

Gilgun (1992) described three ways to analyze text data: grounded theory-building, analytic induction, and pattern matching. In grounded theory-building the researcher seeks patterns emerging from the data to build a substantive and contextual theory (Strauss & Corbin, 1990). In analytic induction the researcher begins with hypotheses and investigates causal and universal elements of the data. In pattern matching the researcher starts with a model, and then gathers the data. The model is revised as the data are analyzed.

Pattern matching was used in this analysis of end-of-class comments. The specific model constructed by Perry (1970) and applied by Magolda and Porterfield (1988) was modified to incorporate ideas of Gilligan and Murphy (Gilligan et al., 1990; Murphy & Gilligan, 1980) and to create a more general conceptualization of moral development as a continuum from (a) unexamined, noncontextual, and personal thinking to (b) a more contextual, interactive level of thinking to (c) a systemic and constructionist dialectical manner of thinking. Each student's topic comments were examined for four levels of cues specified for each topic of gender, sexual orientation, sex education, and sexual coercion along the continuum of simple to more complex consideration.

### ELM Measures of Attitude Route Processing

In a human sexuality class, students vary in ability and motivation to attend to the presentation in an objective manner. It was postulated in this study that these variations had an effect on the students' attitude scores and attitude stability or change from the beginning to the end of the semester. Variables described below were used to evaluate whether the human sexuality class student was able and motivated to consider the issues (cognitive effort), and whether the student tended toward biased or objective thinking processes (commitment to one's opinion).

Cognitive effort. Comments were analyzed for evidence of cognitive effort in evaluating the message. Conceptualization of cognitive effort was grounded in attitude research showing that the quality of issue and message elaboration concerning a persuasive message affected outcomes of attitude change (Petty & Krosnick, 1995). A more detailed or in-depth written consideration of multiple arguments or deeply felt ambivalence about the topic can reflect more cognitive elaboration effort. When respondents thought about a message in terms of its objective information, rather than tangential or previously formed aspects of the issue, cognitive effort was deemed higher. Lack of substance to a comment, content irrelevance to the issue, or a focus on one's own issue schema rather than the presented message were deemed as showing less cognitive effort.

Each of the comments was scored on a scale of 1 to 4. An average score was not calculated as the scale is nominal. Comments were coded for (1) irrelevant to issue; (2) issue-relevant, own schema; (3) message-relevant; (4) issue- and message-relevant. Examples of each are shown in Table 8.

Other possible indicators of cognitive effort were evaluated for each comment: distraction, repetitive exposure to the topic or class presentation materials, favorability toward the presentation, and ability to take more than one's own perspective on an issue. The message of the class presentation was potentially disrupted by distractions of the environment, personal preoccupation, classmate or instructor behavior, or thought content tangents. Distraction interferes with a person's ability to focus on the message. Reliance on peripheral cues, such as perceived credibility of the source, can be greater with distractions present. Distraction can be particularly disruptive to those who have a natural tendency to think about the issues (Harkins & Petty, 1981; Petty & Cacioppo, 1986; Petty, Wells, & Brock, 1976). Each comment was analyzed for no mention of a distraction, or mention of one of several possible distractions: attendance at class in the past or future, event occurring outside or inside the classroom involving classmates or the instructor, thinking and commenting about issues unrelated to the class content, or missing portion of comment. Examples of each are shown in Table 9.

Repetition can enhance or undermine cognitive effort, depending on the complexity of the message and the interests of the audience. Repetition can enhance a message in low

information conditions (Cacioppo & Petty, 1980; Petty & Cacioppo, 1986). However, a two-stage reaction can occur, in that repetition first increases but then decreases favorable attitudes toward the message as the respondent begins to feel overloaded (Cacioppo & Petty, 1979; Cacioppo & Petty, 1980; Cacioppo & Petty, 1985). Each comment was analyzed for no mention of having heard of or considered the topic before; expression of surprise or of having known little about it; some degree of prior thought on the issue indicated; considerable prior thought indicated; or overload, sick of hearing about the topic. Examples are shown in Table 10.

