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2007
College of Education
Delta State University
Cleveland, MS 38733
Dear Colleagues,

As incoming Dean of the College of Education, it is gratifying to write this letter of introduction for our current edition of the *Delta Education Journal*. The articles within serve to bring members of our educational community together in thought and action as we seek to improve education and related services in our region and state. Topics addressed in this issue include a range of issues relevant to diverse stakeholders within this community.

We are committed to publishing both current scientific thought and effective methodologies identified by practitioners through the *Journal*, and welcome your contributions for a future edition. Our network becomes stronger as we communicate with one another about ways to reach common goals and purposes. Past readers share that these articles have served as catalysts for professional development, the implementation of best practices, and related research.

Please let us know if you need additional copies of this edition of the *Delta Education Journal*. If you have questions or comments, please contact me at 662-846-4400 or e-mail lgriffin@deltastate.edu.

Sincerely,

Leslie L. Griffin, Ed.D.
June 28, 2007

Dear Colleagues,

Delta Education Journal is published by Delta State University, College of Education, in the fall of each year. We invite manuscripts that promote teaching, learning, and educational issues. Submissions should follow APA style. Please submit a MS Word file email attachment to shutchen@deltastate.edu by December 1. If a manuscript is received after a deadline, it may be considered for the next issue.

The Delta Education Journal has been a peer-reviewed journal since the Spring of 2005. It consists of a review board as well as the editor. Submissions will be reviewed and evaluated by the board and editor for possible publication in the Journal. Submitting authors will be notified concerning their papers’ acceptance (or rejection) and revisions may be suggested.

We would like to increase the number of submissions in the near future. Thus, we would appreciate your submissions of manuscripts related to learning and teaching. Also, please share this information about the Journal with your colleagues and encourage them to submit manuscripts to the Delta Education Journal. By doing so, your work may be shared with others and new research ideas and teaching strategies may be generated.

Sincerely,

Scott Alan Hutchens, Ph.D.
Editor
Associate Professor of Psychology
Predicting Student Success in University Developmental English Courses

Dan R. McFall and Elizabeth Patterson Melton

Delta State University

Abstract

The purpose of this study was to identify selected variables for predicting the successful completion for students enrolled in an English developmental course at a rural university in the southeastern United States. It is estimated that 80% of high school students are not prepared for college level courses. While most studies focus on community college developmental courses, this study focuses on developmental English courses and university students. Descriptive statistics and correlational analysis were used to investigate the relationship of selected variables on students’ successful completion of a developmental English course.

David Spence, President of the Southern Regional Education Board, recently stated that a “…recent study showed that as many as four out of five college freshmen are not ready for college” (SREB, 2006). The lack of preparation for college bound students was recognized early in the 1800’s by Ezra Cornell, the founder of Cornell University (Brier, 1984). As time progressed, more students from more diverse backgrounds gained access to post-secondary institutions. By the early 1900’s, it became clear that many students needed additional offerings in order for them to succeed in the post-secondary environment; these offerings were known as “remedial” courses (Parr, 1930). Some institutions began hiring full-time instructors to teach these students in need of additional skills (Wyatt, 1992).

Over the past one hundred years, the “remedial” courses have evolved into “developmental” courses. In the early 2000s, the majority of post-secondary institutions had well-established developmental programs that assisted students in their cognitive and affective growth. Unlike remedial courses that solely focus on content, these developmental courses are based on a comprehensive process of the learner’s intellectual growth that helps bridge the gap between secondary and post-secondary institutions (NADE Executive Board, 1998).

The growth of institutions offering developmental courses has exploded within the last few decades. Developmental courses are now offered in 80% of public 4-year
institutions with 20% of entering freshmen enrolling in a minimum of one developmental course (NCES, 2003). This figure equates to just over two million students in an average school year. These two million students are under prepared for college; because of that, they find themselves in one or more developmental courses. As staggering as that number is, research has indicated that completing developmental courses can actually increase the students’ likelihood of securing a baccalaureate degree. Students who are identified as needing, but have not taken, a developmental course only have a 10% probability of completing a baccalaureate degree (Cross, 1976). On the other hand, students who do participate in one or more developmental courses have a 40% probability of completing a baccalaureate program (Boylan & Bonham, 1992).

Review of Literature
The amount of literature that is readily available concerning developmental English courses is miniscule. Over the last four decades, community colleges have conducted most of the studies in an attempt to identify variables that can be used to predict the successful completion of a developmental course. Most studies focused on the prediction of success in developmental courses in general, in math developmental courses, or in first-year freshmen courses that may or may not be developmental in nature. The focus of most articles was on retention, attrition, success in “regular” courses both general education and subsequent English courses, and students’ overall grade point average (GPA).

Of these studies, the majority used variables such as psychological factors (e.g., family support base, lifestyle choices) or demographic factors (e.g., age, race, gender, high school GPA, ACT/SAT scores). Most studies utilized mixed method research designs and centered more on the psychological (e.g., family support systems) and health factors (e.g., smoking, drinking, and lack of sleep). Quantitative studies did use incoming first year students and their high school GPA, SAT/ACT composite and English subscores, gender, and race. While the psychological factors do serve as good predictors of success, the data for the quantitative studies are more readily available and have proven to be better predictors of success.

Most studies have been done at the community college level; however, some studies have been conducted at the small university or college level with varying results. Since this study deals with results at a small, rural public university, the researchers
thought it best to survey only those studies dealing with approximately the same demographic variables.

In their study, Ting and Robinson (1998) examined 2,600 Caucasian and African-American students at a southeastern public university. Some of the variables used in the study were gender, race, high school GPA, SAT total, verbal and math scores. Using multiple linear regression, Ting and Robinson found that high school GPA was the best indicator for freshman success rates, especially among females. Among males, SAT math scores were better predictors for success. For African-Americans, high school GPA and SAT total scores were the best predictors. For Caucasians, high school GPA was the best predictor variables. SAT scores only accounted for less than 1% of the total variance (p. 604).

The study conducted by Snyder, Hackett, Stewart, and Smith (2002) took place at a small private college in California. More than 59% of the participants were females. The variable race was not noted. The variables used were gender, high school GPA, and SAT composite, verbal, and math scores. Using correlation, the authors found that gender, high school GPA, and scores on the SAT verbal and composite were the best indicators for success for the freshman year. They concluded that even though these students enrolled in developmental classes come under-prepared, these students can still be successful given the right kind of academic “intervention” (p. 11).

Horton, Kher, Molstad, Autrey, and Juneau (1999) did a study at a small Southeastern university with a population comprised of 9,100 students; 68% of whom were Caucasian, 22% were African-American, and 10% were other. Nine-hundred and forty-two students were included in the study. The variables were age, ACT composite scores and English subscores, part-time versus full-time status, public versus non-public high school, GED versus traditional diploma, and gender. Using descriptive statistics, they found that gender and ACT composite score play a significant role in predicting success in freshman English courses.

DeBerard, Spielmans, and Julka (2004) conducted a study at a private West Coast university where they used 204 students, 147 of whom were females. Eighty-four percent were Caucasian, 7.8% Asian, 2% Hispanic, 1% African-American, and 5.5% other. Multiple linear regression was used to prove that there was significance in using high school GPA, SAT scores, and psychosocial behaviors to predict success in college
courses. Gender also proved overwhelmingly to be a factor in predicting academic success.

The purpose of this investigation was to identify selected variables for predicting the successful completion for students enrolled in an English developmental course at a rural university in the southeastern United States. Instructors and administrators can use the results of this study to improve curriculum and instruction in developmental courses. The results will also be helpful in identifying students who are at risk.

