

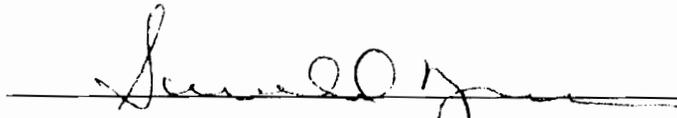
A COMPARISON OF THE DEFINING CHARACTERISTICS OF
COLLEGE-LEVEL COURSE WORK BETWEEN AND AMONG ENGLISH AND
MATHEMATICS FACULTY AT A COMMUNITY COLLEGE AND A UNIVERSITY

by

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in
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APPROVED:



Samuel D. Morgan, Chairman



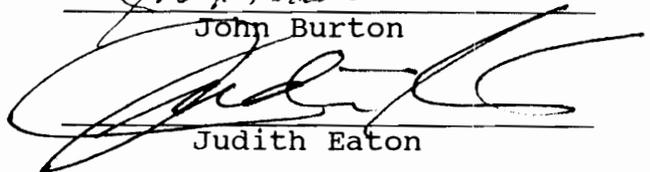
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college-level definition university community college

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Educational Administration and Supervision

(ABSTRACT)

The lack of a working definition for college-level course work affects the transfer of credit which means that a community college transfer student may have to repeat one or more courses at the four-year institution or may have to take more than the required number of courses to obtain a baccalaureate degree. Community colleges need to ensure that every course designated as a transfer course will be transferable to a receiving institution. Four-year colleges and universities should expect that the courses they accept in transfer meet the same standards required within their own curricula. The defining characteristics of "college level" should be identified to facilitate equitable transfer of course credit and to insure that transfer students are prepared academically to continue their baccalaureate studies.

This study explored the defining characteristics of

lower-level college course work in a Maryland community college and university, specifically in the disciplines of mathematics and English. Simultaneously, the characteristics of community college-level course work were compared with those of the university. The researcher analyzed the implications suggested by an in-depth content analysis of the data.

The data-gathering methodology utilized the qualitative research method of semi-structured elite-interviewing which allowed for in-depth exploration of the opinions of the knowledgeable individuals involved in the issue being studied. A set of broad, open-ended interview questions were designed to gather information from community college and university professors of mathematics and English. The analysis of the interviews included organizing the data into domains; generating categories, themes, and patterns; and comparing and contrasting the community college analysis with the university analysis and the disciplines against each other. There were more similarities than differences in the comments among and between the groups, and the analysis resulted in the identification of eight categories of characteristics defining college-level course work.

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CHAPTER 1

INTRODUCTION

Community colleges comprise the largest segment of American higher education with over 1200 institutions and five million students. Because these institutions are the first step for many students entering higher education, their effectiveness is crucial (Smart & Hamm, 1993). Started in the early 1900s as primarily university parallel junior colleges, their mission was to provide lower-level (freshman and sophomore) course work. The separation of the first two years of collegiate education from the upper level was primarily a means of diverting students away from the university, thus protecting the university and allowing it to be free to pursue its higher tasks of research and advanced professional training (Brint & Karabell, 1989). Until the 1950s, transfer programs accounted for 60 to 70 percent of total enrollment, and student transfer rates routinely served as a critical measure of institutional success (Lombardi, 1979; Medsker, 1960). An indication of the success of community college transfer students was shown in a 1965 study, where 62 percent of the 7000 community college students studied received bachelor degrees within three years of transfer with the prediction that at least 75 percent would ultimately graduate (Knoell & Medsker, 1965).

By the end of World War II, the junior colleges' mission began to change. Federal funding through the Servicemen's Readjustment Act of 1944 (G.I. Bill) was made available to veterans so that they could obtain a college education, and many veterans responded to this offer regardless of their preparation for college. The junior college mission at that time included open access, admitting all applicants regardless of their academic background and making it necessary for junior colleges to provide more remedial courses. In a further attempt to meet the needs of the new student population, more vocational courses were introduced into the curriculum.

In the 1960s, the major junior college functions were general education, transfer programs, and preparation for entry level employment, along with remedial course work. The student population consisted of recent high school graduates from families whose economic status was generally above the poverty level. There was a clear distinction between transfer course work and vocational education (Knoell, 1991). Although junior colleges in the early 1960s had open-access policies, there were no special efforts made to recruit students from ethnic minority or other disadvantaged groups.

By the 1970s, the junior colleges were called community colleges and the student population had changed to one

consisting of many part-time, older students who worked full-time, including many women. Community colleges in the mid-1980s established equal educational opportunity and affirmative action programs to attract, prepare and enroll students from previously under-represented groups (Knoell, 1991). As a result of these efforts, a larger proportion of lower socio-economic background students enrolled.

Differences in social class imply, generally, less interest in general educational goals (Deegan & Tillary, 1985). The combination of the lower ability of the community college student and their socio-economic background resulted in a less rigorous academic climate than may be found in four-year colleges and has had a significant effect on the community college's lower-division, transfer programs that were intended to lead to the baccalaureate degree (Eaton, 1994). Community college critics have noted a perceived deterioration in the quality of baccalaureate preparation for community college students (Cohen & Brawer, 1989; Richardson, Fisk and Okun, 1983).

The literature indicates that community colleges have lowered their academic standards, providing less than college-level course work (Cohen & Brawer, 1987; Eaton, 1994; Richardson, et al, 1983). This decline in standards has tended to make it more difficult for transfer students to succeed at four-year institutions. If successful transfer

is still considered to be a critical measure of institutional success, it is important to note that current national data indicate that approximately 17 to 20 percent of community college students transfer to four-year institutions. Fewer than 25% of these transfer students complete a bachelor's degree (Hull, 1993).

Community college critics have questioned the academic reputation of the community college because of the open-access policy, the predominance of vocational and occupational course work, the extent of the remedial education programs, and the decline of academic standards. "The most pervasive and long-lived issue in community colleges is the extent to which their courses are accepted by the universities" (Cohen & Brawer, 1991, p. 286).

Statement of the Problem

No definition of college level appears to exist in the literature as it applies to college course work. While this absence of definition may be troublesome for four-year colleges and universities, this situation is of critical importance for the community colleges. The open access of community colleges, their extensive remedial programs and occupational curricula have led many four-year colleges to question the level of academic course work at two-year colleges, a situation which affects the transferability of

course work. The absence of consensus about the defining characteristics of college-level course work has left higher education without norms by which the quality of their coursework can be evaluated. The development of defining characteristics of college level would assist curriculum designers in higher education as they address the issues raised by their critics, and in particular those critics who question the academic level of community colleges. What is needed, before such development can occur, is a determination of the differences and similarities in defining "college level" between and among community college and four-year college faculty who teach college-level courses.

Purpose of the Study

The general purpose of this research study is to identify any differences and/or similarities between and among selected faculty members at a community college and a university in what they perceive to be the defining characteristics of college-level course work. In order to accomplish this purpose, the following research question will be addressed:

What are the perceived similarities and differences between and among community college and university English and mathematics faculty in

defining the characteristics of college-level course work.

Significance of the Study

The major significance of this study is that, to the best of the researcher's knowledge, this is the first systematic study that explores a consensual definition of college-level course work. The objective of this study, therefore, is to explore the defining characteristics of college-level course work in a Maryland community college and university. The exploration of the defining characteristics of college-level course work may be valuable for several reasons. The lack of a working definition for college-level course work affects the transfer of credit which means that a community college transfer student may have to repeat one or more courses at the four-year institution or may have to take more than the required number of courses to obtain a baccalaureate degree. This delay in degree completion has an economic impact on the student in terms of additional tuition and delay in entering the job market, and has had major implications for federal financial aid recipients and the cost to taxpayers (Bender, 1990).