Response to the class presentation varied as positive favorability, negative, or neutral. Response to message presentation factors can influence motivation to examine strong or weak arguments objectively, and willingness to withhold application of pre-existing cognitive schema or elaborate on the ideas presented in the message. Several factors unrelated to the issue and argument can influence favorability. Source expertise and attractiveness can both enhance issue-relevant thinking or act as peripheral cues depending on interaction with other factors, including uncertain personal relevance. In past research, when relevance was moderate or ambiguous, messages by socially attractive sources were scrutinized and favorability was increased when the argument was strong, and was decreased when the argument was weak. Messages by experts were given higher importance by field dependent participants (Petty & Cacioppo, 1986). Each comment was analyzed for neutral, negative, or positive reaction to the presentation. Examples are shown in Table 11.

The ability to take more than one's own perspective on an issue reflects complexity of thought and increased effort to understand. Ability to understand competing interests of privilege helps one to understand the dynamics of discrimination and systemic inertia to change (George, 1990; Glenn, 1987; Goldner et al., 1990; Gutek & Koss, 1993; Hareven, 1987; Komter, 1989). Each gender comment was analyzed for difference in reaction to the video as one's self and as a member of the opposite sex. Difference between responses were further classified as difference in degree only or in type of response altogether. Examples are shown in Table 12.

Commitment. Commitment to an expressed opinion or attitude can vary considerably. Strength of initial attitude commitment should be a strong predictor of subsequent attitude endurance over time, persistence in the presence of counterargument, and influence on values and behavior (Erber, Hodges, & Wilson, 1995; Petty et al., 1995). Clues to attitude commitment include stated commitment, depth of consideration of the issues, unqualified stance, emotional involvement, and behavioral history and intentions (Abelson, 1995).

Each comment was analyzed for (1) unsure about the issue and openness to the message or surprise that the controversy existed; (2) a previous sureness, but now willing to reconsider or surprised at the degree at which the problem exists; or (3) previous opinions still in place and not surprised by the presentation. Examples of each are shown in Table 13.

Other possible indicators of commitment to one's opinion were evaluated for each comment: life experience, affect, and sense of personal relevance. Life experience regarding an issue produces an effect of prior knowledge or behavior and personal involvement that can increase attitude stability (James & Frese, 1995; Petty & Cacioppo, 1979; Petty & Cacioppo, 1984; Petty & Cacioppo, 1986). It is different from personal relevance as experience does not necessarily include personal consequences either experienced or anticipated. Experience may even produce a belief in immunity from deleterious consequences or disbelief in consequences predicted by others. Each comment was analyzed for no mention of experience one way or the other; abstract experience of books, media, or the Bible; personal knowledge of another's experience; or one's own personal experience. Examples are shown in Table 14.

Affect was involved in the expression of attitude at different levels of intensity. Affect level, especially in combination with cognitive effort, strengthens behavioral

prediction (Petty & Krosnick, 1995). Affect and cognition act as different routes to attitude change, different functional psychological needs are met by each, and people react differently to messages engaging primarily either affect or cognition. If less discrepancy exists between the affective and cognitive aspects of message elaboration, attitude is less influenced by affective cues. Higher affect intensity levels may result in considering feelings about the issue and only later the merits of the argument. It is important, therefore, to compare cognitive elaboration to affect level (Edwards, 1990; Petty & Cacioppo, 1986). Each comment was analyzed for the absence of affect, low affect level indicated by a minor reference to feelings, medium affect level indicated by a single strong affective cue or multiple moderate cues, and high affect level indicated by multiple strong affective cues. Examples are shown in Table 15.

A sense of personal relevance increases motivation to consider the issues thoughtfully. Relevance may have evolved in a history of experienced consequences or may be triggered by anticipated consequences that are based in some reality experience (Cacioppo, Petty, Kao, & Rodriguez, 1986; Petty & Cacioppo, 1986; Petty et al., 1984; Petty et al., 1995). It is important that the sense of relevance be actual rather than hypothetical, that is, responsibility is felt personally and potential consequences are anticipated personally (Gilligan & Attanucci, 1988; Labouvie-Vief, 1980; Perry, 1970). Each comment was analyzed for no mention of personal relevance, an externalized issue irrelevant to oneself, a hypothetical relevance to self, an anticipated felt reality in one's own life, or an historical reality in one's own life. Examples of each are shown in Table 16.

