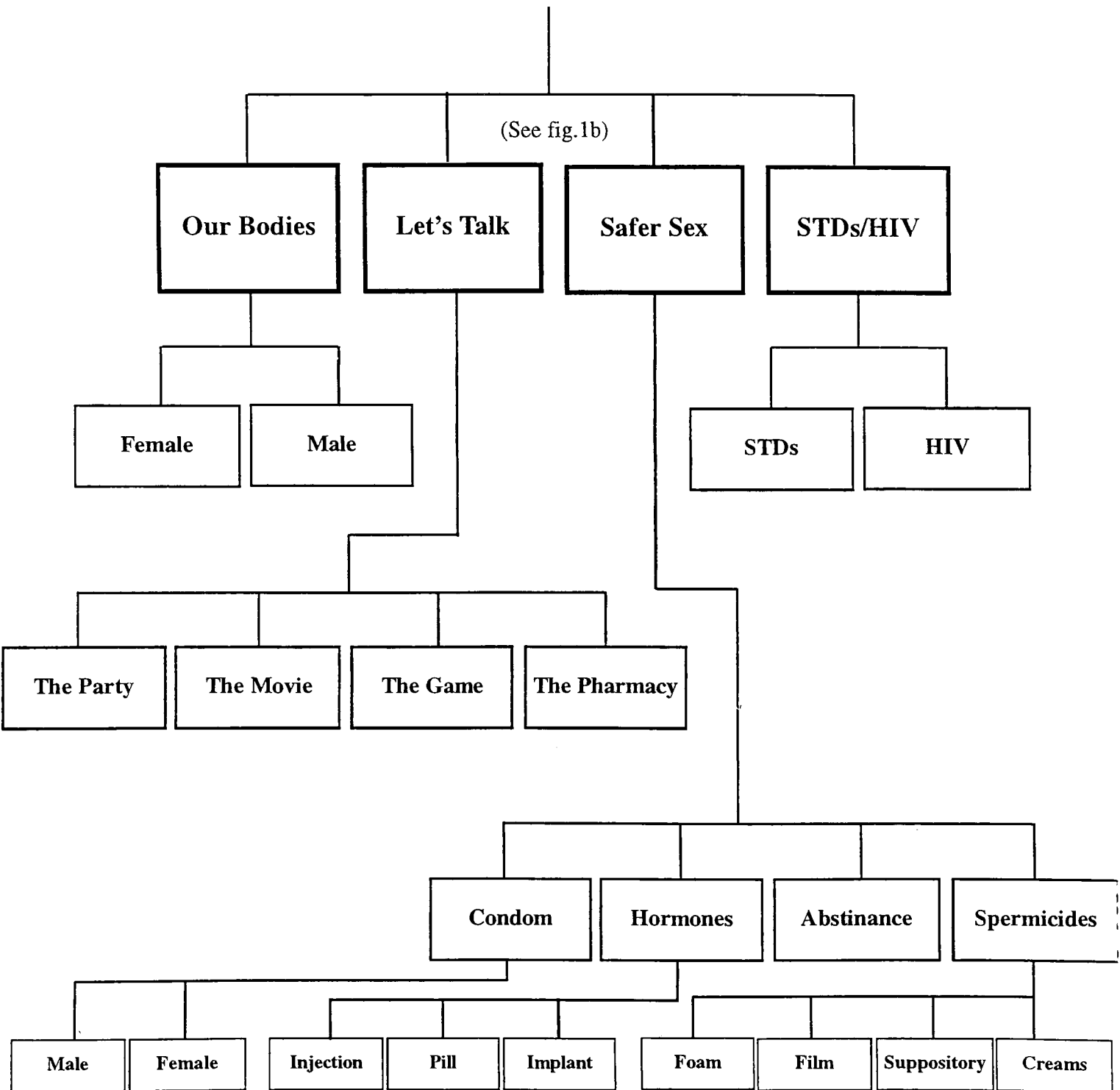
ignore the expected adult market. Since young teens presumably have less money and are still under the supervision of their parents, adults would be the buyers. On most accounts the thesis profits from the fact that this is a school project, not a business opportunity. However, one attempt is made to justify the content of the piece to adults. The program begins with music accompanied by quotes and statistics ranging from teenage sexual involvement to the likelihood of teens contracting an STD (see fig. 1a). These statistics have more impact on adults and will hopefully persuade hesitant adults that this information is essential to young teens.

After these introductory statistics disappear from the screen, the presentation is geared for teens. The language explains this information in an uncomplicated and informal manner. Slang words that teens use in private conversations are incorporated into both text and verbal discussion. For example, in some instances the slang term “going down” is used instead of “oral sex” or even “cunnilingus”. By the same token the term “women” and “boy” are avoided whenever possible. Testers reported they don’t use these terms in regard to someone their age. All reference to “boys” were changed to “guys”. The terms “male” and “female” often avoided the problem, since these words seem to cover all generations. The goal of these subtle vocabulary changes is to engage the reader. Speaking on a teen’s level, as though the program were written for the individual user, will hopefully make exploring this CD-ROM a more personal experience.

2.0 Content

The content of this thesis on safer sex was quickly re-organized by the discovery that, to be effective, the project must be more than an informational piece. Facts alone will not prevent young teens from becoming sexually involved. They certainly need the facts, but “the way to protect teenagers is to give them the interpersonal skills and the technical tools to

Safer Sex



manage their own sexuality.”⁶ These skills are developed through planning and practice. The importance of communicating one’s desires warranted the broadening of content in the thesis.

An entire section of the project is dedicated to teaching communication skills. The chart in table 1 outlines the content of the thesis and shows where each section (further referred to in italics) is located within the hierarchy of information. The *Let’s Talk* section quickly became the most complicated and developed part of the project. The user guides the conversation through four scenes: *the Party*, *the Movie*, *the Game* and *the Pharmacy*. Depending on the user’s choice of conversation, the two characters create a healthy or risky relationship.