Even though there are many issues in predicting success in developmental courses, the investigators decided to focus on two questions: (1) what relationship exists between the variables gender, race, number of concurrent developmental courses the student is enrolled in, high school GPA, ACT Composite score, and ACT English subscore, and the variable final grade in a developmental English course, and (2) what relationship exists between the developmental course instructor and the student’s final grade in a developmental English course?

Methods

The target population for this study consists of freshmen students at rural universities who are enrolled in developmental English courses. The convenience sample for the study included all students enrolled in a developmental English course at a university in the rural, southeastern United States. Data were secured from student records and instructors with the appropriate permission. Pre-college data variables included high school grade point average, graduating class rank, ACT composite score, and ACT English score. Developmental course variables included the instructor, number of developmental courses enrolled in, and final grade received in the developmental English course. The demographic variables gender and race were also included. For the purpose of this study, success was defined as a grade of a “C” or better in the developmental English course.

Descriptive statistics were used to describe student gender and final grade by instructor. The Pearson Product Moment Correlational Coefficient was used to investigate the relationship between variables in an attempt to determine if a set of variables exists that can be used as indicators of a student’s successful completion of a developmental English course in a rural university setting.
Results

Three developmental English classes were offered during the semester that this study was conducted. The three instructors who taught these classes were a tenured professor with over 20 years experience in college (Instructor 1), an adjunct instructor with 3 years experience in teaching college English (Instructor 2), and a graduate assistant with no experience in teaching on any level (Instructor 3). Students were assigned to the sections by systematic random sampling (every $k^{th}$ person).

Results showed that the greatest variance in means and standard deviations was between Instructor 1 and Instructor 3. In all three categories, Instructor 1 had the lowest final grade and standard deviation, followed by Instructor 2. Instructor 3 had the highest variation in all three categories (Total $M=2.50$, $SD=1.192$; Female $M=2.73$, $SD=1.272$; Male $M=2.22$, $SD=1.093$). For Instructor 1, the mean on a 4.0 scale was a mid-D grade compared to the mean in Instructor 3’s class, which was a mid-C grade.

Between the female and male categories, standard deviations were large in Instructor 3’s total ($SD=1.192$), female ($SD=1.272$), and male ($SD=1.093$). The standard deviation of Instructor 3 was twice that of Instructor 1. Females scored higher grades than males in the sections of Instructors 2 and 3; also, the standard deviations were higher among females than males in Instructors 2 and 3. Males had a higher final grade and standard deviation in Instructor 1’s section than the other two sections. As with the Total section, Instructor 2’s mean and standard deviation were in the middle of Instructors 1 and 3.

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total ($n = 63$)</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Instructor 1</td>
<td>1.55</td>
</tr>
<tr>
<td>Instructor 2</td>
<td>2.05</td>
</tr>
<tr>
<td>Instructor 3</td>
<td>2.50</td>
</tr>
</tbody>
</table>

*Mean and SD are reported on a 4.0 grading scale.
There was less grade variability in the male section than in the total and female section. Unlike the total and female standard deviations, Instructor 2’s standard deviation was lower than Instructors 1 and 3; however, the mean final grade was lower in Instructor 1’s section. Because the researchers believe that the learning abilities of students are representative of the population, the results appear to indicate that inconsistency of academic rigor, experience, and training of instructors might be the reason for the disparity in grades.

Seven concept variables were used when conducting the Pearson Product Moment Correlational Coefficient. Three of the four correlations were expected. The high correlation between high school GPA and high school class rank can be easily clarified: a student’s GPA in high school determines his/her rank in the class. The relationship between ACT composite score and English subscore is also understandable given that the English subscore partly comprises the ACT composite score. The high negative correlation between the number of developmental classes and ACT composite score can be better understood when one takes into consideration the mandate from the state university system: the lower the test scores on the ACT, the more developmental courses in which students have to enroll.

The only correlation that proved unexpected was the relationship between the student’s final course grade in developmental English and which instructor the student had. This high correlation indicates that the instructor had the greatest impact on student’s academic success in developmental English courses at this particular university. Because of these unexpected results between the variable “instructor” and the student’s final grade, an investigation is needed into the demographics of the instructors and the possible influences on students’ final grades in developmental English and the consistency in the method of instruction among the three instructors.
Table 2

<table>
<thead>
<tr>
<th>Correlation</th>
<th>High School Class Rank</th>
<th>High School GPA</th>
<th>ACT Composite Score</th>
<th>ACT English Score</th>
<th>Developmental Course Grade</th>
<th>University Instructor</th>
<th>Developmental Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Class Rank</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>High School GPA</td>
<td>.763*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>ACT Composite Score</td>
<td>-.089</td>
<td>-.064</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>ACT English Score</td>
<td>-.041</td>
<td>.038</td>
<td>.405**</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Developmental Courses</td>
<td>.264</td>
<td>.149</td>
<td>-.538**</td>
<td>-.301*</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>University Instructor</td>
<td>-.021</td>
<td>-.007</td>
<td>-.199</td>
<td>-.013</td>
<td>.151</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Developmental Course Grade</td>
<td>-.154</td>
<td>-.169</td>
<td>.026</td>
<td>-.077</td>
<td>-.146</td>
<td>.440**</td>
<td>--</td>
</tr>
</tbody>
</table>

** Correlation is significant at the .01 level (2-tailed)
* Correlation is significant at the .05 level (2-tailed)

Conclusion

This study investigated selected variables that may predict success in developmental English classes. Based on the results, the four statistically significant relationships were the following: students’ high school GPAs and their high school class rankings, students’ ACT composite scores and their ACT English subscores, the students’ ACT composite scores/English subscores and the number of developmental courses in which students were enrolled, and the students’ final grades in developmental English courses and the instructor who taught the developmental English. The ambiguity of the results of this study shows the need for further analysis; therefore, the authors will be further studying the predictors of academic success in developmental English courses at a rural, Southeastern, public four-year university.
References


Effective Strategies for Teaching Reading to ELL Students

Dorothy L. Prestwich

University of Mississippi

Abstract

Large numbers of children are entering American schools today with little proficiency in English. Teachers are being challenged to find the best methods to teach these children. However, there is still much controversy over the best method of instructing children whose primary language is not English. A preview of the literature by Slavin and Cheung (2004) favors the use of bilingual instruction, particularly paired bilingual instruction. Another approach, which is seen to be effective across the curriculum, from preschool to undergraduate, is through the use of literature. Effective instruction, using the literature approach, has been shown to build vocabulary and a deeper comprehension of text. Whichever approach is used, it is agreed that successful instruction involves making the instruction relevant to the student by linking instruction to the students’ own lives and experiences.

Today, in classrooms across the United States, teachers are confronted with the challenge of educating students with limited English proficiency. These students are one of the fastest increasing populations in American schools (Domínguez de Ramírez & Shapiro, 2006; Slavin & Cheung, 2004). Klingner and Artiles (2006) estimate that more than 3.5 million students whose English proficiency is limited are currently being educated in American schools. These students may originate from any number of countries, but the majority of students (estimated at 78%) (Domínguez de Ramírez & Shapiro, 2006; Klingner & Artiles, 2006) entering American classrooms are of Spanish speaking origins. The increase between the 1990 and 2000 Census was 57% (Domínguez de Ramírez & Shapiro, 2006). Wolfe (2004) notes that although the total American population increased by 10%, the percentage of the population whose primary language at home is not English increased by 38%. A full 11.1% of the total U.S. population is foreign born (Drucker, 2003). Drucker (2003) further notes that although a survey of nearly 3 million teachers indicates that 41% report teaching students who regard English as a second language, only 12.5% have received eight or more hours of training in how to teach these students.

