

## 1. TEACHING SHAKESPEARE WITH A COMPUTER, By MICHAEL LAMONICO

Teaching Shakespeare with a computer sounds like an oxymoron. The very idea of high school students exploring the language of the foremost writer in history on a high tech machine seems ludicrous. My colleagues scoffed at the idea, thinking that the mechanization of this process would result in nothing more than lists of meaningless data. In a way this was my first reaction when I first heard of WordCruncher, a concordance and text retrieval program combined with The Riverside Shakespeare's Complete Works. But after convincing my school to order this program in 1988, my teaching has undergone a radical change, and I have spread my discoveries to teachers everywhere.

When computers first came into the schools in my early days of teaching, I tried to become involved for the benefit of my students. I became a member of the district's computer committee in order to make sure that the needs of the humanities teachers would be met on the same level as the math and science teachers. I promoted the teaching of writing with a word processor both with my students and for teachers in workshops on the school, regional, and state level. I took great pleasure in convincing skeptics of the value of word processing in the English class, and eventually more and more of my colleagues were converted. I helped shape the evolution of our facilities from the original Commodore PET and 64s to some Apple IIs to our present set-up. We currently have a lab with 28 IBM PS-2 model 30 computers with MCGA monitors linked to a model 60 with a 70 mg. hard drive and a 3 mg. mother board. The room is networked with Novell 2.15 and is managed by I CLASS. My students are so comfortable with word processing today; they generally produce wonderful expository essays, and can be directly involved with them in the composing and revising phases of the process.

However, most of the writing about Shakespeare that my students did in my eleventh grade British Literature class or in my twelfth grade Shakespeare elective was rather mundane. They would often write about concepts that I had discussed in class, proving little more than that they had paid attention. Whenever students seemed to come up with original ideas, my enthusiasm would soon disappear when I located the source of their plagiarism.

I was awarded a fellowship from the National Endowment for the Humanities in 1988 to participate in a summer institute called Teaching Shakespeare's Language at the Folger Shakespeare Library in Washington, D.C. As one of the thirty teachers selected, I used my background with computers to devise several strategies for high school students to use the Riverside Shakespeare's Complete Works with WordCruncher. This program runs on an IBM PC and allows one to search for words, phrases, or combinations of words in a specific play or throughout the entire canon.

The first unit I call "Owning a Word". Before reading the play, each student is assigned a different word from a list of the most often used significant words in that play. Their first task is to discover everything that they can about the word. They must use the twenty volume unabridged Oxford English Dictionary (OED) to find the etymology of the word and how its meanings have changed over the years. (Our school has just begun to delve into CD ROM technology, and I am trying to persuade them to buy the OED on CD ROM for next year which would simplify and enhance this step. WordCruncher is now also available on CD ROM.) After they have written a short paper about their word, they are considered experts on it and are ready to trace its use throughout the play that we are reading. Using WordCruncher, they search for the word and its other forms throughout the play. They are able to determine who says the word the most often or who never uses the word, to whom the word is said most often, where or when the word is used or not used in the play, or any other strategy that they can devise. The speed of using the computer for

this searching rather than using a concordance in book form makes them take risks and try many different approaches. Many of their attempts go unrewarded, but often I hear the squeal of excitement come from a student who has made a genuine discovery. They are thrilled that they have discovered something that perhaps no one else has ever noticed. They are learning by discovery, and of course, I am learning along with them. Ultimately they will write a long paper on why Shakespeare used this word so often in this play or try to prove that their word sums up the essence of the play. In addition they can be called on in class at any time to explain its use in a particularly difficult passage that the class is reading.

Another approach I use is to give each student a list of the 286 most frequently used significant words used in Hamlet, and tell them to search the list visually before going to the computer to look at the play. For instance, one student noticed that the words "man", "fear", and "death" were used a great deal and using specific lines from the play, he wrote a paper showing that "Hamlet is a play about man's fear of death." Another looked at all the religious references in the play and traced their significance. In every case the computer is putting the students in direct contact with the text of the plays, something that I hadn't been able to do successfully without the computer .

Occasionally, if the class size is small enough, a student will use two adjacent computers: one loaded with Shakespeare on WordCruncher to find the references and the other loaded with Microsoft Word or Bank Street Writer III to write the actual essay. As one who struggled with the crude technology in the primitive days of computers in the schools, this is surely teacher heaven.