2.1 Cognitive Development

Teen’s difficulty in recognizing the results of their actions is mostly due to immaturity in thought process. Teens are usually faced with fewer responsibilities than adults so it makes sense that they have less practice in following a thought process from idea, to implementation of idea, to consequence of action. Such cognitive underdevelopment poses a frightening obstacle between engaging in sex and planning for sex. An eleven year old child is not likely to be cognitively mature enough to follow the mental processes essential to practicing safer sex. “[Teenagers] seem to have a view of the world in which they see themselves as immortal and immune from the dangers of life. Often they fail to see the risk in their actions.”⁷ Overcoming this hurdle involves two skills that *Let’s Talk* adopts as goals: the ability for teens to think about the possible outcomes of their actions, and the verbal ability to express themselves and what they want out of a relationship. The combination of *knowing* what you want to say and *verbally expressing* what you want to say will strengthen relationships and reduce unwanted and/or unprotected sexual experiences. Enacting situations in which characters are faced with decision-making shows the user possible consequences of their choices. It urges kids to pose questions to themselves: “What if I get pregnant? What if I get an

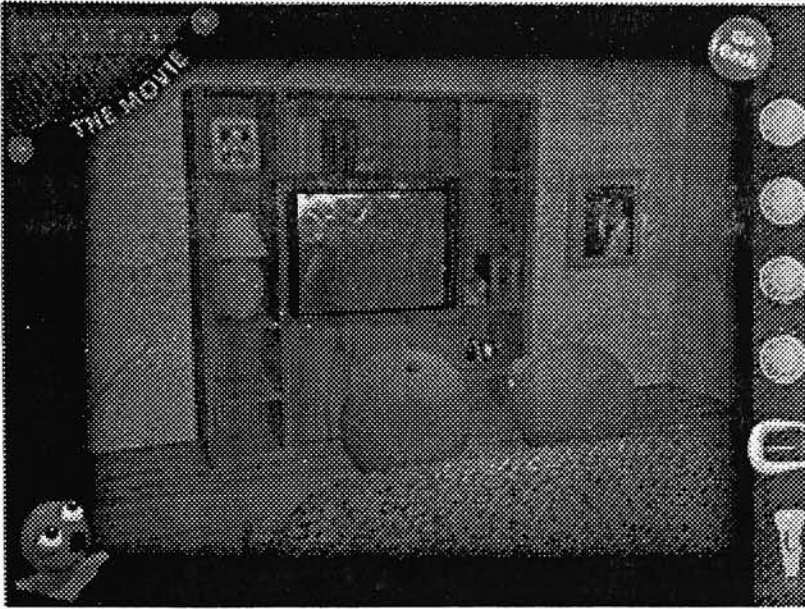


Fig.3b

STD? What if I become HIV positive?" Asking themselves these questions will help kids act responsibly about sex.

The use of a narrator character helps answer many of these questions. A small purple character, made of a triangle and a sphere, appears in the lower left corner of the

screen and comments on the user's decisions, providing valuable feedback when the user makes an educated or uneducated choice (see fig.3b). Eghbali stressed the importance of positive reinforcement for informed choices. In *Let's Talk*, the narrator reinforces good decisions. For example, the character yells "Bravo!" or "Good Move!" to reward the user for using a condom. By the same method, if the user makes a bad choice, the narrator interjects, but the user continues along this path, witnessing the outcome of their decision. At the end of the scene, the narrator sums up the positive and negative impact of these decisions. This technique is useful because it teaches teens the risks involved in unprotected and uninformed decisions without limiting the user's ability to select a particular conversation path. Creating dead-ends in the software program to force a user into making the correct choice disengages the user and makes them lose control over the computer program. Since *Let's Talk* must engage the user to create a personal experience, this limiting factor would be counter-productive.

Many conversations and scenes in *Let's Talk* are cognitively too advanced for an 11 year old. The final scene, *the Pharmacy*, is an enactment of a couple selecting contraceptives at the store (see fig.3d). Eghbali pointed out that virtually no eleven year old would go to the pharmacy with their



Fig.3d

partner to pick out condoms and spermicidal foam. This is exactly why the scene is needed: if they are sexually active, they should buy condoms! By enacting this scene, the young teen will realize what is involved in planning for sexual involvement. Perhaps this program won't make all teens go

to the pharmacy with their partners, but at least they will be aware of a responsible step that they are bypassing. If nothing else, this section will provide important facts about contraceptives and show them the variety of contraceptives that are available at the pharmacy.

2.2 Verbal Skills

There are many teens who are comfortable having intercourse but are uncomfortable discussing sex with their partners. *Let's Talk* is most appropriate for these "high risk" teens because it provides actual scripts that they can use, or modify to use, in their relationships. Having practice, knowledge and concern, adults can provide teens with verbal scripts so that they have a selection of lines from which to choose. Without these verbal communication skills, teens will quickly find themselves in uncomfortable situations. In regard to sex education classes, "the only programs that have any impact teach kids how to say "no" to someone you really like, someone you might want to say "yes" to down the road."⁸ Negotiating sex involves a series of personal choices. The individual must make responsible, educated, and mature decisions. The only way to acquire these communication skills is to plan sexual activity and practice expressing established limits of this activity.

Role playing and short skits have long been a method of giving individuals the opportunity to practice and prepare themselves for potential situations. The interactivity available through the computer can also give users practice in dealing with sexual encounters so that they do not make grave mistakes regarding their sexual health. Many people are uncomfortable with the idea of planning sexual involvement. The thought seems to take the spontaneity out of sex. But discussion of sexual intimacy doesn't have to take the romance out of sex. In fact, fantasizing and discussing sexual desires can be as stimulating as the act itself. It also takes the fear out of sex. Talking about sex with a partner strengthens emotional bonds, removes ambiguity about the status of a relationship, and eases fears of contracting a sexually transmitted disease or of getting pregnant.

2.3 Scripts

When a couple discusses their hopes, fears, and limits of a relationship, confusion and mixed signals are reduced, if not eliminated. Discussion also helps break down misguiding behavior that society dictates and to which individuals conform. We learn most social behavior from scripts that have already been established. For example, society tells us that a man asks a woman on a date. This sexist script has endured through time and we are only now beginning to overcome it. Many of these social scripts endure from an earlier date when there was more discrimination between sexes and the risks of contracting an STD were less. Today many of society's scripts are dangerous and unfair. A passage from a school textbook, Sexual Interactions, sums up the confusion that can result from differences in scripts:

Abelson (1981) suggested that we have a tendency to fill in the gaps of incomplete scripts. This gap-filling phenomenon can sometimes lead to difficulty in ambiguous situations. You may have experienced a situation in which you were following a friendship script, having coffee or a sandwich with a person, only to discover that

your friend's script did not match yours. Your friend, who had been following a romantic script, had filled the gaps by attributing to you sexual feelings and intentions that you did not have. Relating to each other may have been somewhat awkward until you resolved the differences between your scripts. ⁹

Encouraging teens to question society's scripts regarding sex will help them to know and communicate their own desires and, as a result, be responsible for their actions. By developing individual instead of societal scripts, teens can evaluate them, alter them consciously, and avoid ambiguous situations.