How to most effectively teach these children is a matter of great controversy. There are three main approaches to teaching reading to those students known collectively
as English Language Learners (ELL) learners. One approach is bilingual education. This approach advocates that students must be taught reading in their native language before attempting to teach them in English. Only after the student has demonstrated proficiency in oral English, should instruction be transitioned to English texts. Dominguez de Ramirez and Shapiro (2006) note that by developing students’ native language skills, proficiency in English is enhanced. The theory being that language skills are interdependent with proficiency in one language promoting proficiency in another language. Slavin and Cheung (2004) note that many states have “abolished or sharply limited native language instruction” (p. 52). Dominguez de Ramirez and Shapiro (2006) contend this deemphasizes the native language of the student.

An approach that closely mirrors bilingual instruction is paired bilingual instruction. This approach recommends teaching students in their native language during one period and in English during another period. This method favors teaching both ELL students and Native English speakers in both languages. The third approach is to immerse students in an English only environment. Proponents of English only instruction argue that it is counterproductive to delay English instruction. Through “structured immersion”, with appropriate supports, reading can be taught in a “systematic, structured sequence” of learning. (Slavin & Cheung, 2004, p. 53).

Because research into which method is the most effective has been inconclusive and conflicting, Slavin and Cheung (2004) conducted a study by reviewing the research to ascertain the most effective method of instruction. Consistent standards were applied to the studies which included such constraints as comparing English only instruction to bilingual instruction and paired bilingual instruction. Both groups had demonstrate that they were at the same level of reading achievement at the beginning of the study, treatments had to be in place for at least one year, and studies had to demonstrate that reading performance was assessed by the use of quantitative, objective measures. The results of these studies indicated that bilingual education had significant positive effects on reading performance. Slavin and Cheung (2004) note that none of the studies they reviewed indicate English only instruction to be a superior approach to bilingual instruction. They further note that of the bilingual approaches, paired bilingual instruction appears to be especially effective. This approach was especially popular in the 1970’s, with instruction beginning at the kindergarten level.
Unfortunately, students who are in the process of learning English as a second language do not come neatly packaged at the preschool or even kindergarten level. They may appear in the elementary grades, middle school, high school, or even in the undergraduate level. At whichever level the student appears, the instructor must be prepared to modify instruction to make it most beneficial to the learner. A unifying theme across all ages is the use of literature to create a bridge to learning. Young learners particularly benefit from teacher read-alouds. Hickman, Pollard-Durodola, and Vaughn (2004) provide strategies for systematic vocabulary and comprehension instruction through the use of read-alouds. They note that read-alouds increase students’ listening comprehension and oral expression skills.

Recommendations for Read-aloud Stories:
1. Choose a series of stories on a common theme.
2. Choose a book one to two reading levels above grade level placement.
3. Choose stories based on students’ interests.
4. Group stories into groups of three or four to create a theme.
5. When reading, separate each story into passages of 200-250 words.
6. Read the story over several days.
7. Each read-aloud should last about 30 minutes.
8. Concentrate on 3 to 4 vocabulary words in each read-aloud.
9. On the last day, read the entire book without stopping.
10. Have the student participate in vocabulary activities.
(Hickman, et al., 2004)

The purpose of choosing stories on a thematic basis is give a greater depth of content and comprehension as well as giving opportunities to use vocabulary common to several stories, thus encouraging generalization of that vocabulary. By breaking the stories into small segments of 200-250 words, the student is not overwhelmed by vocabulary demands, learning only a limited number of vocabulary words each day. This enables the student to more fully integrate the words into his repertoire before being exposed to new vocabulary words. A complete reading on the final day integrates the story and skills learned. Vocabulary can be reviewed and the student can engage in a
series of activities to enhance the vocabulary development. Hickman, et al. (2004) detail a number of strategies for increasing vocabulary comprehension and integration.

These strategies include activities such as “charades”, having the students act out the words, scaffolding activities such as having students match a word the teacher offers with a word of their own. For instance, the teacher may say “big” to which the student would offer, “gigantic”. Another form of scaffolding is when the teacher has the student complete a sentence with the vocabulary word. Students might use the vocabulary words to create stories of their own.

Strategies for Challenging Text

Preview the reading section by

a. making statements about section
b. asking rhetorical questions
c. Trying to relate the section to the students’ experience
d. Giving the students a brief discussion question
e. Finally, give an overview of the section.
   i. Naming the piece
   ii. Introducing the characters
   iii. Describing the plot
   iv. Telling the students what to look for as they read.

Drucker (2004)

Drucker (2004) offers strategies for instruction aimed at older students, grades 3 and above. Again, literature is the key to English instruction. Before reading challenging text, Drucker recommends that the teacher preview the reading section before the student begins to read. The preview strategy begins with the teacher either making statements about the section or trying to secure student interest by asking rhetorical questions. To access prior knowledge, the teacher should relate the section to something relevant to the students’ experience. Next, the teacher should give the students a brief discussion question. Finally, an overview of the selection should be provided. This overview includes naming the piece, giving an introduction of the characters, and a description of the plot. Give the students specific information to look for as they read the selection.
Drucker (2004) quotes Krashen (1981) in describing this preparation as “comprehensible input” which indicates that language instruction is delivered at an understandable level for the child but which also requires that it should be of a sufficient challenge to make the child “stretch just a bit above his or her current level” (p. 24).

Other specific strategies recommended by Drucker (2004) include choral reading, specifically poetry or short texts. Contextual clues may be enhanced by using motions and gestures. For younger children, rebus symbols can be of added benefit in understanding the poem. Shared reading gives students the opportunity to hear English language while also reading the corresponding words. Teachers should have a book large enough for the group to see the words. For students whose native language does not share our left to right, top to bottom directionality, this method supports the acquisition of English orthography. Again, the use of rebus symbols for younger children can be of benefit. The use of paired reading, in which a stronger reader is paired with a student needing more support, has been shown to be useful in building fluency, pronunciation and accuracy. The stronger reader reads a passage while the supported student reads along silently. Then the supported reader reads the same passage aloud. This technique is more successful in older students, grades 3 through 8.

Strategies for Fluency and Word Recognition
1. Choral reading, especially poems and short texts
2. Use motions to ‘act out’ passages
3. Use rebus symbols
4. Shared reading
5. Big books
6. Stories on Tape
7. Use the Language Experience Approach
8. Interactive writing

Drucker (2004)

Drucker (2004) also recommends the use of audio taped stories in which the student reads the text while listening to an audiotape of the story. This has been shown to be effective in building fluency skills. The student is able to hear the correct
pronunciation of English words as well as learning text directionality. Because it is imperative that hearing the word and seeing the word occurs simultaneously, it is best to reserve audiotapes for stories with which the student is familiar. Students may also be encouraged to read out loud with the tape. Bliss, Skinner, & Adams (2006) studied a variation of this approach, a taped-words intervention. In this single student study, a fifth grade Russian student was taught to independently use an intervention designed using a tape player and worksheets of Dolch words. The strategy consisted of the student reading the words before he heard them on the tape player, then self-evaluating his response. Bliss, et al. (2006) reported increased sight word accuracy and fluency which was maintained over time. The student also was reported to have enjoyed the self-management aspects of the intervention. Teacher and parent reports were also said to be positive.

The Language Experience Approach is successful with younger students. The teacher writes as the students dictate their thoughts about an experience the group has shared. The students can then read the story together. A more intensive approach is Interactive Writing, in which the teacher and student share a pen. Drucker (2004) explains that this is a way of interactively creating text from a shared experience. Both the taped stories and words and the Language Experience Approach may provide an alternative to the phonemic approach to teaching reading. Although research has shown systematic instruction in a phonemic approach to be effective, this method may be the most successful for ELL students (Bliss, et al., 2006). Lian-Thompson, Vaughn, Prater, and Cirino (2006) argue that ELL students’ results are not disaggregated when effective reading strategies are studied. Thus, their responses to different forms of reading instruction are not truly established. Lian-Thompson, et al. (2006) note mixed effects for the few studies that have used the phonemic approach to provide direct instruction to ELL students. Therefore, the whole word approach is a useful supplement to the phonemic approach (Bliss, et al., 2006).