The academic image of the community college has been questioned by four-year colleges and universities because of

its open-access policy, its predominance of vocational/occupational course work, the extent of its remedial education program, and its alleged declining academic standards. Richardson et al. (1983) presents the academic situation at an open-access institution in his Literacy in the Open-access College. He quotes Boyer and Hechinger (1981) noting that the changes

in the characteristics of those matriculating are only one part of the picture....once admitted, a more diverse clientele has exerted steady pressure on curriculum and teaching methods (p. 1).

Grading procedures have been altered in many open-access colleges to allow withdrawal through the last day of class without penalty. As a result, those who would fail at college simply withdraw and, if they wish, return the following semester. Financial aid policies have placed pressure on institutions to broaden the definition of courses that may be counted for degree credit The failure of many open-access institutions to monitor their students' progress has led to "public skepticism about institutions' concern for students as learners" ... (Richardson, et al., 1983, p. 1).

Two-year institutions want to ensure that every course designated as a transfer course or as general education will be transferable to a receiving institution. Four-year

institutions want to be sure that the courses they are expected to accept in transfer meet the same standards required within their own curricula. Some university faculty have contended that many community college courses, though seemingly comparable based on catalog descriptions, lack the depth, rigor, and breadth of subject matter taught in the first two years of a baccalaureate institution (Dziech & Vilter, 1992). There needs to be a general philosophy that permits the application of course credit where appropriate even when there is not an exact course equivalent within a receiving institution's curriculum. Underlying this philosophy should be the defining characteristics of college-level course work. The defining characteristics of college level should be identified if transfer of course credit is to be equitable and if transfer students are to be prepared academically to continue their baccalaureate studies.

Because of the limited academic preparation of many of their students, community college instructors have lowered academic standards and student requirements (Richardson et al., 1983). Instructors have required little if any outside reading. Objective tests have been utilized rather than essays because of the poor performance by students on essay exams. Lowering academic standards also means that rote memory is acceptable and often students have not been

required to synthesize information or think critically.

Many students attend their local community college with the goal of transferring to a four-year institution to complete their baccalaureate studies. These students enroll at the community college to earn lower-level (freshman and sophomore) general education credits. Lowering academic standards means that students who plan to transfer, or to sit for certifying exams, may not have the prerequisite preparation to succeed at the junior level of four-year colleges or universities, or to be successful on exams.

Transferability of course work from two- to four-year colleges is often not an easy process. The economic and time factors inherent in transfer are important factors for many groups (i.e. students and taxpayers). The student population is mobile, with students transferring from one institution to another at an expanding pace. If students are required to repeat courses, or take additional credits after transfer, this proves costly to the institution, the state and/or local funding bodies, and to the student's tuition, and room and board, and extended time before entering the job market.

Many state legislatures are mandating the strengthening of academic programs in high schools and college (Bender, 1990). Without the defining characteristics of college level, there is no objective way to evaluate if appropriate

standards are being met. It is important to be able to verify lower division collegiate level courses with standards of rigor in order to satisfy the four-year point of view (Bender, 1990).

Delimitations of the Study

The study was limited to the discipline areas of English composition and literature, and mathematics. The findings of exploratory research should be generalized with caution to other populations with similar characteristics.

Limitations of the Study

This exploratory study was conducted with professors at Maryland's largest public university and its largest community college, utilizing the technique of elite-interviewing. The elites in this study were identified by their colleagues and selected for interviews based on their expertise in areas relevant to the research (Marshall & Rossman, 1989). Those chosen for this research have expertise in teaching college-level course work and have worked as advisers to college students. In addition, many of those interviewed have worked on articulation issues. Interviewees were chosen in consultation with the Assistant Vice President for Undergraduate Affairs at the university, and through the researcher's personal knowledge, in

consultation with the instructional deans at the community college.

Potential bias is introduced into any study that uses impressions and opinions of interviewees as a major source of data. Researcher bias also poses threats. Included among the problems are difficulties in establishing rapport with interviewees, biased questioning, and preconceived ideas about the existence and relative importance of certain factors in the analysis of data. The following steps were taken to reduce these sources of bias: taping of interviews; recording in a journal the impressions of interview situations; and, the use of the same broad general questions and probes.

Chapter Organization

The first chapter presents the rationale for the study and consists of the introduction, the statement of the problem, the purpose statement, and research questions. Chapter I also includes a section on the significance of the study, the delimitations and limitations of the study, and definitions of terms used. Chapter II includes the literature relating to standards in higher education, the history of the community college tracing the evolving academic reputation of the community college, and the references to characteristics defining college-level course

work. In Chapter III, the method used, selection of the sample, and the procedures for collecting and analyzing the data, as well as the method associated with interviewing are presented. Chapter IV presents the data analysis and findings in the form of patterns and associated categories derived from interview responses. It also presents data related to the research questions. Chapter V summarizes the study, provides interpretations and conclusions related to the research questions, and presents recommendations for further study.

REVIEW OF THE LITERATURE

Introduction to the Review of Literature

This chapter provides a conceptual background for questions addressed by the study as well as the theoretical basis for the research design. The review of the literature focuses on: 1) the issue of academic standards in higher education, 2) an historical perspective of the community college in the United States, 3) the academic reputation of the community college, and 4) current references to the characteristics defining college-level course work, including issues surrounding the need for an exploration of the defining characteristics of college-level course work.

Academic Standards in Higher Education

There is an appalling incoherence in American higher education and there has been an inability or unwillingness to take common action to rectify this incoherence (Adelman, 1986; Cohen & Brawer, 1987; and Rudolph, 1977). Colleges and universities appear to have made no attempt to integrate pedagogy into any single type of undergraduate curriculum (Carnegie, 1987), resulting in no absolute standards regarding college curriculum (Cohen & Brawer, 1987). We have unfortunately lost any definition, if there ever was one, of what clearly distinguishes between pre-college and

college-level academic work (Adelman, 1986). There is a national academic accounting system that translates the undergraduate experience into units and grade points that are accepted despite wide variations in the content and quality of instruction (Carnegie, 1987). The degrees offered at American colleges simply record the successful completion of a number of requirements--generally common to most institutions, but which vary greatly in specific detail as to their intellectual content, subject matter, rigor, and difficulty (Carnegie, 1987). The diversity among higher education institutions leaves colleges without generally recognized reference points in the quest for quality (Carnegie, 1987). Course content and level are seldom considered when students transfer credits from one college to another, but content and level are a consideration for community college transfer students, whose course work is often not considered by some as college level. This concern is discussed in more detail later in this review of the literature.

In 1984, two national reports on higher education were published. The National Institute for Education (NIE)'s report entitled Involvement in Learning: Realizing the Potential of American Higher Education was a response to A Nation at Risk; The Imperative for Educational Reform which is a study of elementary and secondary education in the

United States. NIE's report presents its perception of the decline of American undergraduate education and included in its warnings a need for "an assessment of stated academic and social standards" (Simpson & Frost, 1993, p. 14). The second report published by the National Endowment for the Humanities (NEH), To Reclaim a Legacy: A Report on the Humanities in Higher Education, suggests a reshaping of the undergraduate curricula (Simpson & Frost, 1993). In 1985, the Association of American Colleges (AAC) published Integrity in the College Curriculum: A Report to the Academic Community which looks at "the faculty's role in curriculum decay" (Simpson & Frost, 1993, p. 14). The AAC report states "that undergraduate courses lack structure, and suggests incorporating a framework in the curriculum that includes processes, methods, and modes to develop understanding and judgement" (Simpson & Frost, 1993, p. 14).

In 1987, the Carnegie Foundation for the Advancement of Teaching, published College: The Undergraduate Experience in America. The author, Ernest Boyer, surveyed 500 faculty and 4500 undergraduates and documented widespread deficiencies among which is the lack of purpose in the college curriculum (Boyer, 1987, cited in Simpson & Frost, 1993).