After identifying a discrepancy between scripts the teen must verbally rectify the situation. For example, the girl in *the Game* tells the boy right away that she only wants to be friends (see fig.3c). The boy follows a script saying the girl is interested in a relationship and the girl follows a

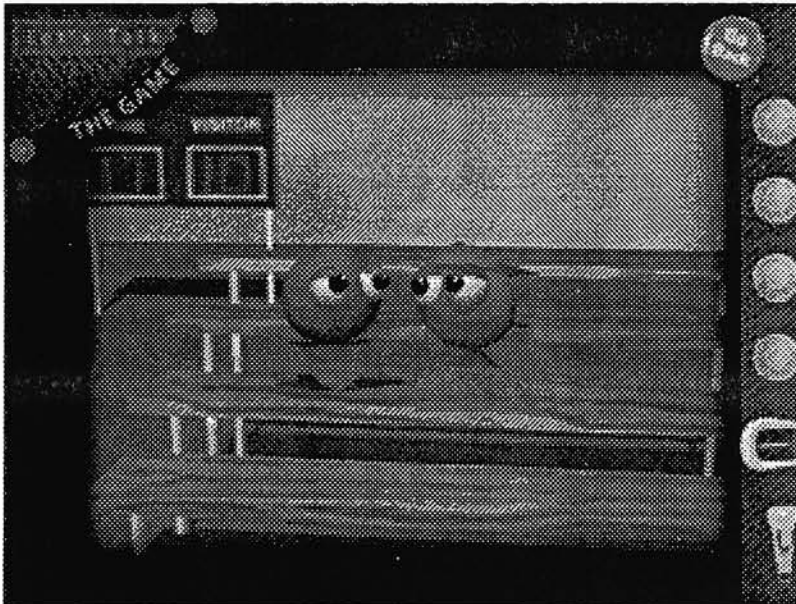


Fig.3c

different script, that they are just friends. One character sensed a difference in the status of a relationship and takes the necessary steps to communicate these differences. By being blunt, a couple avoids misunderstandings. Problems don't arise where one person is following one script and the other is following another script.

Although often unrealistic and prematurely blunt, the message in *Let's Talk* is clear: It is better to avoid misunderstandings, hurt feelings, and anxiety by making intentions clear.

Restricted by time, conversations in *Let's Talk* advance quickly and, for most adults, prematurely. It is unrealistic for a couple to talk about contraception on the first date! However, only adults noted the time factor in these skits. Teens who tested the program paid little attention to this sequence of events and were instead engrossed and humored by the dialogue. The rapid development of dialogue serves to provide the necessary scripts that a teen could use in a similar situation, regardless of the time factor. It also maintains the user's attention!

2.4 Visual Scripts

Verbal communication is not the only area of communication that is misconstrued. Visual scripts are often incorrect and sexist. Clothing is one example of a visual cue that can label an individual to have tendencies toward sexual promiscuity or even frigidity. It appears obvious that actions and beliefs cannot be determined by appearance and clothing; yet American culture unfairly groups people by visual cues to create order in society. This thesis resists society's biases by depicting characters that do not conform to traditional gender characteristics, leaving out clothing altogether. There is no bow on the girl character's head, or pony tail hair style. In fact, both characters are bald! Also, the female character is blue, a color "normally" reserved for boys. For clarity as to which character is speaking, the voices are male and female.

The use of alcohol is also a societal script that triggers the belief that a person who drinks is more interested in sex. Although it is proven that the use of alcohol can impair judgement, it does not indicate that an individual who drinks is seeking sex. The purpose of including the beer bottles in *The Party* is to stress that alcohol can cloud judgement and that planning a date with someone for whom you are attracted at a time when one, or both individuals is under the influence of drugs or alcohol, is risky (see fig.3a).

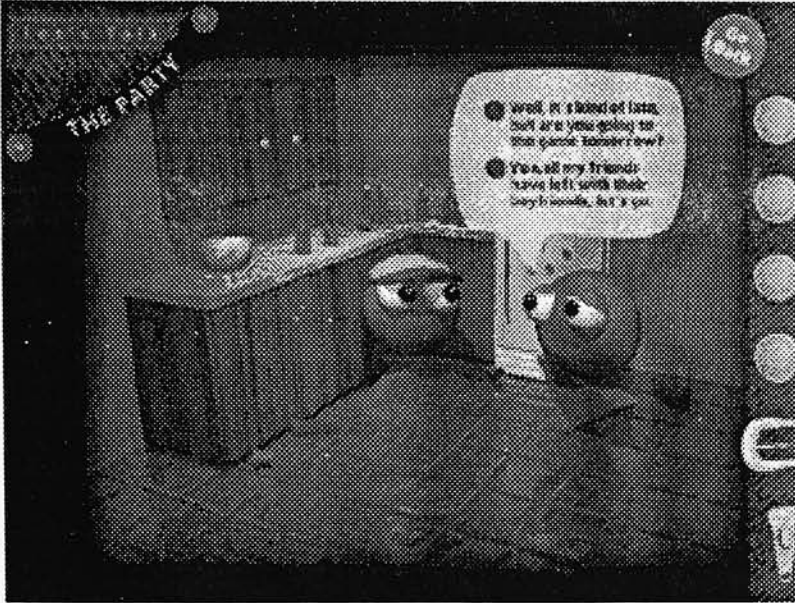


Fig.3a

To be wary of behavior that could increase the likelihood of unprotected sex, teens must first acknowledge that they are in fact sexual beings. This is difficult for teens who have been taught that they are too young for sex. Society hides sex from teens (especially females), encouraging them to ignore their sex-

ual desires. As a result, many teens suppress these physical and emotional urges and deny the need for sexually-related information and communication skills until they find themselves unprepared, and faced with a sexual encounter.

2.5 Re-evaluating Scripts and Limits of a Relationship

It is important to have the skills for evaluating and altering our scripts depending upon the situation. Teens should be aware that it is OK to advance their expectations about a relationship as it progresses and that, by consciously doing so, they can still maintain a non-coital sexual relationship. Limit-setting is only successful if partners communicate and reach a mutually acceptable limit to sexual activity. This includes not only the gradual advancement of activity, but also the stopping of activity and regression of intimate involvement.

Ceasing sexual intercourse, or “second virginity” is an increasingly viable option for teens. Many people follow the old societal script suggesting that once sexually active, there is no point in stopping, and that once on the road to sex, intercourse is inevitably the result. In *Let's Talk*, the characters oppose these destructive beliefs. If the user decides to engage in

unprotected or protected sex, they have the option of changing their mind later and taking the relationship at a slower pace. Surprisingly most adults responded to *the Game*, where the female can say to the male “last night was a mistake,” with mocking negativity, as though it was too late to change their mind. This belief is destructive because it leaves the teen helplessly abandoning control of their conduct. The goal in *the Game*, after the couple has had intercourse, is to point out that the night before was a potentially life-threatening mistake, but that they can change their behavior and not do it again. By doing this, the characters regain control of their lives and continue to be responsible for their actions.

Observance of teens interacting with *Let's Talk* revealed which conversation paths young people most often navigate. Not surprisingly, users chose the wreckless path to unprotected sex. The narrator, or “conscience” takes advantage of these known irresponsible routes by emphasizing why these were bad choices to make. This ability to identify areas of interest within the program helps the developer strategically place vital information.

Another advantage of using interactive media to present information and teach communication skills is the ability to target a particular group for information that might not be appropriate for other users. Users will learn information that is geared for them. For example, if users are innocent to, and uninterested in sex then they will most likely not choose a path in *Let's Talk* that leads to an advanced discussion on contraceptive devices. After exploring the section once, this user will probably get bored and move on.