Reading with Adolescent ELL Students

1. Make connections between literature and students’ lives
2. Break into small segments
3. Discuss each chapter after reading
4. Move slowly through stories together to help students move from concrete to abstract concepts.
5. Guide discussion to lift the level of understanding in small steps.
6. Reword students’ contributions.
7. Extend time to discuss text to promote deeper understanding.

(Wolf, 2004)

Wolf (2004) explored the process by which adolescent ELL students learn to use abstraction and more adult ways of discussing literature. The goal is to allow students to use this literature to make connections between the literature and their own lives. This goal echoes the aims of literature-based instruction at all levels of instruction – making the link between literature and students’ interests and lives. The group that Wolfe studied consisted of ELL students in the transitional, or last level, before mainstreaming into the regular classroom. The teacher approached the literature study by dividing the students into small literature study groups. The accommodation he made to the ELL students was to break the format of the study into small chunks. The students discussed each chapter intensively, rather than conducting the study after reading the entire book. In this way, the teacher was able to guide the students from a concrete, literal understanding of the story, to a more abstract, adult-like form of understanding and conversation. This is reminiscent of the strategies described by Hickman, et al. (2004) who advised breaking stories into small chunks of about 200 –250 words, read over several days, to allow students to more deeply understand the vocabulary and content of the stories. Wolfe (2004) ascribes the success of this particular qualitative study to the techniques used by the teacher. First, by allowing the students to move slowly through the story together over a number of weeks, the students were able to build what Wolfe refers to as “chains of signification” (p. 404) which describe how the meaning of words or signs, can change over time. In this case, the students explored the symbolism of an owl in the story, Bless Me, Ultima, 1972. By allowing the students time to discuss their understanding of owls, from the concrete discussion of owls in Mexican pet stores, to the more abstract concept of owls as messengers of death, the students were able to let their concept of the owl, in relation to the literature studied, evolve over time. Another tactic used by the teacher was to “lift the level” of the discussion in small steps by guiding the discussion. Wolfe
(2004) notes that the teacher does not dismiss student’s points but is able to reword the contribution into more adult concepts and make it seem as though this rewording and the ideas come directly from the student. He does this by making statements such as “What you are saying is…” By recording the students’ literature study groups, Wolfe (2004) notes that students need extended time to discuss text, and that understanding is cumulative, necessitating many opportunities to discuss literature or indeed any text with which the student is involved. Wolfe (2004) further notes that teachers need to be aware that it takes time for a student to make these shifts in understanding.

Journal Writing and Pop Literature

1. Use “pop literature” such as the *Chicken Soup* stories
2. Read the stories to the students
3. Ask students to respond in their journals to these stories
4. Go to on-line sources and have stories emailed to students

Roman-Perez, (2003).

At the undergraduate level, this involvement with literature is again seen as the key toward building more complex understanding in the English language. Roman-Perez (2003) is an English instructor at the University of Puerto Rico at Mayaguez. She notes that each year, as she assigned journal-writing assignments, the students complained and resisted the assignment. Roman-Perez found that the entries were superficial and the sentences were very short. The entries showed no connection to the students’ lives or concerns. A journal entry might consist of only two or three sentences. One day, while reading a *Chicken Soup for the Woman’s Soul* book, she seized on using the series in her classroom. She read the stories to her class and asked the students to react to the stories during classroom journal writing. Roman-Perez (2003) was amazed at their reactions. The writings were more authentic and in contrast to the more tortured efforts previously presented. The students made a link between the stories and their own lives. The students began to look forward to her weekly reading of a *Chicken Soup* story. In investigating how to make these materials more readily available for her students, Roman-Perez (2003) discovered that the students could go online to www.chickensoup.com and register for a daily story to be emailed to them. As the semester went on, Roman-Perez (2003) noticed
that when she entered the classroom, the students were already actively engaged in conversation about the previous day’s *Chicken Soup* offering. The journal entries became longer and the sentence structures became more complex. Students frequently consulted their dictionaries to learn more appropriate words for their entries. Roman-Perez (2003) described the journal entries as the students “talking to themselves.” The success of this approach was ascribed to the fact that this “pop literature” made a connection to the students’ lives and was relevant to their own experiences. Again, this echoes the experience from pre-school to adult learning. An interesting adjunct noted by Roman-Perez (2003) was that students commented that they found their other classes easier to comprehend, thus her approach allowed for generalization across the curriculum.

Although the literature approach has been widely seen to be effective across the age span of students, other approaches are available, which are supported by research. These approaches favor the intensive, direct instruction method of instruction. The methods are replicable and have the advantage of much quantitative research and lend themselves to objective measures of success. Slavin (Chairman of The Success for All Foundation) and Cheung (scientist at The Success for All Foundation) (2004) reviewed studies of the aforementioned direct instruction methods, Success for All, Direct Instruction, Jolly Phonics, and Reading Recovery. The Direct Instruction program was also available as small group or one-on-one tutorial and Reading Recovery had a Spanish version. Success for All, Direct Instruction, and Jolly Phonics are all intensive, systematic phonics based programs. Jolly Phonics is used in England. All have been found to be effective in raising the reading levels of ELL learners as well as Native English speakers (Slaven & Chung, 2004).

With large numbers of ELL students entering our classrooms every year, reaching these children is becoming more and more important. Several themes have emerged through the review of the literature. First, students learn best if links can be made to their own experiences. Second, literature is a powerful tool in teaching English acquisition. Third, it is more effective to teach students in small groups, whether through literature or by direct instruction methods.
References


Librarians Who Teach: Helping Delta State Students Acquire Information Literacy Skills

Paula Webb and Michael Mounce

Delta State University

Abstract

In this article, the authors discuss their experiences of teaching Library 101: Fundamentals of Information Literacy at Delta State University. One author shares his experience of teaching this course to traditional on-campus students, while the other author shares her experience of teaching the course online to distance education students. Official documents published by the Association of College & Research Libraries which are relevant to information literacy and the Library 101 course are also discussed in this article.

It is very important for college and university students to learn information literacy skills. Any student new to the college scene can tell you of the challenges they encounter when trying to find information and when they are writing their first research paper. To help prepare students for these challenges, librarians at the Roberts-LaForge Library are teaching a one credit hour course titled Library 101: Fundamentals of Information Literacy.

Paula Webb and Michael Mounce are two of the librarians at Delta State’s Roberts-LaForge Library who have introduced information literacy skills to Delta State students. Michael has taught Delta State students library research skills through bibliographic instruction and the information literacy course Library 101. At the beginning of the Fall 2006 semester, Paula began to teach information literacy skills to distance education students by creating and teaching the online-only version of Library 101. In this article, the authors discuss their experiences of providing information literacy instruction to Delta State students in the respective environments.

Meeting the Association of College & Research Libraries Standards

To develop a successful method of instruction, Paula Webb and Michael Mounce studied the official standards and guidelines documents of the Association of College & Research Libraries (ACRL), a division of the American Library Association. In the first paragraph of the ACRL document Information Literacy Competency Standards for Higher Education, the term “information literacy” is defined as “a set of
abilities requiring individuals to ‘recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information’” (2000).

In addition to defining information literacy, this document also lists five standards which discuss the abilities of information literate students. These abilities include the ability to determine what information is needed and how much is needed (Standard One); the ability to “access needed information effectively and efficiently” (Standard Two); the ability to evaluate information sources (Standard Three); the ability to use information to accomplish a goal (such as completing a paper) (Standard Four); and the ability to use information properly (Standard Five) (2000).