In addition to the publications of formal education organizations, individual writers published their opinions of the state of American higher education. In 1987, Allan

Bloom published The Closing of the American Mind: How Higher Education Has Failed Democracy and Impoverished the Souls of Today's Students. Bloom's opinion is that the higher education curriculum lacks breadth and includes a "proliferation of trendy composite courses" (Simpson & Frost, 1993, p. 16). Derek Bok, former president of Harvard University, in his publication Higher Learning, asks how well America's universities "are educating their students and how they can improve" (Simpson & Frost, 1993, p. 16).

The majority of publications looking at the problems in higher education "take aim at the professoriate and its commitment or lack of it, to good teaching" (Simpson & Frost, 1993, p. 16). Two highly critical works on higher education Prof. Scam: Professors and the Demise of Higher Education and The Hollow Men: Politics and Corruption in Higher Education by Charles Sykes point to faculty as one of the most serious problems in America's higher education (Simpson & Frost, 1993). Economist Martin Anderson in Impostors in the Temple, and Roger Kimball, managing editor of The New Criterion in Tenured Radicals: How Politics Has Corrupted Our Higher Education and Page Smith, founding Provost of the University of California at Santa Cruz, in Killing the Spirit: Higher Education in America, all point to the faculty as being the problem with the decline in American Higher Education (Simpson & Frost, 1993). It

appears that well-researched publications are balanced with independent observers, and the conclusions are similar--there needs to be an increased emphasis on good teaching. Experimentation in colleges has led to new structures, new goals, and different abilities of students--and not all efforts are compatible (Carnegie, 1987), leading to what Daniel Bell feels has been a disintegration of college curriculum (Keller, 1983). According to a 1992 report by the Aspen Institute, critics of American higher education note that there are widespread concerns about the quality and the content of the curriculum and criticisms of college faculty have increased. There are concerns about how much and what college students are learning, and there is an apparent lack of a strong interest in some higher education circles on measuring educational outcomes in order to make this determination. The Aspen Report states that the weight of available evidence confirms that too little learning is currently occurring in general at the undergraduate level. Also noted in this report is that effective teaching is critical and often goes unexamined as a component in determining how much learning occurs. Dissatisfaction is felt by many faculty members and administrators as well as students. Colleges and universities must change the fact, as well as the appearance, of low standards by increasing academic rigor (Aspen, 1992). This point has even been made

by college students. Disgruntled undergraduates from 13 institutions demonstrated their concern when they held two conferences at Syracuse University during the 1980s devoted to figuring out ways to press their colleges to raise academic standards. Former Harvard President Bok is quoted as stating that undergraduate education has been accused of "winding down toward mediocrity" (Aspen, 1992, p. 20). Robert Samuelson who writes for Newsweek and the Washington Post, and who was quoted in the Aspen Report, characterized colleges in general as "educationally undemanding and economically wasteful. They are a symptom of low educational standards..." (1992, p. 21). The Aspen report continues, pointing out that there are shaky cognitive outcomes among those who pass through America's higher education system.

American colleges and universities are extremely divergent--with many goals and missions. This diversity, while offering obvious advantages, also has shortcomings. Diversity conceals the question of whether or not there should be some common characteristics which define the education colleges offer their students (Carnegie, 1987). What is meant by college-level skills is ill defined and varies considerably from college to college (Carnegie, 1987). There is general indecision about where the institution's responsibilities for teaching elementary

skills end and where the colleges' responsibilities for teaching advanced-level skills begins (Carnegie, 1987).

Although higher education is partially controlled by state budgets, courts, federal legislation and guidelines, new state commissioners of higher education, and newspaper editors, higher education must shape their own destinies in ways that are acceptable to the public and its elected leaders (Keller, 1983).

There are fundamental differences between two-year colleges and four-year colleges which involve faculty and administrator's attitudes about the importance of knowledge, standards, and the academic experience itself (Eaton, 1988). Community college courses intended for transfer are deemed college-level by definition (Eaton, 1994). The four-year colleges agree that community college courses are college level when they accept them in transfer. However, four-year colleges are more apt to assign a greater quantity of reading assignments and use written assignments as a basis for evaluating students, than are two-year colleges (Smith, 1983, cited in Eaton, 1988). Faculty members at both two- and four-year institutions say that there is less rigor in the community college classes (Richardson & Bender, 1986, cited in Eaton, 1988). Community colleges need to utilize the same academic standards as the four-year colleges in order to prepare their transferring students for

baccalaureate study.

History of the Community College

Community colleges were established in the early 1900s as junior colleges, their main purpose being to relieve the four-year institutions from the task of orienting first and second year college students to higher education and to free the university to do research and advanced studies (Brint & Karabel, 1989). From the beginning, the two-year college functioned as a multi-purpose institution. The early junior colleges were founded as relatively small institutions, for traditional college-age students and provided the first two years of a liberal arts education. (Astin, 1993; Eaton, 1994; McGrath & Spear; and Rudolph, 1977). The 1922 American Association of Junior College definition of junior college was "an institution offering two years of instruction of strictly collegiate grade. These courses must be identical in scope and thoroughness, with corresponding courses of the standard four-year college" (Bogue, 1950, cited by Cohen & Brawer, 1991, p. 4). While vocational programs were part of the early junior college curriculum, they were seldom an important part of the offerings (Brint & Karabel, 1989). Among the junior college presidents surveyed in 1917 and 1918, 90 percent said that the public demand for greater educational opportunity was an

important reason for the founding of their colleges, and 50 percent said that it was the most important reason (McDowell, 1991, cited in Brint & Karabel, 1989). None of the leaders of the early junior college movement favored an exclusively vocational curriculum. They believed that general education courses should be a part of even the occupational curriculum and that transfer curricula should be an option in all colleges (Brint & Karabel, 1989).

During these early years, the university parallel programs were exemplary, with the career, technical, and remedial programs clearly distinguishable from the transfer program (McGrath & Spear, 1991). In 1932 the Carnegie Foundation for the Advancement of Teaching, issued a report strongly endorsing the fact that transfer preparation should no longer be the primary function of the junior college and that terminal education should be the focus (Brint & Karabel, 1989). This report started a controversy over program emphasis which remains unresolved.

Junior colleges changed considerably over the next 50 years. They began to serve a different clientele, one which was part-time, adult, and interested in vocational or terminal occupational studies (Astin, 1993). The once dominant transfer function became one of several important functions and the liberal arts curriculum no longer occupied the important position that it did earlier (McGrath & Spear,

1991).

By the end of World War II, the junior college had expanded its purpose to serve veterans through open access and more occupational training. While junior colleges continued to offer college transfer courses, the shift in emphasis meant that junior colleges offered less liberal arts and transfer programs causing the traditional collegiate function to become less important (Eaton, 1994). The junior colleges were further affected by the Servicemen's Readjustment Act of 1944 (the G.I. Bill). This bill provided extensive federal funds for returning veterans not only for tuition, but also for living expenses (Eaton, 1994). The G.I. Bill provided for the first large scale financial aid packages and as a result, the college enrollment increased and continued to do so until 1970. The G.I. Bill not only led to a more non-traditional student population with the return of older servicemen, it also opened up the opportunity to attend college to those who might not have considered it before. The G.I. Bill, along with other federal funding, provided money for career education as well as liberal education which led to growth in vocational education programs in higher education.

In 1947 the President's Commission on Higher Education, known as the Truman Commission, recommended that the junior colleges be formally renamed community colleges. The

Commission expressed its belief that America should break down its barriers to educational opportunity at the post-high school level. Because of its decided egalitarian focus, the Commission suggested that the community colleges promote their open-access policy and provide accommodations to serve the under-prepared student who would now be admitted.