The ability to provide information to teens who need it is also advantageous when dealing with differences between young men and young women. Any distinct treatment of gender is directly linked to the rate of development of each sex. At puberty boys and girls go in different directions. With the development of muscles, growth of body hair, and change in voice, boys gain self confidence. Girls, on the other hand, usually have

decreased self-esteem during puberty. They gain weight, develop breasts, and are troubled by acne. These signs of puberty can have a devastating effect on a girl's self-esteem. Such lack of confidence has been linked with the search for affection, comfort and security. Since females are known to view sex in a more emotional light, many girls seek these qualities through sex. Whitehead found that, due to the difference in the age of maturation between teen boys and girls, there is a "...decline in young adolescent girls' feelings of competence and confidence at roughly the same time that adolescent boys are becoming more assertive and, well, cocky."¹⁰ Although there wasn't time to get deeply involved in the issue of self-esteem, reference is made to lack of self-confidence in *the Movie* (see fig.3b). The couple watches a "steamy" movie in which there is a



Fig.3b

thin woman, and the female character comments "I wish I were that thin...why are you hanging out with me, anyway?" The decision to address self-esteem through television has two purposes: to make the viewer aware that models and actresses in the media do not represent an ideal to which every female should

aspire, and that sexual conduct in movies often leaves out the essential step of protection against pregnancy and STDs. Television and movies are pro sex because it sells, but not pro prevention. They do not in any way represent what people should or should not do in their lives. Teens are more impressionable than adults and often have difficulty in making this distinction.

2.6 Facts

Knowing the risks of sexual involvement and the facts about prevention gives people both the information they need to protect themselves and the confidence to communicate this information. However, for teens in particular, "An illusion of safety arises from not asking and not knowing."¹¹ This is life-threatening. Communication skills and knowledge are ammunition and protection against peer pressure. The combination of verbal scripts and facts about safer sex will give them confidence to resist pressure to engage in sex. Facts about STDs, information about how our sexual bodies work, and methods of prevention will help battle this illusion of safety and peer pressure.

This means providing *all* of the facts, not just select bits of biased information. "In a new review of sex ed courses, the CDC [] found that kids tune out one-note messages—abstinence-only as well as contraception-only. What does work? Courses that talk abstinence, teach safe sex and refuse to send kids out into a cold, cruel, sexually charged world on their own."¹² In the scope of the thesis project, this became a balancing act: to not be biased by providing all the information and to allow users the decision of which information is relevant, and to limit the thesis content because of time constraints. An example of this compromise is in the discussion of contraceptives. Although the cervical cap and the diaphragm is not covered, there is a short explanation of why they are excluded. This explanation describes what these contraceptive devices are and why they are not appropriate for teenage use. By doing this, information about birth control methods is not selectively withheld from the user.

During the production of *Our Bodies*, it was important to keep in mind that the focus is on teenagers. In *A Parent's Guide to Teenage Sexuality*, Gale warns adults to "...be realistic. Teenagers are much more interested in the emotional and physical aspects of sex than they are in the intricacies of reproduction." ¹³ The facts of reproduction are only useful if they directly impact teens and relate how this information can help them in

preventing pregnancy and the spread of STDs. Straying too far into the realm of biology and pregnancy would take the focus away from prevention. For this reason, there was no need to go beyond implantation of a fertilized egg into the uterine lining. Every opportunity was seized to include small facts that relate to safer sex. For example, in the section dealing with seminal fluid produced by the Cowper's glands, it is noted that this fluid can contain sperm and HIV and that this is one reason why any genital contact before sex, is dangerous. Also included in this section is reference to "pulling out." Many teens rely on this technique as a method of birth control. Although not included in the discussion of contraceptive methods, the "rhythm", or "natural" method is referenced in *Our Bodies* through mention of the difficulty in controlling ejaculation.

2.7 Results

As mentioned in the beginning of this discussion, there are grim results of contracting an STD or becoming a teenage mother. These results were not addressed in the interactive computer program, but they are worth mentioning. Whitehead states that "If three risk factors for poverty are present—teenage childbearing, failure to complete high school, and non-marriage—then it is all but inevitable that the mother and her child will live in poverty: 79 percent of all children born to mothers with those three risk factors are poor."¹⁴ These are statistics that can act as scare-tactics for young teens who have not thought, are cognitively not mature enough to think, or idealistically think about the possible outcomes of their wreckless actions. As adults, these statistics are alarming. However to young, unstable teens it might be more effective to stress short term results with which they can identify—focus on what is important to them now—stress the separation from peer groups. Perhaps the fact that they won't be able to go out with their friends at night because they will have to stay home and take care of a baby would have more impact on a young teen than the fact that in 5 years they will be on welfare.

This thesis focuses on pre-teens and teens who do not want to get pregnant. Unfortunately there are teens who, for developmental or social reasons, want to get pregnant. The teens who fall into one of these categories are unsure about where they want their lives to lead them. In her examination of various school sex education programs, Whitehead explains how a lack of cognitive development can cause teens to view pregnancy as a way of gaining attention, envy, and security.

“As these girls become teenagers, they bring limited inner resources to the key developmental task of adolescence: the formation of a stable identity. Whereas a more resilient teenager is ready to face the classic questions of adolescence—Who am I? and What will I do with my life? and How will I be different from my mother?—the fragile girl may still be wrestling with questions associated with an earlier developmental stage: Who cares about me? and Whom can I depend on? and Where can I find safety and security?”¹⁵

These insecurities can consume a young teen. The “fragile” teen in the above mentioned excerpt probably would not, without prompting, think about long-term consequences of early teenage pregnancy.

3.0 Design Decisions

3.1 Interface

In this thesis, the term “interface” refers to elements that remain constant through the program. These elements consist of navigation and the general background images that accompany the navigation. The interface took many turns. The original plan was to have square, animated icons along the side of the piece. After initial prototype development, it was painfully clear that the interface was boring and unrelated to the topic and target audience. The interface needed a metaphor relating to sex that would both clarify and mimic the structure of the piece and provide visual interest to the user.

For navigational reasons, the concept of layered clothing made sense because each layer represented a level of information in the program. The outer jacket would be the main menu; the sweater, the submenu; the t-shirt, the body content. The idea of clothing quickly lost its appeal when realistic clothing and fabric movement that believably hung on a person was unachievable. The idea of clothing could still work if the focus were less on the fabric and more on the mechanisms that make clothing open and close. The belt, the buttons and the zipper were as far as the metaphor of clothing needed to extend and the realism of the idea did not need to go beyond the objects themselves.

A suggestion was made to change from the clothing metaphor to a stage metaphor, using hanging clothing as the curtains for a play. The idea was interesting, but the clothing metaphor and the theater metaphor were getting mixed and they were competing for attention. The idea of a theater stage was not contemporary and not exciting to teenagers. The piece needed to have a contemporary, young feel to it. In addition, it was still too literal. Too much time was spent trying to make a replica of a theater stage, realistic lighting, believable curtains etc. Imitating another medium proved fruitless, and using the computer in a bold, new, less literal way proved effective in suggesting an idea and attracting attention.