Michael Mounce and Paula Webb took these standards and incorporated them into their sections of the Library 101 course by teaching their students the information literacy skills mentioned in the standards. For example, they adhered to Standard Two by teaching their students how to search the library catalog, databases, and the Internet and by teaching them various search strategies. The search strategies Michael and Paula taught their students included keyword searching, subject searching, using search terms such as “AND” and “OR” and other search strategies.

ACRL documents also discuss the topics of teaching information literacy skills to students and the delivery modes of instruction. For example, the document titled Characteristics of Programs of Information Literacy that Illustrate Best Practices: A Guideline (2003) discusses ten categories of characteristics. Category 7 is Pedagogy. According to the Characteristics document, pedagogy for an information literacy program accomplishes several things, some of which include supporting various teaching methods, using necessary information technology, supporting learning which is most beneficial to students, and providing instruction for multiple learning styles of students (Category 7: Pedagogy).

In teaching the Library 101 course, Michael accomplished things mentioned in the Pedagogy category. For example, he supported multiple learning styles of students by giving lectures, which are most helpful to those who learn best through listening. Also, he gave practice exercises, which are most helpful to those who learn best through practice or experience and reading assignments which are most helpful to those who learn best through reading.
In regard to the delivery mode of instruction, the *Characteristics of Programs* document states “The goals and objectives for an information literacy program apply to all learners, regardless of delivery system or location.” (Category 2: Goals and Objectives). The document *Guidelines for Instruction Programs in Academic Libraries* (2003) also discusses the topic of delivery modes of instruction. In section C. Identification of modes of instruction, the document lists several possible modes of instruction which librarians can provide, some of which include “group instruction in traditional or electronic classrooms” and “hybrid or distributed learning or distance learning …”

In June 2004, the ACRL Board of Directors approved the document *Guidelines for Distance Learning Library Services*. In the first paragraph of the Introduction of this document, the ACRL Standards and Accreditation Committee made it very clear that academic institutions need to provide some form of library service to distance education students. The document states, “Library resources and services in institutions of higher education must meet the needs of all their faculty, students, and academic support personnel, regardless of where they are located …. This principle applies to individuals on a main campus, off campus, in distance learning or regional campus programs, or in the absence of a campus at all …. in courses taken for credit or non-credit; in continuing education programs; in courses attended in person or by means of electronic transmission; or any other means of distance learning” (2004).

Paula Webb, the developer of the Library 101 online class, met this standard by modifying the in-class instruction format to meet the needs of students outside of the classroom. She had to modify her instructional methods to incorporate an online format. She accomplished this by using WebCT as the foundational system. In addition, she encouraged individual student communication with PowerPoint, email, Facebook, Instant Messenger and other available online tools.

The Philosophy section of the distance learning document addresses the majority of issues relating to library services that one may encounter. The precepts state that information literacy instruction outcomes should be “of equal necessity for the distance learning community as for those on the traditional campus.” It also states “the library has primary responsibility for identifying, developing, coordinating, providing, and assessing the value and effectiveness of resources and services designed to meet both the standard
and the unique informational and skills development needs of the distance learning community.” In addition, the philosophy is that even though distance learning services may differ from those offered on campus, they must still be equivalent to those services offered on campus (2004).

Paula accomplished this task by relating her syllabus for distance students with the same syllabus used by Michael for his in class students. In both cases, the syllabus was used as a guide, directing the students through the class.

Teaching Library 101 in the classroom

Prior to the Fall 2004 semester, Michael prepared to teach the Library 101 course. Preparation included attending a series of meetings with library supervisors. In these meetings, a syllabus was formed and it was decided which topics would be covered throughout a typical semester. It was also decided which assignments would be appropriate for the course. Since Library 101 was to be a WebCT-enhanced course, Michael’s preparation for the course also included attending WebCT training sessions. This training familiarized him with the course software WebCT. The Library 101 course is referred to as “WebCT enhanced” because the Library 101 course was helped by it. While his section of Library 101 was in the traditional in-classroom format, the syllabus, assignment information, and other course-related information was made available in WebCT, which gave students access to needed course information online.

Michael taught the Library 101 course in the following semesters: Fall 2004, Spring 2005, Spring 2006, and Fall 2006. Throughout these semesters, he taught Library 101 students the following information literacy skills: finding resources in the library, knowing the steps of the research process, differentiating between primary and secondary sources, using the online catalog, databases, and Web effectively, locating government documents, evaluating resources, avoiding plagiarism, and citing sources properly. He taught students these skills through lectures. Some of these lectures were live presentations and others were Power Point presentations. For example, the presentation demonstrating how to use the catalog was a live presentation and the Evaluating Sources presentation was a Power Point presentation.

Students in Michael’s section of Library 101 were given the following assignments: weekly assignments, article summaries, a mid-term exam, and an annotated bibliography. The weekly assignments were based on lectures and were given to help
reinforce what was taught in class. The article summary assignments required students to read information literacy-related articles and summarize them in one-paragraph summaries. The mid-term exam was given to further reinforce students’ information literacy skills which were learned during the first half of the semester. The annotated bibliography was the final project and was due at the end of the semester. This assignment required students to create a list of works cited with a summary accompanying each citation. University-affiliated evaluation forms were given to students in order that the students could evaluate both the instructor and the course content. In addition to these forms, pre-tests and post-tests were given to students during the Spring 2005, Spring 2006, and Fall 2006 semesters.

Teaching Library 101 online

Paula’s experience of teaching Library 101 was significantly different than that of Michael’s. In addition to instructing Library 101 online, Paula also had to create or convert most portions of my course to an Internet accessible format. She began the process in the spring of 2005 when she received the Winter Technology Award. In accordance with the award, she was taught how to use WebCT, an e-learning system for higher education institutions. After training, she developed the course and taught it for the first time in the fall of 2006.

In her instruction model of Library 101, Paula developed three main levels of teaching: general information, information specific to the Roberts-LaForge Library, and application assignments. Since the students in her class were not on campus, they could be using a library anywhere from the public library down the street to the library of another higher education institution, such as Mississippi Valley State University. She also had to remind her students that they were still Delta State students and that they could use the resources of the Roberts-LaForge Library. Therefore, she incorporated this message into the lesson. She finalized all lessons with an assignment. Each assignment required the student to apply the knowledge learned in the two previous levels.

The course was a fifteen week course to which Paula applied her instruction model. Each week, she covered one specific topic dealing with information literacy such as using the catalog, conducting research with EBSCOhost databases, or understanding the Library of Congress Classification System in the shelf arrangement of books and other materials. She would allow the students one week to complete each assignment,
releasing access to them from Monday morning until the following Sunday at eleven o’clock in the evening.

In instructing the class, it appeared to Paula that the students followed this model very well. She tried to keep the syllabus and assignment directions as simple and detail-specific as possible. She emphasized learning principles by creating Microsoft PowerPoint Presentations that would go into greater detail over certain topics such as how to find a journal article and how to find a book on the shelf using the Dewey Decimal Classification System.

Paula’s students were very good about communicating with her if they did not understand everything in the lesson. In addition, she would present to them discussion questions and would ask them the best way to research certain topics. The methods that most of her students used were evidence that they were using the information she had taught them. In the few cases in which the student appeared confused or unfamiliar, she would email them suggestions for more effective methods.

Comparison of Teaching Methods

The Library 101 course was first established as an on-campus course for students living on or near Delta State University. After the course had been taught a few semesters, discussions about teaching the course online began. Paula and Michael realized there was a proven need to provide Library 101 in both formats. The traditional on-campus format is the more beneficial format for some students, while other students benefit more from the online format. For example, students who have limited computer skills and need a lot of one-on-one assistance with electronic resources would benefit more from the traditional on-campus format. On the other hand, students who cannot make it to the classroom because they live too far away from campus or would have conflicts with other obligations would benefit more from the online format.