By the early 1960s, the major community college functions were general education, transfer, and preparation for entry level employment, with remedial course work offered for those not prepared for college-level work. The student population consisted of recent high school graduates from families whose economic status was generally above the poverty level. There was a clear distinction between transfer course work and vocational education. This distinction was part of a federal requirement that vocational education be stipulated as terminal as a condition of funding (Knoell, 1991). Although junior colleges in the early 1960s had open-access policies, there were no special efforts to recruit students from ethnic minority or other disadvantaged groups.

By 1970 the student population at the community college had changed as a result of the "dual assault from students oriented toward careers and from ill-prepared students" (Cohen & Brawer, 1991, p. ii). The term non-traditional

characterized the community college's students, who were part-time, older, working full-time, and included many more female students. In order to meet the needs of this group, community colleges began to develop evening programs and provide day care centers. The campus growth was further impacted by young men who sought to escape the draft and the possibility of going to war.

Changes in student population included a change in social class from which a majority of community college students came. A larger proportion of lower socio-economic background students began to enroll. Differences in social class imply, generally, less interest in general educational goals (Deegan & Tillary, 1985). The lower ability of community college students and their socio-economic background resulted in a less rigorous academic climate than is found in four-year colleges and universities (Deegan & Tillary, 1985). Open-access had begun to have a significant affect on the community college's lower-division, transfer programs that were intended to lead to the baccalaureate degree. The fall of high school student abilities in the 1970s caused academic expectations to be lowered which had a pronounced effect (Cohen & Brawer, 1987). By 1980, 90% of the community college enrollment in liberal arts classes was in courses with no prerequisite. There began to be a strong emphasis on occupational courses (Cohen & Brawer,

1987). The open-access concept led to a wide range of educational and quasi-educational programs and services, many of which were not at the college level and did not lead to a baccalaureate degree (Eaton, 1994). Cohen and Brawer (1991) noted that as the community colleges broadened the scope of their offerings, there was a transformation to more career education, adult-basic education, compensatory programs, and finally the drive to recruit and retain apathetic students.

By the mid-1980s, the community colleges had become comprehensive in nature, with their programs and services being offered to an increasingly diverse student body. Continuing education for non-degree seeking students became a major function. Developmental programs continued to grow in order to meet the needs of the growing number of students with serious educational deficiencies (Knoell, 1991).

Community colleges established equal educational opportunity and affirmative action programs to attract, prepare, and enroll students from previously under-represented groups. These efforts were successful in attracting disadvantaged students with various deficiencies in preparation, including some whose native language was not English. As a result, English as a Second Language programs began to grow dramatically (Palmer & Eaton, 1993). Highly urban areas began to build community colleges which

encouraged the enrollment of disadvantaged students who sometimes needed to earn high school diplomas or to acquire basic skills in courses that are not part of degree programs (Knoell, 1991). The American Council on Education (Palmer & Eaton, 1993) noted that community colleges in urban areas have offered a higher percentage of remedial courses than those in suburban areas. In 1980, Dale Parnell became President of the American Association of Junior Colleges, bringing a different focus to the community college. As the most consistent spokesperson for vocational education at the community college, Parnell believed that community colleges should be for career education. Parnell's concern for the education of the ordinary people was expressed through his belief that the community colleges should serve the middle quartile of the student population. Probably Parnell will be best known for his technical preparation (tech-prep) program which provides for an articulated program of study between the high school technical studies curriculum and the community colleges (Hull, 1993). These programs are articulated approaches between secondary and postsecondary education and are designed for those who do not plan to pursue baccalaureate degrees. The actual tech-prep curriculum covers the high-school years, grades nine through twelve, and the first two years of postsecondary education. If students plan to enter a university after high school

graduation, they commit to a carefully planned college-preparation curriculum in high school. If they choose tech-prep, they commit to a different but equally well-planned curriculum leading to an associate degree in a particular occupational area. Tech-prep was originally conceived as a two-plus-two (two years in high school and two years at a community college) program to give purpose, direction, and meaningful study to the middle-quartile, non-college-bound, general-track high school students. Through a structured curriculum opportunity, high school students could earn postsecondary credit for certain courses (Hull, 1993). Four year institutions have concerns about accepting credit which has been granted for courses taken at high schools, accepted for college credit at the community college, and then intended for freshman and/or sophomore credit in transfer.

Academic Reputation of the Community College

Community colleges have an image as less than academically rigorous institutions because they have open access, a preponderance of vocational courses, extensive remedial programs, and are perceived as lessening their academic standards to meet the needs of their student population (Brint & Karabel, 1989; Dougherty, 1992; Eaton, 1988; McGrath & Spear, 1991; Richardson, et al. 1983). Though well intentioned, the community college's rejection

of "national norms, cosmopolitan values, academic credentials, traditional standards and professionalism, as well as in its embrace of the local, parochial, anti-intellectual and familial," (Rudolph, 1977, p. 285) placed itself beyond consideration except in a limited sense, as a college. Courses in the sciences have tended away from teaching research and experimental methodology toward terminology and concepts useful for understanding the effects of various treatments (Cohen & Braver, 1987). Cohen and Braver (1987) state that community colleges provide specialized courses for students with particular occupational or personal interests. Such courses have been developed in philosophy, especially ethics, and in mathematics, where computer science and technology have grown rapidly. Cohen and Braver (1987) also note that over 1/3 of all community college offerings in English and math are remedial. The threat to the "academic content of community college education did not come from career education. In fact, the technical programs often made rigorous demands on their students. The threat to the academic programs at community colleges came from colleges that offered a few presentations on television, a sizeable number of community service programs, and credit courses in hundreds of locations with non-credit options--all with no attempt to ensure that the presentations were educative"

(Cohen & Brawer, 1991, p. 342). Eaton (1994) notes that through shifts in emphasis such as these, community colleges have "become ambiguous sites of quasi-educational opportunity" (p. xi). The threat to the academic content of community college education came also from the colleges' proudly stated policies that encouraged students to drop in when they want, take what they want, and drop out when they want--a policy which results in the ultimate in curricula disintegration. Many community college administrators take pride in their role in the economic development of their community, but regardless of the success of these programs, their institution loses its credibility if they do not also offer strong academic programs (Cohen & Brawer, 1991). The community college, while acting as a mote for higher education, "has generalized opportunity and cushioned failure. It has held out the promise of economic and social mobility and also verified low intellectual, social, and economic status" (Rudolph, 1977, p. 286).

When community colleges began to offer terminal one- and two-year occupational programs for those who were not interested in or unable to pursue a bachelor's degree, it was not considered that they would become extensively involved with remedial work, duplicating programs previously associated with public secondary schools (Richardson et al., 1983). The cloud over the community college mission exists

because many significant courses are at the developmental level. The population of open access students consists of the urban and rural poor or working class; various ethnic minorities, displaced homemakers or the new unemployed, and the lowest achievers from high school--a population which can hardly be thought of as college material (McGrath & Spear, 1991).

During the 1950s and 60s, one of the criticisms leveled at community colleges was that many of the community college liberal arts courses were taught by faculty recruited from high schools and so became modified versions of secondary education courses (Cohen & Brawer, 1987). However, this was countered by those community college instructors from the university graduate programs, who maintained that the courses they taught were just like those offered in the universities (Cohen & Brawer, 1987). Social critics such as Karabel (1972, 1974) and Clark (1960) allege that open-access colleges have perpetuated social inequities (cited in Richardson et al., 1983). Brint and Karabel (1989) were particularly harsh in their opinion that public two-year colleges brought to higher education the comprehensive model of American secondary education which includes open access, as well as relatively weak differences between curricular offerings and service opportunities. Community colleges are perpetually defending themselves against criticism because

of their comprehensive mission (Deegan & Tillary, 1985). Research has indicated that the open-access policy of the comprehensive community college has allowed many ill-prepared students to enroll (McGrath & Spear, 1991). Affirmative action efforts and active recruitment of minorities and non-traditional college students has increased these ranks (Knoell & Medsker, 1965). Students from lower socio-economic populations have less of a sense of the American higher education model (Knoell & Medsker, 1965), experience academic difficulty, and affect the academic environment of their institutions (Knoell & Medsker, 1965; McGrath & Spear, 1991). The community college's comprehensive mission and concerns about the academic quality of the community college affect its status within the higher education community (McGrath & Spear, 1991). Community colleges employ a large number of part-time faculty, often reaching over 40% of the faculty ranks. These faculty have no ownership in the institution and are believed to reduce the collegiate control of the curriculum (Richardson et al., 1983). There is a perception that part-time faculty do not provide for meeting prerequisite knowledge for the next course. The nature and quality of instructors lead to skepticism and doubt on the part of the four-year schools, and make the community college level of instruction vulnerable to question (Bender, 1990).