Once again I have tried to proselytize about my findings both by writing about them and through presentations for teachers. I served as a Master Teacher in Folger Library's 1990 Teaching Shakespeare Institute which consisted of 25 American and 15 British teachers. Each teacher was able to explore WordCruncher at the Folger and at Georgetown University's Computer Center . I also have presented my findings at numerous conferences including the National Council of Teachers of English's annual conventions in St. Louis in 1988, Baltimore in 1989, and Atlanta in 1990. In addition, the Folger Library and Simon and Schuster are publishing several of my computer approaches to teaching Shakespeare in a series of books for teachers.

#### Crunching Shakespeare's Words

Teaching Shakespeare's Language was an NEH sponsored institute held at the Folger Shakespeare Library in Washington D.C. The program's aim was to develop material to overcome the most difficult problem in teaching and learning Shakespeare - his language. The 30 secondary school teachers who participated in this institute met for four weeks in the Summer of 1988 with a one week follow-up in the Summer of 1989.

During the first month, the participants attended lectures on language with resident scholars Stephen Booth, Susan Snyder, Russ McDonald, and Thomas Berger and visiting lecturers Jeanne Addison Roberts, Randal Robinson, and George Wright. In addition there were language and acting workshops by Tony Hill of The Royal Shakespeare Company, Michael Tolaydo, actor-director of St. Mary's College and the Maryland Shakespeare Festival, and other actors. The entire program was organized and directed by Peggy O'Brien, Education Coordinator of the Folger Shakespeare Library.

The participants, using the newly acquired understanding of Shakespeare's language combined with their research at the Folger, designed new approaches

and strategies to help teachers and ultimately students to decipher and begin to enjoy the language for and by themselves. These included performance, choral reading, and exercises with unusual word order and familiar pronouns. At the follow-up session in 1989 the teachers discussed and evaluated how the exercises worked in their classrooms during the academic year. They then worked on writing curricula for individual plays with an emphasis on language.

As one of the 30 participants, I designed a unit called "Owning a Word". After using this strategy with high school and college level students, I discussed this approach with others who had similar success with slightly different approaches. We all seemed to agree that this method got the students deeper into the language of the play and gave them insight that most of us had rarely seen before in our students' papers.

The concept of "owning a word" is that each member of the class becomes an expert on a single word that occurs often in the particular play being studied. Prior to reading the play, I selected the 25 or so most frequently used significant words from a concordance (more on this later). Throughout the study of the play, each of the most common words in the play was "owned" by someone in the class, and he was responsible for explaining how the word was being used in a particular passage.

The student experts first needed a foundation to build on if they were truly going to be experts. Earlier in the semester, they studied the history of the English language. Once they were familiar with etymology and were at least able to ascertain in which millennium English began, I assigned them a short paper researching the etymology of a single word. The word that they were assigned had been selected from the most frequently cited words in one of the plays that we would be studying, although they were not aware of that at this time. I gave them a few sample articles of the type that William Safire writes, and a bibliography of reference books on etymology that our librarians had prepared. The assignment was based primarily on the Oxford English Dictionary, a source that will prove invaluable throughout their academic careers. While most college libraries own the OED, when doing this with high school students it is important to find out if the local public library has it (the project could be done with another unabridged dictionary, but the OED is recommended). Since the OED can be a bit overwhelming to most, I prepared them for their first encounter by xeroxing the introductory page of abbreviations and etymological information and reviewing it with them. I also xeroxed a sample entry and reviewed it with them to answer any questions that they had.

In writing these first papers, they not only traced the development of that word, but more importantly for later use, they saw how many different meanings the word can have. For instance, in his paper on "see", Steven Spina found six pages of definitions in the OED. In addition to "perceive with the eyes", the noun form of the word meant a seat of dignity. It also had many Ecclesiastical meanings which he observed were originally spelled s-e-a as in the "sea of the bishop". In addition, he also found out the different verb meanings as in "The doctor will see you now", or in gambling, where to see an opponent's bet meant "to stake an equal sum". As part of this assignment, I insisted that they xerox and attach the pages from the OED that their word appeared on.

These papers were generally informative and enlightening to them. They often displayed a genuine enthusiasm when they discovered how many meanings their word had. I encouraged them to look up and list cognates of their word as well as antonyms and synonyms and combination words that included theirs. They also tried to think of familiar phrases or idioms in which their word was used.