The idea of stripping away clothing to reveal deeper, more detailed information, serves a philosophical and practical purpose. The program is sealed at the beginning with a zipper encasing the body of information. When the zipper is unzipped, one layer is shed. The seal is broken and so is society's taboo on the discussion of sex. The subject is open for exploration. When the belt is opened, another layer is exposed (see fig. 1b). Finally the buttons are opened, revealing the last layer of information. By stripping away these social barriers, teens will have access to information that will help them avoid pregnancy and STDs. Perhaps this metaphor for battling society's reluctance to discuss sex with teens would not be noticed by teens, but it was a contributing factor in the choice of interface.

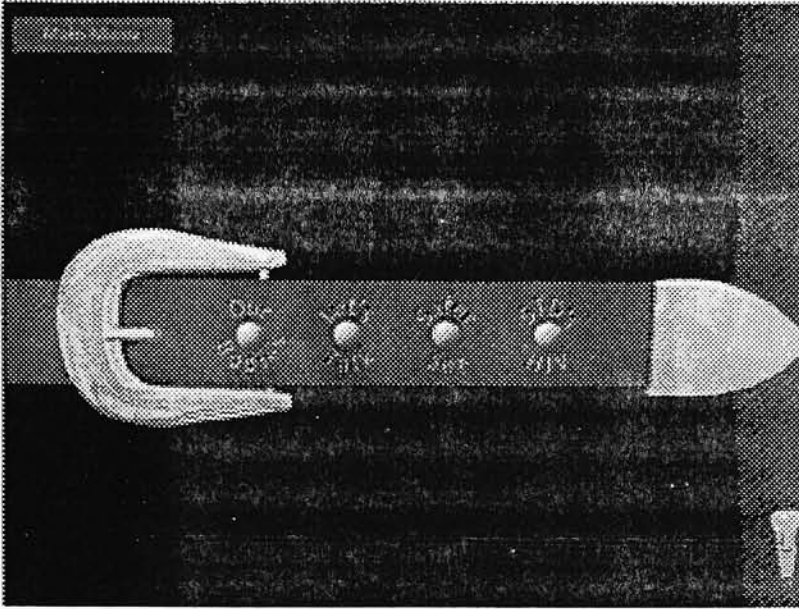


Fig.1b

The initial zipper remains in the corner to serve as the quit button (see fig.1d). Above that is a belt which acts as the main menu and above that are buttons, which are the submenu items. This metaphor for navigation provided an interesting and provocative flair that draws the user into the program.

Judging from the reaction of testers, the program attracts attention with the interface. The close-up images of the zipper and belt were provocative but not shocking. There was ambiguity in the images that allowed the user to imagine the purpose of the zipper. Originally the introductory zipper was intended to be the zipper of a sweater or jacket. It was soon

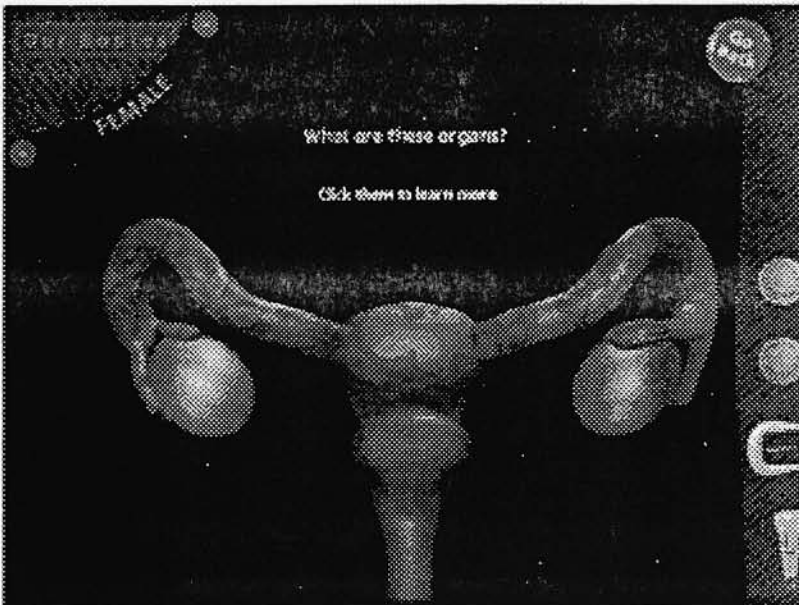


Fig.1d

clear that most viewers believed the zipper to be that of a pair of jeans. The idea of something unzipping is there, but the particular article of clothing is only suggested. Oversized buttons on the submenu screen also breaks from realism and allows users to make their own conclusions about the purpose of the buttons.

3.2 Navigation

In the upper left corner of the screen there is a portion of a pocket, presumably the pocket of blue jeans. The menu and submenu names are situated within this pocket and orient users (see fig.1c). Initially the section name was situated vertically and separate from the submenu name, but users were confused about their purpose and wanted to click on them. By integrating the menu and submenu section names into a pocket that is constant through the program, the organizational structure of the material, the interface, and the theme is reinforced. Users can see what section of the program they are in without going back to the main menu or a map.

Forcing the user to return to the main menu whenever they want to move to another submenu item is cumbersome. Reduced versions of the big submenu buttons are situated along the right side of the screen, allowing the user access to other submenu items without leaving that section. They can also access the main menu from any screen and quit at any point within the program. The advantage of not returning to another section to

reach your ultimate destination is speed and orientation. Moving rapidly from one screen to another can interrupt the flow of information and confuse the user about their orientation within a section.

The desire to minimize confusion that is often the result of unnecessary movement between

screens and changing information, is the reasoning for the design of the *STD* section. There is a chart with buttons that, when clicked, reveal

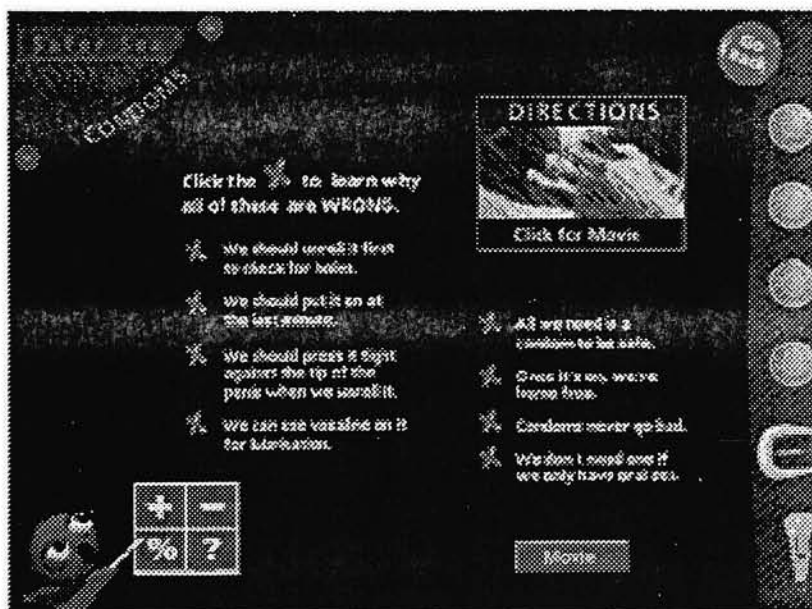


Fig.1c

more information regarding a particular STD. The information exposed by these buttons is short and does not warrant a fresh screen. Instead, the requested information dissolves in and out over the right panel of the chart. The user never leaves the initial chart and can always see other diseases, clicking them whenever they choose. This is faster and more comprehensive since information and layout is not constantly changing, appearing and disappearing.