The fall of student abilities in 1970s caused academic expectations to lessen. This had a pronounced effect and by 1980, 90% of community college enrollment in liberal arts classes was in courses with no prerequisite (Cohen & Brawer, 1987). In addition, there began to be a strong emphasis on occupational courses (Cohen & Brawer, 1987). During the seventies, several factors began to affect the community college's student population. There were decreases in the traditional college-age population overall (Richardson et al., 1983). Two-year colleges began to feel the need to seek new missions because the four-year institutions had begun to offer remedial instruction; and the decrease in traditional student populations in general caused college enrollment at both types of institutions to be low. The community colleges in response began to offer almost any educational program to almost any clientele (Richardson et al., 1983). They began to gear their programs to the demands of the market place rather than to traditional views of what ought to comprise a college education (Richardson et al., 1983).

The diverse student population at community colleges has exerted steady pressure on curriculum and teaching methods (Boyer & Hechinger, 1981; cited in Richardson et al., 1983). Fewer demands have been placed on students-- fewer term papers, essay exams, and required reading lists.

Open-access community colleges have had difficulty promoting standards for critical literacy, which has caused a credibility crisis at the four-year schools (Richardson et al., 1983). The area of competence most affected by the leveling down process has been literacy. Richardson (1983) raises the question as to whether the democratization of higher education has been achieved by leveling up the disadvantaged sectors or leveling down the opportunities previously available only to more advantaged groups of learners. As the student population at the community college has become more representative of the population at large, the standards of literacy have begun to approximate the standards that prevail in society at large (Richardson et al., 1983).

The open access of the community colleges has resulted in a completely changed academic culture; one that is quite different than is found in traditional colleges (McGrath & Spear, 1991). Students do not live up to expectations at many colleges, but at community colleges the students publicly challenge the appropriateness of academic requirements. Students fail, but at the community college it is often the teacher who is regarded with suspicion. Students at community colleges form an oppositional culture and the faculty often accede to its formation and maintenance--giving in to lower standards (McGrath and

Spear, 1991). Community colleges should emphasize the value of such academic practices as writing, interpretation, argumentation, and analysis. There needs to be a battle for rigor, substance, and distinctiveness in community college education, as these colleges answer the question, open access to what? (McGrath & Spear, 1991).

Grading procedures have been altered in many open-access colleges to allow withdrawal through the last day of class without penalty. Eaton (1988) notes that the community colleges' grading standards are often norm referenced [how students perform in relation to others taking the same class] while in the university, standards are criterion referenced [measured against a standard that does not change with variations in preparation or aptitude of others in the course].

Failure of many community colleges to monitor the student's progress has led to public skepticism about the institution's concern for students as learners (Richardson et al., 1983). Attendance of large numbers of non-degree seeking students has led to a de-emphasis on advanced courses. There are those who believe that the open-door policy has led to a leveling down of standards (Cohen & Brawer, 1991; Eaton, 1988; McGrath & Spear, 1991; Prager, 1993; Richardson et al., 1983). The community colleges, in order to take advantage of funding formulas, ensure student

eligibility for financial aid, thereby preventing discouragement on the part of the student, have begun to offer many remedial courses for college credit (Deegan & Tillary, 1985; Richardson et al., 1983).

Due to open admission policies, and the resulting substantial remediation programs, courses at the Associate in Arts level "are being watered down to accommodate limited academic abilities" (Prager, 1993, p. 39). This leveling down of course content, expectations and requirements resulted from the meeting of nontraditional students with a traditional faculty, ill-prepared for the task of teaching this population. What developed was that the faculty were unable to improve student skills enough to meet their traditional expectations, and they renegotiated with students regarding classroom relations, academic norms, and intellectual practices (McGrath & Spear, 1991; Richardson et al., 1983). Community college courses are no longer taught with the same attention to theory and detail found in the university (Eaton, 1988). When instructors lessen their expectations, or lower their standards, they transfer less complex information to students via lectures; they demand less literate behavior from the students by replacing term papers and essays with multiple-choice exams. The norms of literate activity gradually dip as the rigor of academic work is negotiated away. When one has students who are

mostly "requirement meeters" and specific or nonspecific information users versus faculty whose goals are information disseminators the response will be the watering down of requirements (McGrath & Spear, 1991).

University faculty contend that many community college courses, though similar in the catalog description, lack the depth and breadth of subject matter taught in the first two years of a baccalaureate institution (Prager, 1993). Faculty at the four-year institutions feel that they have no effective way to judge quality of courses or curricula at community colleges (Prager, 1993). It appears that individual community college faculty modify courses so that they come to bear little resemblance to official catalog descriptions (McGrath & Spear, 1991). Faculty in four-year institutions want control over the nature and quality of the courses that satisfy various degree requirements (Knoell, 1991).

For more than a quarter of a century, even students of the community colleges have deplored the decline in quality (Prager, 1993). Richardson and Bender's 1986 study states in the words of a community college student that these colleges should better prepare their students for longer and more complex reading assignments. The exams should be more difficult and they should be structured for testing a student's knowledge of the materials instead of simply

memorization and recall (Eaton, 1988). Qualified students who wish to earn legitimate college and occupational credentials are handicapped by college-level courses that are taught at less-demanding levels in order to accommodate under-qualified students (Deegan & Tillary, 1985).

Identity or image remains one of the most serious concerns of community college educators--a concern that has been with them almost from the beginning (Cohen & Brawer, 1991). It is necessary for community colleges to stress quality as well as access. Unless community colleges offer quality education, the promise of access is empty (Raisman, 1993). Community colleges need guidelines to improve--recognized reference points in an attempt to verify the quality of the education they provide (Eaton, 1988; Cohen & Brawer, 1991; Deegan & Tillary, 1985).

Transfer Issues

The widespread lack of clarity about the requirements and standards of college-level course work affects the transfer of college credit. Even within the same state system of higher education, courses which transfer to one institution, may not be acceptable for transfer by another. Though there are viable reasons for lack of transferability, there are cases where the reasons are not obvious, and there is little recourse for the sending institution or the

student. This situation exists even though the institutions involved both are accredited by the same accrediting body.

Noncompliance in transfer often occurs because four-year colleges believe community college course work is not college level (Dougherty, 1991; Mellander & Robertson, 1992; Richardson & Bender, 1986). In addition, four-year colleges are uncertain about what is to be required of those community college students who apply for advanced standing, especially those students who did not meet the four-year requirements on graduation from high school (Knoell, 1991; Palmer & Eaton, 1993).

Community colleges use college parallel, college transfer, and college equivalent, to describe their academic programs. However these programs are described by the community colleges, many four-year colleges are reluctant to take community college transfers, accepting them only if it is not possible to fill their classes with their own freshmen as they proceed to the sophomore and junior year (Dougherty, 1992). When students do transfer, their lower-division credits are less often recognized by senior colleges. Students lose credit because four-year colleges demand course equation rather than course comparability based on learning outcomes (Prager, 1993). Four-year colleges routinely refuse credit for community college courses that have no counterpart in their curriculum, such

as many vocational education courses. Moreover, four-year colleges often deny credit to courses that they consider as belonging in the upper division. Four-year colleges often give no credit, or only partial credit, for community college courses for which a student received a "D", although four-year native students are not so penalized (Dougherty, 1992). Community colleges have been criticized for often making little effort to ensure that their transfer courses indeed parallel university courses in credit hours, rigor, course sequencing, and prerequisites.