Prior to reading A Midsummer Night's Dream I assigned the major part of this project. All of the students that I will be quoting are high school seniors enrolled in Freshman English and a Shakespeare elective for college credit. They had to trace and analyze the use of their word throughout the play, and show how their word was significant in understanding the meaning of the play. The play they used it with was MND, but this assignment works well with most plays.

They began by finding all of the references to their word. This assignment is impractical without a concordance, and Johnston & Company has made it easier with a program called WordCruncher and the Riverside Shakespeare on computer. WordCruncher is a text retrieval and indexing program. It allowed them to search through the play and examine the words in a manner unlike any other available. It uses the principle of the concordance, but as my students and I found out, it goes considerably beyond (see separate review). It gave them printouts of long passages that contained their word and highlighted their word in the passage. It quickly found their word in combination with other words. It helped them find out which characters used their word and to whom their word was spoken. By giving them long printouts with all the information they needed, they tended to spend more of their time discovering and less time doing the drudge work of writing out the entries.

The students ultimately looked at the entire play with their word in mind. After locating all of the occurrences of their word as well as all other forms of the word, they were encouraged to look up words that were related to their word either aurally and imaginatively. Thus the student who had the word "see" also looked up "sea" as well as words with resonances of "see" such as "eyes", "look", "vision", "appearance", etc. They then went back to the play and looked at the lines in context. Some noted who said the line or to whom the line was said. Others noticed that their word was primarily used in one location, e.g., the forest. Since the goal was to see how their word would help one to understand the meaning of the play, many said in their papers, "MND is a play about..." and filled in the blank with their word.

## PART II

The word list that I used from MND was taken from Spevak's Concordance. For each word I have listed the frequency in parentheses.

1. eye(s) (60); 2. sweet (46); 3. night (43); 4. good (41); 5. see (39);  
6. play (34); 7. fair (33); 8. moon (30); 9. lord (29); 10. gentle (28);  
11. thing(s) (28); 12. follow (27); 13. look (27); 14. speak (27);  
15. wall (27); 16. stay (26); 17. true (25); 18. take (24); 19. fairy (23);  
20. love (23); 21. lion (23); 22. heart (21); 23. day (22); 24. hear (20);  
25. hand(s) (19); 26. two (19); 27. fear (17); 28. meet (17); 29. wood (17);  
30. dreams(s) (16); 31. grace(s) (16); 32. tell (16); 33. dear (15);  
34. lovers (15); 35. sleep (15); 36. think (15); 37. flower(s) (15);  
38. friend(s) (15); 39. bed(s) (14); 40. child (14); 41. dead (14);  
42. life (14); 43. name (14); 44. part (14); 45. stay (14); 46. death (13);  
47. pray (13); 48. die (12); 49. tongue (12); 50. god(s) (11).

This list is subjective since I have ignored many common verbs and articles and have included words that I felt would work best with this assignment. This list was prepared manually and is subject to error, but WordCruncher has an indexing feature which will create a list of words for any play in order of their frequency.

My students made some fascinating discoveries in their analyses, something which rarely happened before. Nancy Terlato noted: The word "eye" often appears in the same sentence as "look". This happens in four separate lines,