Lack of fluidity is most apparent in the implementation of hypertext. It is incorporated into the program to emphasize the inter-relatedness of all sections and to clarify terminology. As previously mentioned, STD prevention and pregnancy prevention needs to be discussed together. They are both equally frightening possible consequences of sex. For this reason hypertext was created so that the user can see other related issues or get more information on a statement. For example, if the conversation in *Let's Talk* leads users to a discussion about STDs, they can click on the word STD and go to a list of common STDs. This breaks the tree structure of the project, making it less restricting and more interrelated.

The original prototype of the thesis contained a "go back" button that took the user to the last screen visited. A button was also implemented to bring the user back from hypertext links. Having two icon-based buttons with similar names but different purposes, was confusing and a scripting burden. A button that takes the user to the last screen meant declaring a global on almost every frame of the program. Fortunately testers did not find this feature helpful, and rarely clicked on it. They also found that they could easily return to a particular section by clicking on the side-panel buttons. This button was removed, leaving the "Go Back" button to serve as a return from hypertext.

Few teenagers are familiar with the term "hot-text" and not many took advantage of this feature. Even with initial direction, most teens did not click on hypertext. They did, however, click on the "Go Back" button before they had ever selected hot-text. During the thesis show, if a user

clicked on this button before they had chosen hot-text, the narrator warned “This button is only used for returning from red, hot-text.” Even this was not adequate. The button was eye-catching, yet it served no purpose if the user didn’t first go out to hypertext. Finally, a suggestion was made to only have the button appear if a user had clicked on hypertext. By doing this the button would not needlessly attract attention and clutter the screen. This technique also emphasizes the appearance of the button when it is needed. The pin remains on the screen until the user clicks it. They can move about within the program and return at any time, not being restricted to one screen. Although not yet tested, this appears to be a clean, comprehensive solution.

3.3 Visual Focus

Any screen display has a hierarchy of information to guide the viewer’s eye. Trying to gain visual diversity on a display by providing the viewer with many options to choose from proved ineffective. This inundation with information and choices caused confusion. For example, the *Male Condom* sub-section originally provided a quicktime movie, a true or false questionnaire, and a “return” button. Many users did not notice the quicktime movie option. Even though “click here for movie” was printed in large letters, there was so much other information on the screen at the same time, that the viewer clicked “return” without ever seeing this option. The program should not force the user into viewing the movie, but it also shouldn’t disguise the option. In the *Our Bodies* section this problem was not the lack of visual noticeability of the options but the ambiguity of what to click first. Instead of a “return” button there was a “continue” button that advanced the sequence of events. Users wanted to know if they clicked the “continue” button, could they still see the movie? The answer was no, they would lose the chance of seeing the movie if they did not choose to view it at that time.

There were two solutions available. The first was to break the information into two screens. Since there wasn’t accompanying text for the

movie and it would claim a screen all by itself, this option would be dull and create needless work for the user by making them click a button to return. The more viable solution was to change the “return” button to a “movie” button. This way the user could not avoid the movie and would not be confused by the choice of the movie or the “continue” button. This was an acceptable solution with one caveat. The user should not be forced into viewing the movie. The decision was to immediately change the “movie” button to a “continue” button after it is clicked (see fig.1c). Users must start the movie, but they can cancel it at any time.

3.4 Help

The method of providing help is dependent on the target audience. Testing results showed that the younger the teen, the fewer directions they needed. This is partially due to lack of patience in reading directions and partly because they click and randomly move the mouse more than do adults.

Teens who tested the thesis wanted to jump right into the program. Most of them didn't even go to the help section. The few that did click on “help” didn't stay there long enough to read all of the directions. This discovery discouraged implementation of a “help” button. Directions would have to be integrated into the sections where it was needed. Verbal and short text instructions can also reduce information overload and loss of interest.

The solution was to provide verbal directions as well as text labeling of navigational elements the first time that the user opens the program. The verbal explanation is provided by the narrator and was added after discovering that text-based directions alone were not effective for teens. This introductory “help” screen is unavoidable the first time a user leaves the main menu, but it does not appear again.

The technique of only showing directions once is also used in the *Safer Sex* section. During testing it became apparent that kids didn't know to

click on pictures of the contraceptives. Again, the narrator rescues the user by releasing a line of textual directions after a delay. The delay serves to encourage teens to read the paragraph on the monitor before they impatiently click to a specific section.

Observation of teens exploring the program revealed their curious nature and youthful energy. They constantly moved the mouse around the screen; when something catches their eye, it also causes them to move the mouse to that location. Having information appear when the user rolls the mouse over a particular object is an appropriate method for hiding text and creating an exciting, “hide and seek” environment. The information contained in these hidden buttons is not critical to the safety of the user. Such essential information is either repeated in the body text or excluded from the rollover. Rollovers in *Safer Sex* provide extra information that would otherwise crowd the screen making everything difficult to read. The narrator points to a green chalkboard with “+”, “-”, “%”, and “?” printed on it (see fig.1c). The teen inevitably rolls the mouse over this

section and discovers the advantages, disadvantages, reliability and location of each form of contraceptive. Although a bright picture and symbols appear in the lower left of the screen, adults hardly ever find this section because there are no directions.