Conclusion

In conclusion, the Library 101 course has been a positive and successful experience in the classroom and online. This course will continue to be taught to Delta State students in both formats in future semesters. Delta State students will continue to be taught information literacy skills which can greatly enhance their research efforts and abilities.
References


Incorporating Mass Media into the Classroom

LeAnne Forquer, Reid Jones, Scott Drury, Tiffany Culver, Scott Hutchens, and Duane Shuttlesworth

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Abstract

Mass media includes television, movies, music, magazines/newspapers, video games, and the Internet. Incorporating these items into the classroom can help college students better understand concepts discussed in the textbook and has a number of benefits for students. First, some students learn better visually, therefore incorporating multiple presentation styles into the classroom increases the number of students that can be reached by the material. Also, these items break up the monotony of a typical lecture-style classroom. Adding mass media can help keep student’s attention for the entire class period. Finally, college students spend large amounts of their free time engaged in these types of activities; therefore incorporating them into the classroom brings their world into the classroom.

Mass media includes television, movies, music, magazines/newspapers, video games, and the Internet. Roberts, Henriksen, and Foehr’s study found that adolescents, age 15-18, spend more than seven hours a day involved in these types of activities (as cited in Steinberg, 2005). This includes 2 hours and 23 minutes watching television, 46 minutes watching movies, 2 hours and 38 minutes listening to music, 37 minutes reading print media such as newspapers and magazines, 21 minutes playing video games, and 26 minutes using the computer. Nielsen ratings indicate that college students living away from home spend even more time watching television, 24.3 hours a week or 3 hours and 28 minutes per day (Aspan, 2006), a trend that may extend to other forms of media such as the Internet. Considering how much time students spend engaged in these activities, it makes sense to incorporate them into the classroom to illustrate how class material relates to their lives.

Since most college courses do not have the time to include entire two hours movies, the instructor must select short clips that best represent the concept under discussion (Rouse, 2005). However, these clips must be chosen carefully because the mass media does not always portray psychology or many other fields accurately. Despite careful selection, inaccuracies are unavoidable and can be used to spark classroom discussion. They allow students to learn how to identify inaccuracies and make
suggestions about how to improve them. Students also learn to critically examine the information being presented to them in the media instead of merely accepting everything they see and read.

There are several movies which can be used to illustrate concepts in a general psychology course. For example, the first five minutes of the movie Ghostbusters provides an excellent example of unethical psychological research which students can identify and make recommendations for improvements. Secondly, there is a wonderful illustration of classical conditioning in the movie Seabiskit where the train the horse to run when he hears the starting bell instead of waiting until he feels the whip. The movie Momento involves a character with anterograde amnesia or the inability to form new long-term memories. He can remember information for short periods of time using rehearsal, but once distracted it is lost forever, similar symptoms to patient H.M (a classic case study of amnesia). Finally, there are several movies well suited for illustrating psychological disorders including obsessive-compulsive disorder (As Good As It Gets, the television series Monk), dissociative identity disorder (The Three Faces of Eve), and paranoid schizophrenia (A Beautiful Mind).

Movies can also be incorporated into courses on developmental psychology and psychology of adolescence. For example, the movie Stepmom provides an excellent illustration of age and gender differences in adjustment to divorce and remarriage. Secondly, the documentary Super Size Me examines the obesity epidemic in American culture including an examination of the nutritional value of school lunch programs and lack of physical education in schools. Finally, movies like The Breakfast Club, Mean Girls, and Clueless illustrate the differences between cliques (small groups based on common interests) and crowds (larger groups based on reputation and stereotypes) in high schools and the consequences of membership in these groups. Other forms of mass media such as television commercials, songs, and music videos are sometimes easier to incorporate into the classroom because they do not require the time commitments of entire movies.

Utilizing mass media in the classroom has several benefits for students. First, some students learn better when information is presented visually; therefore using multiple learning styles increases the number of students who can be reached by the material (Hart & Stevens, 1995). Secondly, some topics are easier to understand when
presented visually. For example, when teaching about psychological disorders such as obsessive-compulsive disorder it is easier for students to understand when shown a video of someone suffering from that disorder then just reading or hearing a list of symptoms. Also, these clips can be used to spark classroom discussion about a topic covered in the textbook. Finally, mass media breaks up the monotony of a typical lecture style classroom. Students often have a hard time paying attention for the whole class period; therefore adding some form of mass media to your lectures can help them maintain their focus.

In conclusion, incorporating various forms of mass media into the classroom can enhance the classroom experience by relating course concepts to students’ lives. Students spend large amounts of their free time engaged in these types of activities; therefore incorporating them in the course shows them that you are interested in their lives. Students find these materials interesting so adding them to your class helps maintain students’ attention and attendance. One may include questions from videos on tests; therefore students who come to class and pay attention benefit from regular class participation.

References


Author Note

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A Mathematical Definition and Proof of the Negatively Accelerated Response Curve in Counseling

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Abstract

Research has indicated that psychotherapy provides better symptom recovery than placebo groups and no treatment control groups (Frank & Frank, 1991; Luborsky, Shapiro & Shapiro, 1982; Singer, Luborsky, 1975; Smith & Glass, 1977). Furthermore, this enhanced functioning from pretreatment levels seems to follow a negative accelerated “diminishing returns” recovery pattern. Therefore, this study aggregated data from thirty-three clients in an outpatient mental health setting to provide evidence that client recovery curves are in fact negatively accelerated. Curve fitting software and a mathematical proof supported this assertion which brought up new questions about treatment effectiveness and how much treatment is practical.

Outcome assessment in psychotherapy dates back to the 1950’s when the American Psychological Association funded by the National Institute of Mental Health (NIMH) held three major psychotherapy research conferences discussing this issue (VandenBos, 1996). As early as the 1970’s, empirical research was coming in demonstrating that generic psychotherapy was in fact more effective than no treatment at all (Frank & Frank, 1991; Luborsky, Singer, Luborsky, 1975; Smith & Glass, 1977). Since this time, research has indicated that those who undergo therapy fair better than those who receive placebo treatments (Lambert & Bergin, 1994; Shapiro & Shapiro, 1982). Frank and Frank (1991) indicated that factors in the therapeutic relationship contributing to positive treatment outcomes are a constant throughout all theoretical disciplines. Consumer Reports (1995) published some convincing data from a large scale survey that psychotherapy is deemed beneficial by many across America. The benefit of psychotherapy has prompted researchers to seek to further describe the treatment recovery process for clients over the span of treatment, first session to last.

Many have attempted to study client’s symptom response patterns over time when defining treatment “dosage” as the number of sessions attended or the length of therapy (Barkham, Rees, Stiles, Hardy, & Shapiro, 2002; Given, 2002; Gray, 2003;
Hansen & Lambert, 2003; Kopta, 2003; Hansen, Lambert, & Forman, 2003). This terminology is derived from response models used for the prescription drug industry. In counseling research, one dose is considered the standard 50 minute session. Besides dosage, treatment response is often measured by a normative, self-report outcome inventory used to capture a client’s level of symptomology at the beginning of a counseling session. Response curve analysis is then employed to track a group of clients over time from pre-treatment score to termination score with a predetermined periodicity to assesses client symptomology on a frequent basis (usually every session or couple of sessions). A nominal curve is then plotted characterizing the level of symptoms over the number of sessions for the particular clinical group under study (e.g. outpatient, inpatient, college, community).