Each course has a cost for the State and, at many community colleges, for local jurisdictions as well. When students have to earn the same credits twice, the public pays for those courses twice. One promising method of resolving transfer problems is statewide agreement by faculty in various disciplines as to the lower-division requirements in various discipline areas. Established standards and criteria would be helpful to serve as guidelines for every public institution as they evaluate courses intended for transfer. The Maryland Higher Education Commission has designated an intersegmental study group to develop the definitions, agreements and policies necessary to implement transfer policy statewide (personal communication, Maryland Higher Education Commission, Spring 1990) (see Appendix H). Dougherty (1992) argues that there

needs to be a discussion as to why things do not transfer; it is his opinion that it is due to lower standards and expectations at the community college. Those who call for higher standards in community colleges include Taylor & Rendon (1991), McGrath & Spear (1991), Grubb, (1992), and Dougherty, (1991). Even where two-year colleges are branches of four-year institutions, transfer is difficult because senior faculty are uncertain about the abilities of two-year students to complete four-year programs (Prager, 1993). There is clearly an urgent need to develop more coherent guidelines to serve the large number of transfer students who expect and deserve to continue their education (Prager, 1993). Prager goes on to question how long institutions can continue to ignore course work already completed in a two-year program in this era of rising costs to higher education consumers (1993).

For more than a quarter of a century, students of the community college have deplored the decline in quality and quantity of community college transfers to senior institutions (Prager, 1993). A successful transfer function depends less on what specific courses students take than on the strength of the classroom and the closeness of the fit between the academic cultures of the community college and that of the university (McGrath & Spear, 1991). Transfer is tied to the large issues surrounding higher education in the

United States. The renewed emphasis on transfer challenges institutional assumptions and values (Palmer & Eaton, 1993). Transfer is a function of teaching and learning and not simply a procedural matter dealing with program articulation and credit transfer (Palmer & Eaton, 1993). Two- and four-year colleges need to look at ways curricula, pedagogy, and academic standards shape transfer opportunities for community college students (Palmer & Eaton, 1993).

The reason for grade shock upon transfer is the tougher standards of the four-year college (Dougherty, 1992). Poor preparation at the community college compounds this situation (Dougherty, 1992). In addition, transfer shock due to differing academic cultures is one of the reasons cited for the low degree completion rate of community college transfer students (Townsend, 1993). Over the years, university parallel courses at the community colleges have become weaker with the central concern being course matching (McGrath & Spear, 1991). The trend at community colleges toward less than college-level instruction has accelerated and the expectations in collegiate courses have changed (Cohen & Brawer, 1989). The success of the community colleges in enrolling large numbers of non-traditional students has affected what they offered (Cohen & Brawer, 1991).

Demographic changes and the increased cost of higher

education have caused senior institutions to become increasingly dependent on community college transfer students. In many cases, more than half of the senior class at four-year colleges began their college work in community colleges (Melander & Robertson, 1992). Issues of transferability of course work and transfer student preparedness to do upper-level four-year college work are becoming increasingly important.

While all of higher education would benefit from guidelines for college-level course work, it is particularly important for the community colleges because of their image as less than college-level academic institutions. The lack of coherence in higher education in general makes it difficult for community colleges to utilize any criteria in the development of their curricula and to counter the questions raised about the academic level of their course work. There are, according to the Chronicle of Higher Education (1993), 1,480 two-year colleges as of 1994, with 5,404,815 students in attendance at publicly supported two-year colleges. Approximately 20 to 22% (Cohen, 1993; Hull, 1993) of community college students transfer to four-year institutions with the intent of completing a baccalaureate degree. These numbers indicate that transfer is of great importance on the community college campus. "Transfer is important because the community colleges serve as the point

of first entry into higher education for many people who would not otherwise be able to attend college. More than 1/3 of the people beginning college in America begin in a community college and the figures are much higher for members of minority groups. These institutions are an essential component of a democratic system of higher education--one that seeks to acculturate the citizenry and to make opportunity for further education available to all" (Cohen, 1984; testimony before California Post-secondary Education Commission). To facilitate the success of transferring students, two-year community colleges have an obligation to ensure that students receive collegiate-level instruction (Eaton, 1988).

Eaton, (1988) cites Bender and Richardson's study which indicates that the fundamental difference between two- and four-year institutions involves faculty and administrator's attitude about the importance of knowledge standards, and the academic experience itself. This has important consequences because pedagogy may affect the college level of a course. (Cohen, 1987; Eaton, 1994; Rudolph, 1977; McGrath & Spear, 1991).

College Level

What is meant by college level is ill-defined and varies considerably from college to college (Carnegie,

1987). However, references to college-level course work do appear scattered throughout the literature (Adelman, 1986; Campbell, 1993; Cohen, 1987; Eaton, 1994; McGrath & Spear, 1991; Richardson et al, 1983; and Willingham, 1977).

According to Frances Ferguson, Vice President for Academic Affairs, Bucknell University, (Adelman, 1968), college-level learning has much to do with the liberal arts, with the development of the capacity to analyze, problem solve, communicate, and synthesize. Above all, it is important for college students to develop the ability to synthesize. High school students can be taught to analyze, but they are more likely to accept the authority of their teachers. College students are at a stage in their personal maturation when analysis for individual understanding is important, but they should also learn to put together the parts of their experience to become mature, independent adults. Emphasizing analysis creates students who are better at pulling things apart than they are at putting things together. "Synthesis is the hardest ability to develop and it relies on a prerequisite breadth of knowledge acquired through a truly liberal education ..." (p. 29).

Alison Bernstein of the Ford Foundation, characterizes college-level learning as those courses that are not offered in most high schools, e.g. logic, anthropology, Latin American history, art history, history in general (not the

social studies concepts taught without chronology), real economics, political science, and certain forms of math, such as calculus. Each offers a conception of reality. These college courses are taught, or should be taught through original texts, not mediated texts. To know that college-level learning is taking place, true/false and multiple-choice tests should be abolished. Students should be graded on the quality of their thinking. College-level learning is synonymous with continuous and disciplined writing (Adelman, 1986). Writing is essential to college-level learning since it disciplines thinking in a way that speaking does not (p. 30). Whenever college students study they need to write--when they read, take notes, work problems, and prepare for examinations. Journal writing is encouraged if not required by many college professors. This private writing provides students with a way to think on paper (Campbell, 1993). There is a fair amount of writing in classes beyond note taking and journals. This writing consists of short essays, term papers, lab reports, and essay examinations. Essay writing provides the opportunity to organize bits of knowledge around a central theme. Term papers require the student to gather large amounts of knowledge into one document. Lab reports require the student to think about the experiment and draw conclusions (p. 42). In college writing, students gather information,

process it in their minds, and transmit it to the written page (p. 43).

College-level learning is also about identifying and manipulating theories, concepts, and abstractions. This type of learning should require in-depth involvement with the reality of a culture different from one's own, including the historical, geographical, language, gender, class, and race perspective (Adelman, 1986). College-level learning demands the testing of realities students already know against competing realities. It also demands an understanding of Western Civilization, not the historical conceptualization. Bernstein makes the point that college-level learning is about generating questions, not finding answers (Adelman, 1986).

Employers would like for college graduates to have the ability to communicate, to analyze situations, and to identify alternative solutions, as well as to have the human relations skills necessary to deal effectively and maturely with other employees and customer (Adelman, 1986).