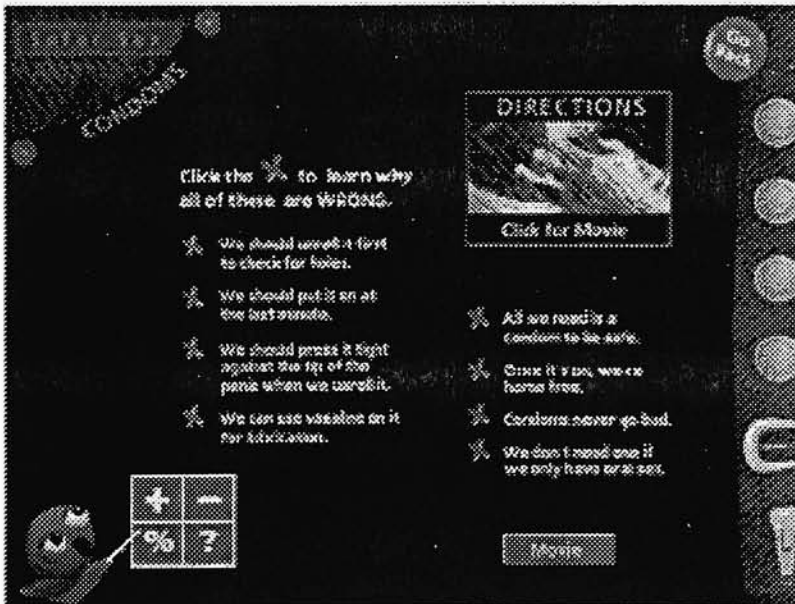


Fig.1c

3.5 Illustrative Style

With sixteen different Macromedia projectors, special attention needed to be paid to continuity between movies. Consistent treatment of graphics and positioning of navigation could ease the awkwardness and possible confusion that is often a result of changes in movies and subject matter. A consistent illustrative style needed to be established for all areas of the thesis. This was difficult because the diversity of information put forth calls for a variety of presentation formats; *Let's Talk* consists of full-screen illustrations; *Safer Sex* contains subsections; *Our Bodies* consists of animated illustrations. The project would quickly get boring if it were wed to one particular style or software package for the entire piece. The "look" of the project needed to be consistent at the beginning of each movie to orient the user in that section, but thereafter, a shift in illustrative style would hopefully be welcomed.

Continuity in design and interface also applies to the use of movies. Since the two major movie sources in this project are MTV and NOVA, there was an obvious discrepancy in style. While searching for a way to ease this contrast in style, a decision also needed to be made on how to present the option for watching a movie. An initial picture image taken from the QuickTime movie provided a "sneak preview" of the movie content. The size and location of the picture established a focal point for the movie before it began to play. By situating a still frame from the movie in the exact place where the movie would appear, the digital video would hopefully begin smoothly.

While the still image was being swapped for the movie, there was no image at all on the screen. This annoying shift was unacceptable. To make the switch less noticeable, a duplicate of the green title printed on the still image is incorporated into the beginning of the movie (see fig. 1c). As the movie begins, the title zooms larger and dissolved into the movie. Since the initial still image and the first image of the movie are identical, no flash or shift appears as the movie begins. This technique is consis-

tently implemented for all movies and provides a unified introduction to different video styles.

3.6 Three Dimension

Visual presentation of the thesis needed to consist of more than a text-book on disk. Computers offer the capability of user-controlled dynamic information. Why is there a need for this medium? The same childhood experience of reading “Where Did I Come From?” comes to mind:

“Sitting on my bed, leaning against the wall as if to prevent anyone from looking over my shoulder, I curiously devoured images and diagrams that I had never seen before. Soon I forgot what I was looking at. For all I knew, these sperm were little tadpoles that swam through a pipe in the marsh instead of through my uterus! Looking back, I try to analyze why I lost touch with the location, size and purpose of the anatomy printed in the pages of the book. My conclusion is that diagrams lose their connection to the human body because they can’t effectively remind the viewer of scale relationships and where this activity takes place.”

Size and location relationships to the human body can be addressed by the use of three dimensional images and animation. In *Our Bodies*, the use of Strata StudioPro simplified creation of 3D animation of the male and female sex organs. The organs first appear in scale and soon grow to fill the screen. This allowed for the organs to be introduced in position within the male and female bodies. The user immediately knows what they were looking at and where they were located within the body. Once the user clicks on the organs, an animation rotates and scales the isolated sex organs. The animation also serves as a transition from an external view of the male and female to the function of the internal organs. In the male section the penis becomes erect while enlarging and rotating. By having all of these movements happen at once, the awkwardness of watching erection occur is alleviated.

After enlarging to full size, the sex organs are clickable and reveal information about that specific organ. When clicked, the three dimensional organ is covered by a two-dimensional cross-section. This transition between two and three dimensional illustration worked well because it provided simplified visual description and animation without distancing the user from the organ itself. For example, assume the user clicks on the uterus; a two dimensional image of the inside of the uterus dissolves into the screen. These illustrations are simple so as not to cloud the key points with technical detail. After the user reads the accompanying information, they are returned back to the three-dimensional exterior sex organs. This reminds the viewer of what they are seeing.

3.7 Digital Video

Another method of reinforcing the orientation of organs within our bodies is to incorporate QuickTime movies. Digital video borrowed from PBS' NOVA reminds the user that all of this activity actually takes place in the human body. QuickTime movies provide biological accuracy that is otherwise lacking because of illustrative liberties taken in the creation of the male and female sex organs. Animated illustrations give a simplified understanding of the process of egg and sperm development. The goal of these animations is to give teens an understanding of what happens in their bodies and to make users more comfortable with their bodies and give them a better understanding of when and how pregnancy takes place. The QuickTime movies add realism and reinforce the sequence of events. They also provide a needed change in presentation format for the viewer. Teen's attention spans are often shorter than those of adults so a dynamic change in the pace of the presentation helps keep them involved.

Digital video is also another medium that can make the viewer comfortable with a subject. In the *Condom* section, it is important to make the user comfortable with seeing, touching and using a condom. If users squirm at the sight of this prophylactic, much less have to touch it, they will probably never use a condom. Awkwardness can be overcome by

exposure. Since the use of latex condoms is the best proven method of reducing the risks of pregnancy and STDs, every opportunity was taken to show, explain and incorporate condoms into the thesis. A QuickTime movie of how to put on a condom is critical because it does more than explain: it shows.

3.8 Audio

Music provides the opportunity to further target a young generation and make the piece more interesting. Teen testers enjoyed the music. It immediately creates a relaxed, “hip” atmosphere that is needed for this difficult subject matter. As this CD-ROM is an educational non-profit piece, it does not have approval from the artists who created the music. To comply with copyright law, consent from the music artists would be essential if this piece is marketed.

The introduction to the computer project consists of quotes and statistics that could be boring for teens. Music relating to sex (Let’s Talk About Sex by SALT-N-PEPA) holds the attention of those teens who appear less interested in the text. It also compensates for differences in reading speeds. The project begins and ends with music. When the user quits the program they are asked whether or not they wish to take a quiz. If they choose to take the quiz, music accompanies true or false questions in hopes of relieving stress that is often associated with tests.

Aside from music, voiceover also benefits from audio capabilities. Testing showed that voiceovers have more impact on teens than text. Displaying text accompanied by voice is most effective and also provides information for hearing impaired viewers. For example, the original text-only introduction to navigation was ineffective and quickly passed over. When the narrator’s voice was added to further explain the navigation, directions became clear.