Howard, Kopta, Krause, and Orlinsky (1986) were one of the first to introduce this kind of dosage model but further defined the treatment variable, “effect”, as the percentage of clients improved yielding a normalized probability of improvement score. Further analysis of their data provided a curvilinear function, treatment effect vs. dosage, that as the number of sessions of psychotherapy increased more and more clients improved but with diminishing returns. Kopta, Howard, Lowry, and Beutler (1994) even divided their client sample into three symptomatic categories, acute distress (e.g. headaches, crying easily, trouble remembering), chronic distress (e.g. lonely, hurt easily, shyness), and characterological distress (e.g. overeating, frequent blaming, delusional behaviors), and still found that each response curve followed the same “diminishing returns”/curvilinear pattern but noted that the acutely distressed clients recovered more quickly (less dosage or number of sessions) than the chronically distressed clients who in turn recovered faster than the most characterologically distressed clients. Again the treatment effect variable here was defined by the percentage of clients recovered. Both Howard, et al. and Kopta, et al. termed this response curve pattern as “negatively accelerated” indicating that the potency of each session of therapy decreases with treatment length no matter what problem type the client entered therapy with. Some have even extended the use of this response curve analysis to consider guidelines for determining “how much psychotherapy is enough” especially when considering how to best use limited therapeutic resources and the financial aspects of managed health care (Barkham, et al. 2006; Kopta, 2003).
As previously mentioned, the typical, negatively accelerated dose-effect relationship in psychotherapy has been fairly well documented but never proven mathematically. Furthermore, no study has specifically described this curvilinear function (via mathematical equation) with the use of curve fitting software to yield a response function that can be used to predict a normative client recovery rate per session. Thus, the purpose of this article is to define the negatively accelerated therapeutic response curve for an outpatient community mental health agency and then offer a mathematical proof to verify that in fact it is negatively accelerated.

Method

Participants

Clients. Thirty-three outpatient clients attended psychotherapy at a university outpatient community counseling clinic in the southeastern part of the US during the fall semester of 2002. Clients were primarily female (68%) ranging in age from 19 to 65 years old (M=38.33, SD=12.7). The racial breakdown was as follows: 76% Caucasian, 9% Hispanic, 9% Asian and 6% African American. Approximately three quarters of the clients presented with mood and anxiety disorders as defined by the DSM-IV-TR. The majority of the rest of the clients were diagnosed with adjustment disorders and relational problems.

Counselors. The counselors participating in the study were 19 master’s-level students in their first practicum class. These counselors ranged in age from 22 to 48 years and averaged 31.1 (median=mode=30, SD=6.7). Gender composition of the group was primarily female, with eighteen female counselors and only one male counselor. The racial breakdown was predominantly White/Caucasian (90%), with one Black and one Hispanic student in the class. As a group, the practicum counselors reported a variety of theoretical orientations, with most indicating they were eclectic (32%) in their treatment approach. Others specified Humanistic-Experiential (21%), Cognitive-Behavioral (16%), Choice Theory (11%), Adlerian (5%), Systemic (5%), Solution-Focused (5%), and Client-centered (5%).

Instrumentation

The Outcome Questionnaire (OQ-45.2: Lambert, et al., 2004) was chosen for this study because of its relatively low cost and brief format which can be administered in 10 minutes or less. Furthermore, it was designed for use with an outpatient community
sample (Lambert, Hansen, et al., 1999) comparable to the population recruited in this research study. The instrument is a self-report measure of client symptomology and interpersonal functioning containing 45-items (5-point Likert scale format ranging from “never” to “almost always”). Higher scores imply more symptomology and distress in one’s life. Scores can range from 0 to 180. In addition, the questionnaire has normative data for various samples including an outpatient community setting (Wiger & Solberg, 2001). The instrument was developed with the most commonly occurring diagnoses in mind, including questions related to the assessment of mood and anxiety disorders as well as substance-abuse issues. The OQ-45.2 has an overall scale integrating the areas of symptom distress, interpersonal relations and social role performance (Lambert, et al., 2004; Hansen, et al., 1999). Only the overall scale of the instrument was used in this study.

Materials

Curve fitting software Prism 4.0 (Graph Pad Software, 2005) was used to identify the best fit equation for the data derived from the study. Descriptive statistics were calculated utilizing SPSS (2001) version 11.0 software.

Design

Clients were randomly assigned to counselors and assessed for symptomology prior to their first session and then every third session afterwards by the administration of the OQ-45.2. This means clients were evaluated prior to the first, fourth, seventh and tenth sessions. Over this time, eighteen clients dropped out of treatment by the tenth session either prematurely or by contracted termination between the counselor and the client. Data were aggregated and averaged for each of these four data points and then entered in Prism 4.0. Linear and quadratic curve fitting runs were instituted to determine which function provided the best fit for the data. After the best fit curve was determined, a mathematical proof was developed to provide evidence that the best fit curve was in fact “negatively accelerated.”

Results

The aggregate data for the clients (See Table 1) showed a general trend for the diminishing effectiveness of psychotherapy especially over the latter three session (of ten) as one compared the 3 session change rates from first session to forth (5.12), fourth to seventh(5.79), and seventh to tenth (1.93). Next, curve fitting software (Prism 4.0) was
employed. The best curve fit was arrived at by the quadratic curve as evidenced by the following goodness of fit factors: coefficient of determination/R square, sum of squares and standard deviation parameters (see Table 2 for linear vs. quadratic comparisons). The R square calculates the difference between the new curve fitting the points vs. a straight line through the average of the OQ values, SS represent the sum of the square distances from each data point and the new curve, and SD is the standard deviation of all the distances between the data points and the new curve/model. Thus, higher values of R square indicate the model with the better fit where, on the contrary, lower values of SS and SD do.

**Table 1**

**Average OQ Score by Session**

<table>
<thead>
<tr>
<th>Session</th>
<th>OQ Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>81.91</td>
</tr>
<tr>
<td>4.0</td>
<td>76.79</td>
</tr>
<tr>
<td>7.0</td>
<td>71.00</td>
</tr>
<tr>
<td>10.0</td>
<td>69.07</td>
</tr>
</tbody>
</table>

Note: Above values represent the “data points” for the new curve fit

**Table 2**

**Goodness of Fit Parameters**

<table>
<thead>
<tr>
<th>Model</th>
<th>DF</th>
<th>R square</th>
<th>SS</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>2</td>
<td>0.96</td>
<td>3.6</td>
<td>1.3</td>
</tr>
<tr>
<td>Quadratic</td>
<td>1</td>
<td>0.99</td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

The linear model yielded a best fit equation of (1) \( OQ = 82.82 - (1.48 \times \text{Session}) \) for the data whereas the quadratic nonlinear model arrived at a best fit equation described by (2) \( OQ = 84.5 - (2.45 \times \text{Session}) + (0.09 \times (\text{Sessions})^2) \). As seen in Table 2, the quadratic nonlinear model had the better R square by approximately 3% over the linear model and about a four fold reduction in error as indicated by both SS and SD differences. Each of these parameters was lower for the quadratic model.

**Figure 1. Proof of the Negatively Accelerated Response Curve**
To show that the quadratic curve above (see Figure 1) is negatively accelerated it is sufficient to mathematically show the slope of this function is always negative but decreasing in strength as the number of sessions increases over time. This requires the use of differential calculus applied to equation (2) above. Therefore we need to show three things mathematically: (A) the slope of the curve is always less than zero over (client is always improving) the 1-10 session treatment period (B) the strength of the slope is diminishing in magnitude as “s” the number of session increases (impact of therapy is less potent in every successive session), and (C) the curve is always concave upward without any changes in shape to convex portions of the curve (on average therapy produces reductions in symptoms without any periods of stagnation (no change) or deterioration (increasing symptoms).

From calculus theory, Shanks and Gambill (1973) indicated that the first derivative of a function $F'(x_o)$ gives the slope (rate of change of the function with changes in $x$) of the tangent line through that point on the curve $(x_o, F(x_o))$. Furthermore, Shanks and Gambill (1973) go on to define that for any real number $n$ where $n$ is a
positive integer, the derivative of \( F(x) = x^n \) is defined as \( F'(x) = nx^{n-1} \). In addition, for any constant \( C \) where \( F(x) = C \), the derivative of this function is zero, \( F'(x) = 0 \).