While no group of educators can agree on what must be known by everyone, Cohen (1991) states that minimum standards, specific objectives, and enforced prerequisites in [community college] curricula can be sustained. Many local and state policy makers are beginning to suggest that such sequences will be enforced if not done voluntarily, and

as a result community colleges will gradually but steadily gain additional approbation and respect from their constituents (Cohen, 1991).

An academic culture values reasoned inquiry and principled dispute (McGrath & Spear, 1991). Abstract reasoning is necessary and the ability to handle ideas and language well. Reading and writing is a matter of mastering semantic, syntactic and orthographic correctness (McGrath & Spear, 1991). These skills are prerequisite to college-level learning. Critical reading and writing skills distinguish the educated and educable from the undereducated and functionally illiterate (Richardson et al., 1983). College level does not have to mean liberal arts, but that course content and level of intellectual challenge need to be present (Eaton, 1994). Cohen, (1987) in discussing liberal arts, states that it "forms the core of the curricular canon, a body of rule as strict and authoritative as any dogma set down by a church government" (p. 7). In the liberal arts, much derives from the doctrine of contemplation. Rigor, expectation, and pedagogy are critical aspects of academic culture (McGrath & Spear, 1991). Most college instructors "believe in the value of a liberal education" (Gardner, 1989, p. 65). The word liberal is a reference to the ability of education to free your mind. "The goal of a liberal education is to free you from

biases, superstitions, prejudices, and lack of knowledge that characterized you before you came to college" (p. 65). "To free you of these restraints it may be necessary to provoke, challenge, and disturb you by presenting you with new ideas, beliefs, and values that differ from your previous perspectives" (Gardner, 1989, p. 65).

Math and the hard sciences have rigidly structured disciplines, and they appear the safest from decreases in cognitive level (McGrath & Spear, 1991). One test of the level of a course is the degree to which it makes intellectual demands of its students; college-level courses teach reflection and use of intellect (Cohen, 1991). According to the American Council on Education, in college-level courses the emphasis is on learning basic principles that have broad judgmental applications. College-level courses generally involve specialization of a theoretical or analytical nature beyond the introductory level. Practices regarding collegiate level are writing, perfecting research, and problem solving, and pursuing subject matter outside the educational or career goal (Eaton, 1988). Several higher education discipline associations have developed criteria for their college-level course work. These professional organizations generally indicate what courses should be offered, the sequence of courses, and the topics that should be covered in each. In all, 38 learned societies were

surveyed by the Carnegie Council on Policy Studies in Higher Education in 1975, and it was determined that their main concern was with how their discipline is taught (Carnegie, 1977).

Three characteristics are often considered important in defining college-level course work. College learning should imply a conceptual as well as a practical grasp of the knowledge or competencies acquired; should be applicable outside the specific context in which it was acquired; and should fall within the domain usually considered degree credit (Willingham, 1977). Learning can be justified as college level by 1) relating learning to subject areas traditionally taught in colleges, 2) showing that it is at a level of achievement equal to what is normal in college; 3) comparing specific learning to that acquired in college-level work; and 5) identifying learning as that acquired after high school and expected for professional acceptance (Willingham, 1977).

College students need to be able to explain, summarize, and arrange information. Writing in college involves more than mastering the mechanics of grammatical structure and punctuation or logic; significant achievement is appreciating the essentially rhetorical nature of writing and thought (McGrath and Spear, 1991). Curriculum planning efforts will have better results in terms of student

outcomes if there is less focus on formal structure and content, and much more emphasis on pedagogy and other features of the delivery system (Astin, 1993).

In college, cognitive development consists of "three types of courses that seem to produce generally favorable outcomes: courses emphasizing science or scientific inquiry, courses emphasizing the development of writing skills, and interdisciplinary courses" (Astin, 1993, p. 423).

A number of pedagogical practices likewise seem to be associated with favorable cognitive outcomes: time devoted to studying and homework, tutoring, cooperative learning, honors or advanced placement courses, racial or cultural awareness workshops, independent research projects, giving class presentations, taking essay exams, having class papers critiqued by professors, use of personal computers, frequent student-faculty interaction, and frequent student-student interaction. Finding ways to encourage such activities will substantially enhance student learning (Astin, 1993, p. 424).

Specific criteria for college-level course work is available in the Advanced Placement Course Descriptions published by the College Entrance Examination Board (CEEB).

The purpose of the criteria is to assist high school teachers in preparing to teach an advanced placement course.

The CEEB Course Description for Advanced Placement English Language and Composition states that the course trains students to become skilled readers of prose written in a variety of periods, disciplines, and rhetorical contexts. The course gives them the practice and helpful criticism necessary to make them flexible writers who can compose in a variety of modes for a variety of purposes. The students' reading and writing should make them aware of the interaction between authorial purpose, audience needs, the subject itself, generic conventions, and the resources of language: syntax, word choice, and tone. The freshman composition course emphasizes the expository, analytical, and argumentative writing that forms the basis of academic and professional communication. The purpose of the course is to enable students to read and write prose mature enough in conception, development, and language to communicate effectively with adult readers on issues of some intellectual importance (CEEB, 1994). The handbook states that there is now general consensus that the freshman composition course develops the students' mastery of their own writing processes, particularly their ability to reconsider and revise their work. Students have the experience of writing several essays that are at least 1,000

words in length and that are taken through a process of drafting, response by peers and/or teacher, and substantive revision. The AP course assumes that its students already command standard English grammar (CEEB, 1994).

The College Board's Advanced Placement Course Description of College Math describes college math as either a year-long course in elementary functions and calculus or as an elementary functions course. The second course has as a prerequisite demonstrated knowledge of algebra, geometry, coordinate geometry, trigonometry, analytic geometry, complex numbers and elementary functions. College calculus is described as being primarily concerned with an intuitive understanding of the concepts of calculus and experience with its methods and applications. The differences between the two approaches named above is that one is a calculus course that emphasizes precise proofs of all theorems, which means rigor in the formal sense, and the other is a calculus course that states definitions and theorems correctly but defers some proofs until later (CEEB, 1994). It appears that prerequisite knowledge, or previous preparation, drives how these courses will be taught.

The CEEB descriptions of their advanced placement courses allude to characteristics of college-level course work. It is not clear how these course descriptions were determined but the researcher intended to compare these

descriptions with the findings of this research.

CHAPTER 3

METHOD

In order to explore the defining characteristics of college-level course work at a Maryland community college and university, the researcher used the qualitative research method of elite-interviewing was used. This method allows for in-depth exploration of the opinions of the individuals involved in the issue.

Procedures

The specific procedures in this study were:

1. development of interview questions based on the research questions and theoretical framework suggested by the literature;
2. selection of the sample and arrangement of interviews with participants in the study;
3. collection of data relating to the defining characteristics of college-level course work; and
4. analysis of the relationship and differences between and among the responses of those interviewed regarding college-level course work.

The following sections discuss the selection of the sample, the elite-interviewing method and interview questions used for data collection, and data analysis.

Selection of the Sample

The qualitative research method of elite-interviewing was chosen because that was how best to answer the research questions. Elite interviewing focuses on a particular type of respondent, one who is considered to be influential and well-informed in the subject being researched. Elites, identified as such by their colleagues, were selected for interviews on the basis of their expertise in areas relevant to the research (Marshall & Rossman, 1989).

The university chosen for this study is the flagship university, with a student population of approximately 35,000. It is located within 20 miles of the community college used in this study, and from which the majority of their community college transfer students come. The community college is a three campus college with a student population of approximately 30,000 full-time and part-time students. The rationale for the selection of these two institutions is that they are the largest public colleges in their categories in the state so there would be a sufficient number of full-time faculty from which to choose for interviews. The research design requirement was that there be interviews from a minimum of four English faculty from the community college and from the university for a total of eight English interviews (in fact, nine interviews took place; see Interview Method below). In addition the

research required interviews of four mathematics faculty from the community college and from the university for a total of eight interviews from the mathematics discipline.