Table 6  
Description of Cognitive Effort Levels

Variable	Type	Values
Cognitive Effort Examples in Table 8.	Categorical	2 = Irrelevant to issue 3 = Own issue schema 4 = Message relevant 5 = Mess.& issue relevant
Distraction Examples in Table 9.	Categorical	1 = Distraction present 2 = No mention of distr.
Repetition Examples in Table 10.	Continuous	2 = Know little, surprise 3 = Some knowledge 4 = Considerable prior 5 = Overload, sick of it
Favorability Examples in Table 11.	Continuous	1 = Negative to class 2 = Neutral 3 = Positive
Perspective Examples in Table 12.	Continuous	1 = No comment 2 = Same 3 = Different degree 4 = Different perspective

Table 7  
Description of Commitment to Opinion Levels

Variable	Type	Values
Commitment Examples in Table 13.	Continuous	2 = Unsure, open 3 = Willing to reconsider 4 = Was sure, still sure
Life Experience Examples in Table 14.	Continuous	1 = No mention 2 = Abstract experience 3 = Other person's 4 = Own experience
Affect Examples in Table 15.	Continuous	1 = Neutral 2 = Low 3 = Medium 4 = High
Relevance Examples in Table 16.	Continuous	1 = No mention 2 = Other, not me 3 = Hypothetical 4 = Anticipated, felt 5 = Historical, felt

Table 8  
Examples of Cognitive Effort by Level

Level of Cognitive Effort	Example
Irrelevance	Frustration, but I wonder - when they offered secretarial positions why didn't she inform them that she was interested in the other positions. She needed to be more assertive. (Gender-ID#232)
Own schema	I was surprised. Being gay in society has never been addressed, really. It is something I just don't think is right. (Sexual Orientation-ID#102)
Relevant to message	You shouldn't have to have sex to prove your love to someone or keep them around, but if you do, please remember to use a condom because you may get life threatening diseases or become pregnant. (Sex Education-ID#113)
Relevant and beyond	I think that all three of the situations portrayed in the clips were examples of rape. Women react differently when put in these forceful situations. Just because they don't put up a fight doesn't mean that it is not rape... I think that society and television give men the idea that violence and power over women is acceptable and common. (Sexual Coercion-ID#216)

Table 9  
Examples of Distraction by Type

Type of Distraction	Example
External	I know you saw my eyes closing all during class today. I am sorry and I am not usually like this. I have had 4 tests in the past 2 days and I am also on medication. I don't like to miss class so I tried to tough it out. (Sex Education-ID#134)
Content	How do gays know that things would not work with a heterosexual? I'm sure there are a lot of gay men and women who are married with children. (Sexual Orientation-ID#133)

Table 10  
Examples of Repetition of Message by Type

Type of Repetition	Example
No mention	Rape is a very prevalent issue in our lives in college. I think it is interesting to hear how other people view rape. People's different points of view are shocking. (ID#250)
Know little, surprise	This class made me think about what could really happen. It's kind of scary. I never really think on possibilities when I go out drinking. (ID#226)
Some prior thought	This strengthened my beliefs on what rape and assault is. I know several women that have been raped which lets me realize what the effects ... and the consequences are. No means No. Maybe means No. Yes might also mean No. (ID#308)
Considerable prior thought	From many health classes I've taken I've been saturated with a lot of rape situations so I know a lot about rape. Today didn't shock me. (ID#223)
Overload	The importance of this topic is lost because a lot of guys lose interest—a consequence of the biased way the material is presented. (ID#235)

Note. Examples are from sexual coercion class comments.

Table 11  
Examples of Favorability Toward the Class Presentation by Degree

Degree of Favorability	Example
Neutral	This is the first time I have really "seen" or have homosexuals talk to me. This has been a new experience. Right now I don't know how I feel about it all. (ID#189)
Negative	I'm sorry. This is such a crock of shit! Do those men feel masculine in any way ...? Homosexuality is unnatural... It is natural (physiologically and mentally) for a man to want a woman, a woman to want a man. (ID#234)
Positive	Wow! This panel was very humorous! Good for them - they are strong people and I admire each and every one of them. Not that I didn't know this before but gays and lesbians are normal human beings. Personally, I have no prejudice but I hope those that do hold prejudices against gays let them down after today! Great class. (ID#248)

Note. Examples are from sexual orientation class comments.

Table 12  
Examples of Perspective Taking by Type

Type of Perspective Taking	Example
No difference	If I were a girl I imagine I'd still be upset at the movie's content. I would have probably encountered this bias unknowingly. (ID#239)
Difference in degree	As a man I would be surprised by this film but not too upset. (ID#113)
Difference in type	If I were the opposite gender I wouldn't be upset because it wouldn't have any effect on me. Hey - I'm a guy - I've got nothing to worry about! (ID#161)

Note. Examples are from the gender class comments.