Again the quadratic equation derived from curve fitting is \( F(x) = OQ(s) = 84.5 - (2.45 * s) + (0.09 * (s)^2) \) where “s” represents the number of sessions. Now taking the derivative (as defined above by Shanks and Gambill’s equations) to get the slope of the curve at any point, \( F'(x) = OQ'(s) = -2.45 + 2(0.09)s = -2.45 + .18s \). Next one plugs into \( F'(x) \) for sessions 1 through 10 which yields the following slopes (rate of change in OQ score with change in sessions at a given session \( s \), for example, \( OQ(1) \) gives the slope of the OQ function at session “1”) in Table 3.

<table>
<thead>
<tr>
<th></th>
<th>OQ Curve Slopes per Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>( OQ'(1) )</td>
<td>-2.27</td>
</tr>
<tr>
<td>( OQ'(2) )</td>
<td>-2.09</td>
</tr>
<tr>
<td>( OQ'(3) )</td>
<td>-1.91</td>
</tr>
<tr>
<td>( OQ'(4) )</td>
<td>-1.73</td>
</tr>
<tr>
<td>( OQ'(5) )</td>
<td>-1.55</td>
</tr>
<tr>
<td>( OQ'(6) )</td>
<td>-1.37</td>
</tr>
<tr>
<td>( OQ'(7) )</td>
<td>-1.19</td>
</tr>
<tr>
<td>( OQ'(8) )</td>
<td>-1.01</td>
</tr>
<tr>
<td>( OQ'(9) )</td>
<td>-0.83</td>
</tr>
<tr>
<td>( OQ'(10) )</td>
<td>-0.65</td>
</tr>
</tbody>
</table>

Notice that the curve is always negative as the number of sessions “s” are increasing which implies the client is improving or their symptomology is decreasing. This means for each session the next one has a lower OQ score than the previous one. As just shown, \( OQ'(s) \leq 0 \) for \( 1 \leq s \leq 10 \). This proves part A discussed in the proof above.

Now to prove part B, Shanks and Gambill (1973) go on to state that “A function \( F(x) \) is decreasing on an interval ‘I’ if for any two numbers \( x_1 \) and \( x_2 \) in \( I \), \( x_1 < x_2 \) implies \( F(x_1) > F(x_2) \)” (p. 168). As can be seen in Table 3, the magnitude of \( OQ'(s) \) is decreasing but with less magnitude as “s” the number of sessions is increasing from the first to tenth session. So we have meet the conditions (A) and (B) in laying out our proof. To prove the last condition C, this is easy to see by observing the quadratic curve that it is concave (upward – “able to hold water” so to speak in that the curve looks like it can hold water if water was poured into it) over the range \( 1 \leq s \leq 10 \), however, to prove it mathematically we need one more theorem, “If \( F''(x) \) exists on an interval \( I \) and if \( F''(x) > \)
0 on I, then $F(x)$ (original function) is concave upward on I.” (Shanks & Gambill, 1973, p. 260).

Thus, we must take the second derivative or reapply the derivative formula to $F'(x)$ which in our case is reapplying the derivative again to $OQ'(S) = -2.45 + .18S$ yielding $OQ''(S) = .18$, a positive constant over the entire interval $1 < S < 10$. Since $OQ(S) = 84.5 - 2.45S + .09S^2$ exists for any “$S$” (although we are only interested in $0 < S < 10$) and $OQ''(S) = .18 > 0$ always, then $OQ(S)$ is a curve that is concave upward always with no changes to “convex-ness” (cupped downward – “unable to hold water” so to speak) over the entire interval $1 < S < 10$. This proves C above and we have proven that the curve is in fact “negatively accelerated over the first ten sessions.”

Discussion

As can be seen in the curve fitting comparisons, the quadratic equation appears to fit the data most accurately indicating that the dose-response curve for this outpatient community sample meets the negatively accelerated criteria as evidenced by observation and the mathematical proof just discussed. Therapy seems to be most effective in general over the initial few sessions and then proceeds with benefits waning in strength as the number of sessions increase. Of course, this quadratic curve describes the average client performance for the outpatient sample group and may or may not describe an individual client’s response to treatment. Still, there is value in comparing any single client’s response profile to this normalized curve since drastic deviations from it both in positive and negative directions can serve to alert clinicians to potential departures from treatment norms and may dictate a modification to the original treatment plan. Slower treatment progress than the norm may be predictive of negative client outcomes and possibly premature termination. Faster treatment responses may be indicative of premature recovery or invalid “faking good” responses on the part of clients. The latter could be the case for involuntary or court ordered clients. These are just some of the ways normative dose-response curve analysis can be utilized but there are others.

For example, Finch, Lambert, and Schaalje (2001) aggregated data from 11,492 psychotherapy clients using their overall OQ-45.2 score to generate expected recovery curves over time based on pretreatment levels of symptomology which then served as an early warning system for clients. These curves were used to compare individual client scores at intake to previously developed curves with similar initial OQ total scores to
incorporate their tolerance intervals above and below each normative curve to define green light (normal), yellow (caution), red (warning), white (warning), and blue (warning) ranges. Yellow and red ranges were used to warn of client’s deterioration beyond the norm while white and blue ranges indicated rapid recovery beyond what was normally expected. As long as one stayed within the green range for each predetermined curve there was a high probability for treatment success.

The previous study brings up the question of how much psychotherapy is deemed enough recognizing that therapy over time offers diminishing returns. Should therapy be considered a success if 50% of clients recovery over a certain number of sessions? 75% of the clients recover? 90%? 95%? Kopta, Howard, Lowry, and Beutler (1994) argued that different kinds of symptoms (e.g. acute, chronic, characterological) take different numbers of sessions to reach clinically significant improvement. Kopta et al. found that the median effective dose (50% of clients recover in a given problem group) of therapy for the acute groups was 5 sessions, the chronic group was 14 sessions where as the characterological group required greater than 18 sessions. This study seems to indicate that cut scores/sessions for treatment recovery should vary by DSM-IV-TR diagnosis being lower for adjustment disordered clients and higher for personality disordered clients for instance. No matter what cut scores/sessions are considered, unless a client is independently wealthy, mental health treatment will have financial limitations associated with it especially in the age of managed health care. The question of “what is enough treatment?” will need to be explored much more in the mental health literature.

Thus, future research should continue to refine these kind of dose response models not only for client classification purposes (e.g. symptom level, mental disorder) but also to allow for more individualized definitions of client recovery which take into account multiple measures of recovery not just normative outcome measures like the OQ-45.2. This future research could also be useful in determining dose response models for a variety of treatment modalities and theoretical orientations. From an ethical point of view, it is not best to use just one outcome measure to define successful treatment when multiple means of assessment (e.g. client goals, satisfaction surveys) are in the client’s best interest to define their recovery.
Conclusion

Much research has supported that psychotherapy is more effective than placebo treatments and controls of no treatment. Large surveys like the Consumer Reports (1995) survey have indicated that Americans deem psychotherapy as beneficial and useful. Since the 1970’s researchers have indicated that psychotherapy’s dose response curve follows a negatively accelerated pattern but it has never mathematically proven. In this article, community outpatient data were analyzed and evaluated to indicate that a quadratic negatively accelerated function describes outpatient clinical data the best as compared to a linear model. This model was proven to be negatively accelerated over the number of sessions supporting what was indicated in the existing literature. Still, confirmation of this hypothesis brings up some very practical and difficult questions regarding the application of this known response curve to questions like “How much therapy is enough?” and “What may it mean for managed health care?”

References


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