3.9 Color

Until the last two weeks before the thesis show, the entire project was in millions of colors. This allowed flexibility for future changes and it provided the best quality before dithering the project to 256 colors. There were no hard disk storage problems or major RAM difficulties: slowness of animation was expected. Even without decreased speed, the final product needed to be 256 colors. Since the target audience is pre-teens and teens, the project must be accessible to public schools and individual families, who have limited resources. Most public school systems do not have monitors that display in millions of colors and they probably do not have much RAM with which to run the program. Even though this product will not be marketed, it must remain dedicated to the target audience.

Switching eighteen Macromedia movies to 256 colors was a project. In order to get the best dithering, a custom palette needed to be created for each movie. However, separate palettes cause the screen to flash when switching from one palette to another. The interface colors would shift if they they were not created from the same palette. Use of a program called DeBabelizer resolved this problem by reserving colors within each palette for the interface, which consists of relatively few colors.

Experimentation resulted in 35 color chips being reserved for interface. In DeBabelizer, 11 palettes were created, all with the same 35 interface colors. This could prevent the interface colors from shifting and eliminate the flash between movies.

An unanticipated technique for avoiding a flash between movies became a time-consuming obstacle. The user must enter and exit Macromedia Director movies on a frame consisting only of the interface dithered to the reserved colors. This made the process of returning from hypertext or the *quit* movie more complicated than a simple “play done” script. For the same reason, moving from one movie to another by use of the side panel navigation also required the insertion of an interface-only frame.

Overall, dithering colors to custom palettes proved beneficial. The animations, transitions, and movie switches are about three times as fast. Equally important, the file size of each movie is drastically reduced. Since the program will ultimately run from CD-ROM (a slower method of playback than directly from hard drive), this step was essential. Although the quality of images decreased, the practical reasons for making the conversion far outweigh any visual degradation of the thesis.

4.0 Conclusions

Adult opposition to this piece was quelled during testing. Out of fifteen testers, seven adults tested the piece. Some adults believe the content too advanced for 11–15 year olds. Surprisingly, pre-teens and teens read most text and were neither embarrassed nor shocked about the content of the thesis. They often sought information in less visually interesting sections and stated aloud when they learned something new. Testing results show that this piece contributes to a solution for the need for new and more effective ways of disseminating vital information about pregnancy and sexually transmitted disease prevention. Teens learned new and relevant information about protection, even at the end when they took the quiz. Incorrect responses to these true and false questions prompted surprise and curiosity. Evaluating the effectiveness of this thesis is difficult due to the fact that young testers were conscious of being surveiled by an adult. For example, in *Let's Talk* it is impossible to know if user's choices of conversation were influenced by adult presence. Were they making educated decisions because they thought they should, or because they would actually implement this dialogue? It is hoped that exposure to possible situations will reduce the surprise and ambiguity that might overcome teens and prevent them from expressing their wishes in a similar situation.

It was enlightening to realize that, although young teens might not have their facts straight (the quiz revealed that most young teens believe that a woman cannot get pregnant if she doesn't have an orgasm), they are

socially aware and questioning individuals. It is clear that biased scare tactics do not work. Neither does advice about abstinence from two people who did not practice it themselves. Teens on the upper limit of the target age group were critical of the digital video in the abstinence section. The movie was a clip taken from The Truth about HIV , starring Magic Johnson and Arsineo Hall. Kids found it hypocritical that these people talk about abstinence when they obviously did not practice it themselves. This critical thinking shows cognitive development and will aid them in dealing with their own sex lives.

I am pleased about the “look” of the program. The three-dimensional illustrations and animations attracted users to the piece. A personal goal of not integrating scanned images “borrowed” from another source, was also achieved. All of the artwork—except the digital videos and music—is original. The voiceovers served their purpose in providing feedback to the user and enforcing the scripts that teens could use in similar situations, but the quality of them is poor.

Finally, the coverage of material seems adequate and appropriate. Although obvious that every issue could not be covered, it was impressive how much the subject of sex is linked to personal development, social settings, peer pressure, family life, gender and race. Providing the facts without the social skills is performing only half the job. This thesis consists of more than facts, but not enough to prevent every teen who looks at this program from making dangerous decisions about their sexual health. This grand goal is single-handedly unattainable, but even if this project encourages one or two teens to protect themselves from pregnancy, STDs or HIV, then it is a success.

Bibliography

Notes

¹Gail B. Slap and Martha M. Jablow, Teenage Health Care (New York: Simon & Schuster Inc., 1994), 186.

²William A. Fisher, PhD, "All Together Now" SIECUS Report 18, no. 4 (April/May 1990): 2.

³Barbara Dafoe Whitehead, "The Failure of Sex Education" Atlantic Monthly 274, no. 4 (October 1994): 71.

⁴Slap, Teenage Health Care, 9.

⁵Whitehead, "Failure of Sex Education," 60.

⁶Whitehead, "Failure of Sex Education," 80.

⁷Slap, Teenage Health Care, 59.

⁸Michelle Ingrassia, "Virgin Cool," Newsweek 117, no. 15 (October 17, 1994): 64.

⁹Elizabeth Rice Allgeier and Albert Richard Allgeier, Sexual Interactions, 91.

¹⁰Whitehead, "Failure of Sex Education," 74.

¹¹Slap, Teenage Health Care, 249.

¹²Ingrassia, "Virgin Cool," 64.

¹³Slap, Teenage Health Care, 29.

¹⁴Whitehead, "Failure of Sex Education," 73.

¹⁵Whitehead, "Failure of Sex Education," 77.

Works Cited

- Allgeier, Elizabeth Rice, Albert Richard Allgeier. Sexual Interactions.
Lexington, M.A.: D.C. Heath and Company, 1991.
- Boston Women's Health Book Collective. The New Our Bodies, Ourselves.
New York, N.Y.: Simon & Schuster Inc., 1992.
- Fenwick, Elizabeth, and Richard Walker. How Sex Works. New York, N.Y.:
Dorling Kindersley Publishing Inc., 1994.
- Fisher, William A., Ph.D. "All Together Now—An Integrated Approach to
Preventing Adolescent Pregnancy and STD/HIV Infection," SIECUS Report
18, no. 4 (April/May 1990): 1–11.
- Gale, Jay, Ph.D. A Parent's Guide to Teenage Sexuality. New York, N.Y.:
Henry Holt and Company, Inc., 1989.
- Ingrassia, Michele. "Virgin Cool." *Newsweek* 117, no. 15 (October 17, 1994): 59–71.
- Safer Sex Page. World Wide Web site: <http://www.cmpharm.ucsf.edu/>.
- Slap, Gail B., and Martha M. Jablow. *Teenage Health Care*. New York, N.Y.:
Simon & Schuster Inc., 1994.
- Whatley, Mariamne H., Ph.D., and Bonnie K. Trudell, Ph.D. "*Tee-Aid*:
Another Problematic Sexuality Curriculum," Journal of Sex Education
& Therapy 19, no. 4 (Winter 1993): 251–171.
- Whitehead, Barbara Dafoe. "The Failure of Sex Education."
The Atlantic Monthly 274, no. 4 (October 1994): 55–80.