one being Hermia's, "I would my father look'd but with my eyes". (I ,i,56)  
The second line reads, "Rather your eyes must with his judgement look."  
(Theseus I,~J57) The third time, Helena says, "Love looks not with the eyes,  
but with the mind...~ J234)...The play centers around the characters looking  
into each other's eyes, and with the help of Puck and his love juice, falling  
in love". In writing about "moon", Mike Dooley noted that it appears right in  
the opening lines of Act I scene i in the speech between Theseus and Hippolyta.  
In these lines Theseus says, "...Four happy days bring in another moon; but,  
O, methinks, how slow this old moon wanes'" Five lines later Hippolyta  
compares the moon to a "silver bow new bent in heaven." Then in lines 10-11  
she says that the moon "shall behold the night of our solemnities." By  
personifying it in this way she gives the moon the power of a mighty onlooker.  
Another scene that Mr. Dooley noted was in I, ii when Titania is telling  
Oberon the cause of all the confusion around them. Titania says, "Therefore  
the moon, the governess of floods, pale in her anger, washes all the air that  
rheumatic diseases do abound. And through this distemperature we see the seasons  
alter." (103) Then after describing in greater detail some of the effects of  
this she says, "...this same progeny of evils comes from our debate, from our  
dissension." (115) The moon is a mirror, for its disturbed actions are  
reflective of the disturbance in Titania and Oberon's relationship. Michel  
later came upon another reference to "moon" which helped him to see how  
important it was to a full understanding of the play. He discussed the  
influence the moon had on the plot and the subplot and said that the moon was  
indirectly the unifying cause of all the romances. These romances occur because  
of a magical flower that was struck by cupid's arrow, and is placed on the  
eyes of characters by Oberon and Puck as a love potion. In lines 161-166  
Oberon says, "I might see young cupid's fiery shaft quenched in the chaste  
beams of the wat'ry moon...yet marked I where the bolt of Cupid fell. It fell  
upon a western flower." Thus had it not been for the moon, Oberon and Puck  
would not have been able to cause the romances. Therefore the moon is the  
unifying cause that unites the Hermia-Lysander-Helena-Demetrius plot with the  
Titania-Bottom subplot.

Finally Maureen Bloodnick using "take" noted that Puck and Oberon seem to "do  
and take whatever they please. This eventually affects the fate of all the  
other characters." Later, using what she found in the OED, she notes :  
"Theseus uses a meaning of "take" that we don't see very often anymore. When  
discussing the mechanical's play with Hippolyta he says, "Our sport will be  
to take what they mistake" IV, i,90). It is very easy to confuse the meaning  
of the word "take" and change the significance of what Theseus is saying. He  
wants Hippolyta to accept their mistakes and give them credit for their  
efforts. Theseus doesn't want to ridicule the actors because they are  
unskilled. If you were to interpret the meaning of "take" in a different way,  
you might think that Theseus wanted to make sport out of making fun of the  
actors. Maureen's final observation was one of the most startling ones I read  
in all of my student's papers. After carefully using the wide variety of  
meanings of "take" and applying them to the play, she noticed something  
unusual: The curious thing is that the word "take" is mentioned only by the  
males in the play. Not one female character says the word "take". A feminist  
critic might say that Shakespeare was indicating that in his time the males  
took whatever they wanted. Maureen had inadvertently stumbled across an  
aspect of the play that has intrigued critics, the passivity of the women. By  
concentrating on one strong, active word, she discovered that it was apparently  
not appropriate for the woman characters. Maureen's insight was extraordinary  
and certainly not the norm for this class of high school seniors, yet in  
their own way each of them discovered something about the relationship of  
their word to the play. In the past my student's essays on Shakespeare  
generally could be categorized in two types. The majority were nothing more  
than a rehash of something that I had made note of while they were reading  
the play. For instance, when I mention Ernest Jones' Hamlet and Oedipus,

I suddenly am besieged with papers which either refute or support his theory to explain Hamlet's actions. While these occasionally reinforce the fact that some of them are paying attention, they rarely show insight, and only reiterate what I pointed out two weeks earlier and what Dr. Jones pointed out in 1948. The other type of paper is based on some research, either acknowledged or plagiarized. While research is certainly to be encouraged, I find that they often quote out of context, fail to understand the writer's ideas, or use Cliff's Notes and plagiarize.

After 21 years of teaching and reading thousands of dreadful papers, I have discovered a way that forces students to look at the text closely and write about what is in the plays and nothing else. Some of their attempts at this project were not successful. Many made wild assertions and huge leaps of logic to defend their theories. Yet all were original, and most showed a real understanding of the text.

As a final exercise on the play, I wrote the title of the play on the board and circled it. I asked the students to come to the board, connect their word to the title, and explain how it is related. As this continued, they began to connect their word to other words on the board, explaining how they were related. After a few students added their words to the web, they were clamoring to put their word into the web. By focusing on one word for the entire reading of the play, each student could defend his theory to the class as to what the play was about.

2. "SEEK ME OUT BY COMPUTATION"  
(THE COMEDY OF ERRORS II, II 3-4)  
THE ELECTRONIC RIVERSIDE SHAKESPEARE

After assigning my students a project that required the Shakespeare Concordance, I was told by our school's computer director that the electronic version of the Riverside Shakespeare and WordCruncher had arrived and was ready to use. Later that day, as I sat at the computer and became familiar with the program, one of my students sat at the next terminal and asked if he could try it. Within 30 minutes he had searched through Hamlet and found the references he needed to begin his assignment and left the computer room with his print-out in hand. This program contains some advanced routines that will take most users some time to master, but its primary use as a way to search through the text and locate words is a task that most can master at one sitting.