Table 13  
Examples of Commitment to One's Opinion by Degree

Degree of Commitment	Example
Unsure, open	It surprised me that the gender differences were so distinct, it wasn't just a tiny discrimination that could be overlooked. If I were a man I guess I would try to react more fairly, but again due to the society we live in . I might have ended up making the same mistakes, which would be wrong and unfair. (Gender-ID#175)
Was sure, will reconsider	I didn't know the severity of discrimination that exists or how often this occurs. ... Instead of noticing the learning experience, I probably would have been pissed-off. (Gender-ID#139)
Was sure, still sure	After watching the video I am <u>not</u> surprised. I am outraged, but not surprised. I am just more convinced than ever, that this type of discrimination is abundant... I believe that I would have reacted the same way. It's so obvious to me. The discrimination is blatant. (Gender-ID#143)

Table 14  
Examples of Life Experience by Type of Comment

Type of Comment	Example
No mention	I thought today's class was very interesting. I thought the most interesting thing was "gaydar". Where do gays and lesbians socialize? (Sexual Orientation-ID#250)
Abstract	It was ridiculous how all the male salesmen could justify their actions. Would women have treated the two people the same? (Gender-ID#105)
Personal - other	After today's class my thoughts haven't changed much. My feelings about this have been pretty constant ever since I found out that one of my best friends was raped. (Sexual Coercion-ID#115)
Personal - own	I would want my children (and wish I was) taught everything. I believe the most important message would be that they should feel open to talk about sex with me if not their parents and they should know about birth control. (Sex Education-ID#226)

Table 15  
Examples of Affect Levels

Level of Affect	Example
Neutral	... communicate with parents or other adults. Children need to be taught to develop their own set of morals, and to know that what is in their heart is just as good as anyone else's message. (Sex Education-ID#176)
Low	Rape is a physical manifestation of evil. No means no. If a woman has any reservations, back off. It's that simple. (Sexual Coercion-ID#219)
Medium	The video amazes me. Gender discrimination does not seem nearly as bad in normal life. If I were a woman I would have been angered and also feel a little hopeless. Men don't perceive problem. (Gender-ID#287)
High	I was very interested and glad to be able to listen to these people talk... this really helped me sort out what is myth and not. Listening to gay people be so open helped me to see that they ARE people just like everyone straight. I really enjoyed the panel! (Sexual Orientation-ID#281)



Table 16  
Examples of Personal Relevance by Type

Type of Personal Relevance	Example
No mention	This class just helped to reaffirm what I already know about rape. (Sexual Coercion-ID#287)
Irrelevant	...I do not feel any gender discrimination against women. In fact, sometimes I feel as though I am treated better... Doors are usually opened for me. Men allow me to walk in front, men pay and drive for dates. (Gender-ID#234)
Hypothetical	I applaud the panel for having the courage to try to teach those of us that do not experience this way of life about it. It was informative and I got a lot out of it. (Sexual Orientation-ID#201)
Felt - anticipated	I feel that having my child educated through a broader range of how and when sexuality should be used and cared about. (Sex Education-ID#223)
Felt - historical	Well this lecture has made a different thinking about rape for me.. by the definition given today I've been raped but I don't feel as if I have been. I'm not sure why. (Sexual Coercion-ID#264)

#### Limits of Generalizability

The sample for this study was not representative of the general population of 19- and 20-year-olds nor of the student population of the university. The vast majority of participants were white, Christian, and age 19 or 20, with the largest group of students from the College of Human Resources and Education.

The sample was not even representative of the population of the course itself. Demographic data for students who did not participate in the study at all is limited to grade, sex, and major. As shown in Table 17, an analysis of the grades earned by categories of students who (a) did not participate at all, (b) participated only in the attitude survey, and (c) participated in the entire study revealed significant differences in grade patterns among the groups ( $p < .0000$ ).

Analysis of the participant categories by sex was not significant, however, analysis by major showed significant differences among the groups ( $p < .01$ ). The Family and Child Development major was the only major overrepresented in the full study. The College of Arts and Sciences was underrepresented in the full study. Psychology and University Studies majors were underrepresented in the full study and overrepresented in the attitude only participant group.

In comparison to the overall university, the College of Human Resources was overrepresented and all others, particularly Engineering, underrepresented. Women and third and fourth year students were overrepresented.