WordCruncher is two programs in one. WCView is the text search-and-retrieval program that locates text using a prepared index and lets the user look at words in context. When a word is selected with one keystroke, the user can see six references at a time on the screen and can scroll down to all the others. They can be printed out in three line citations or they can be expanded and printed out in larger blocks. The other program, WCIndex allows you to create an index from an existing file. The program, which was not originally designed for Shakespeare or literary studies, has applications for constitution scholars as well as theologians. In fact, the initial texts used in the program were the Church of Jesus Christ of Latter-day Saints' Scriptures. However, Johnston & Company has come across a wonderful research tool for literary scholars as well as students.

Simply stated, WordCruncher is a program that has revolutionized the way I teach Shakespeare.

There are other versions of the complete works on computer disk, but these are only text files which can be accessed with a word processor. Their advantage is mainly for the instructor who is able to print out passages from a play for use in class. Those who like to use quote identifications for tests can eliminate the retyping of passages or the tedious cutting and pasting that these tests demand.

WordCruncher also allows the user to skim through a play and print out lines, but then takes a quantum leap over the other programs. You are able to search through all the comedies, tragedies, histories, or romances at once to find a specific reference or phrase at an amazing speed. Or you can block off one play at a time and analyze word frequency or the relationship between words or phrases. But, the one aspect of the program that I never anticipated was that it would allow my students to probe deeply into Shakespeare's text and discover for themselves what treasures awaited them.

I had given them a list of the 286 most frequently used significant words in Hamlet. This list had been tediously prepared by a colleague who pored over Spevak's Concordance and listed the words in the order of their frequency (WordCruncher can make up a list like this in no time). The list ranged from good (123 occurrences), father (70), and man (70) to flesh, silence, and sudden (5 each). They were to look over the list carefully and write about how the use or lack of use of certain words helped them understand Hamlet.

Many of them stuck with the traditional concordance, finding the context for the words that they were basing their assignments on. These papers were a cut above the usual papers they had written because they were forced to go to the text. However, the students who used WordCruncher to its full potential were able to enter uncharted waters and discover aspects of the play that the others would never have found.

Nancy Terlato focused on the religious aspects of the play, looking for specific words and noting who said them. She discussed "heaven" (45 references), "hell" (11), "God" (40), "life" (35), "death" (38), "soul" (40), "spirit" (19), "pray" (33), and "angel" (7). WordCruncher allowed her to print out all the references as well as combine several of these to look for them in combination. She connected Hamlet's name with "God" to see how often he used the word. In her paper she makes a good case for the religious nature of the play.

Santosh Ramdev looked at the play as an affirmation of life and the elements that help to sustain it. Using the words "life", "air", "water", "fire", and "earth", she made some fine observations. Donna Celentano used emotions and analyzed "fear", "guilt", "grief", and "shame". Bob Varghese noticed that in the 45 times that "heaven" was used, Hamlet said it 21 times. Yvette Dobbs searched for combinations of "passion", "love", "son", and "mother".

Dean Monitto felt that the play's message was "man's fear of death", and searched the text for scenes where those words were used in proximity: When I researched to prove my theory, I discovered that "man", "fear", and "death" were found within ten lines of each other 23 times, at least once in each act. There are many different ways to interpret Hamlet, but I feel that when Shakespeare wrote this, his real goal was to show that man is fearful of death and the dead.

While this type of research can be done with a standard concordance and a copy of the play, my high school students, using WordCruncher, approached this assignment with an enthusiasm that I had never seen before. Much of this was due to the novelty of the program, but the speed with which it works encouraged them to take risks, try out theories, and ultimately arrive at

some sophisticated primary research.

The WordCruncher program runs on an IBM PC with at least 512K of internal memory. However to eliminate the annoying process of switching disks, it should be used on a hard disk where it will take approximately 10 megabytes of memory. On CD-ROM, the program comes with the Library of America Collection which includes Twain, Whitman, Faulkner, London, Hawthorne, Melville, and James.