Interview Method

The purpose of this exploratory study was to identify or discover the important variables which contribute to different faculty perspectives on the defining characteristics of college-level course work (Marshall and Rossman, 1989). The research strategy was a semi-structured in-depth interview technique known as elite-interviewing.

Elite-interviews with college professors currently teaching provided a useful and appropriate means of gathering focused data. Elite-interviewing is similar to theoretical sampling, described by Denzin (1978) and Glaser and Strauss (1967) as a form of sampling which involves the purposeful selection of those persons who offer the most theoretical relevance to the problem under study. The interview sample was chosen from professors of English and mathematics at two institutions. The choices were not random, but were taken from full-time professors with extensive experience in teaching and involvement in curriculum matters both at the local level and state wide. These individuals, who were identified by their colleagues, were chosen through consultation with the instructional

deans at the community college and the office of the Assistant Vice President of Undergraduate Studies at the university.

A broad, open-ended interview question was developed to gather information from the community college and university college professors, regarding the defining characteristics of college-level courses they teach. Follow-up probes were designed to gather information for answering the research question if the interviewee did not elaborate or was unable to articulate his or her understanding of the characteristics of college-level course work.

The open-ended interview question was aimed at eliciting a large sample of information in the professor's natural language. This question was designed to encourage the interviewee to talk about college-level course work.

The following was how the interviewer began:

I am asking a broad, general question, and I want you just to answer in all the detail that you can provide. I would like for you to describe the defining characteristics of college-level course work.

When the individual being interviewed had difficulty focusing on this topic, or had difficulty articulating his or her answer, follow-up probes were used. Probes were designed to keep the individual on the topic, or in the case where it was difficult for them to answer, provided

alternate ways to approach the subject of the interview. An example of a probe was as follows:

You have described several defining characteristics of college-level course work. Are there any other characteristics perhaps pertaining to student preparation?

The discovery of tacit knowledge, that knowledge which is outside awareness, represents the essence of this type of research. From tacit knowledge, important patterns often emerge that explain the phenomena under study. Interviewees who were having difficulty articulating what they believed to be the defining characteristics of college-level course work were probed in order to elicit tacit knowledge. Of the faculty interviewed, one community college English instructor and one community college math instructor expressed their inability to adequately define college-level course work. Through the use of probes the math instructor was able to focus, subsequently providing useful information. The English instructor decided not to continue the interview; a replacement interview was scheduled, and a short time after the initial interview, the community college English instructor sought the researcher out in order to elaborate on the first interview and her contribution to the study proved quite helpful. All but two of the interviewees, at some point during the interview, were skeptical of their ability to describe the defining

characteristics of college-level course work. At these times probes were used to develop the substance of the interview. In addition to gathering data through in-depth elite-interviews, the researcher kept a record of each interview, recording impressions that could not be captured in the taped or transcribed words of the interviewee.

After the first analysis of the interview data, four instructors were briefly interviewed a second time. These second interviews were used to clarify information from the first analysis of the data. For example, as cited earlier, one of the community college English faculty was unable to describe the defining characteristics of college-level course work at the initial interview. She contacted the researcher after she had reflected on the previous discussion, and provided an insightful description of the difference between high school writing and college-level writing. The researcher contacted the other three subjects in order to clarify statements from the transcript.

Data Analysis

Using content analysis, the researcher analyzed data to find patterns that helped to illustrate objective descriptions of what was communicated, and that were relevant to the objectives of the research. Domain analysis was used to identify objectively and systematically data

that could be grouped by categories. Domain analysis is a system of analytic induction used to study data for categories of information relevant to the problem being explored (Spradley, 1979). This technique requires the researcher to examine all the data, determine common patterns, and assign the data to categories of meaning. During the first reading of the transcripts, the researcher began developing a preliminary list of categories, "Taking the specific words and trying to fit them together under some generic code" (Bogdan & Biklen, 1992, p. 176.). This data analysis was a search for categories of meaning within the data being analyzed (Spradley, 1979). Each category consists of three basic elements: 1) cover terms, which are names for the categories; 2) included terms, which are the items or data bits from interviews which fit inside the category; and 3) semantic relationships, which link the cover term and the included terms (Spradley, 1979). The way this process was used in this study is described below.

Qualitative data analysis is a search for general statements about relationships among categories of data (Marshall & Rossman, 1989). The data analysis strategy of content analysis brings order, structure, and meaning to the mass of collected data. With these two concepts in mind, the researcher developed categories of data as a focusing device, using the first interview as the initial step in the

development of these categories, and expanding on these as the researcher analyzed later interviews.

Spradley contends that most meaning can be stated in one or more of the following nine semantic relationships. In the following list of these relationships, "X" represents the included term (data bit), and "Y" represents the cover term (domain of meaning):

- 1) strict inclusion: X is a kind of Y
- 2) spatial: X is a place in Y; X is a part of Y
- 3) cause-effect: X is a result of Y; X is a cause of Y.
- 4) rationale: X is a reason for doing Y
- 5) location-for-action: X is a place for doing Y
- 6) Function: X is used for Y
- 7) Means-end: X is a way to do Y
- 8) Sequence: X is a step/stage in Y
- 9) Attribution: X is an attribution or characteristic of Y

(Spradley, 1979, p. 93).

Coding of Data

Each interview was analyzed and the salient points highlighted to be later considered for inclusion in domain analysis. For example, as the researcher read through a transcript, certain phrases and terms occurred that related to issues and questions raised in the review of the

literature. This data was highlighted. Data cited by the interviewee as defining college-level course work was also highlighted. While the transcripts were being read, the researcher began a preliminary list of categories and in this way began to test the workability of the categories being created (Bogdan & Biklen, 1992). To see relationships readily during data collection and analysis, transcripts of mathematics faculty interviews were printed on green paper and transcripts of English faculty interviews on white paper. University faculty interviews were highlighted in red ink; community college interviews in blue ink. In addition, each data bit was coded with the initials of the individual interviewed. If a professor repeated a point several times, it would be recorded, but counted only once when the comparisons among and across disciplines and institutions was made.

Following a method described by Bogdan & Biklen (1992), the researcher cut up the interview transcripts so that units of data could be placed on poster board according to categories, utilizing domain analysis to determine the correctness of placement. There was a great deal of information to be categorized, and arrangement of data into categories was facilitated by having it all assembled in one place. The first attempt at assigning data to a category is a test to discover the workability of the category.

"Categories can be modified, new categories can be developed, and old ones discarded" during this phase of the analysis (Bogdan and Biklen, 1992, p. 176). Data bits were often moved from one preliminary category to another category consolidated from several preliminary ones. For example, the interview statement "I expect the student to study three hours outside of class for each hour in class" was initially considered a course requirement. It in fact, became part of the category maturity of the student. The data bit regarding the amount of study time outside of class, while a course requirement or expectation, is also what is expected of a mature student. Bogdan points out that "it is important to realize that you are not attempting to come up with the right coding system, or even the best. What is right or best differs according to your aims. You might look at the data again after you complete more research projects and code them differently" (page 176). The researcher must make decisions which will limit categories because "analysis is a process of data reduction" (Bogdan & Biklen, 1992, p. 177).

Each transcribed interview was read carefully to determine into which of the nine semantic relationships, and then into which category (domain), the response or part of the response fell. For example, one community college English instructor commented "it [college level] is the

level of thinking, the demands of thinking, of making connections at the college [level]." This comment obviously cites making connections as a characteristic of college-level course work as well as a level of thinking. The determination of the appropriate category for the first part of her statement was arrived at through domain analysis. The researcher decided that "the level of thinking, the demands of thinking" was a characteristic of problem solving through critical thinking, semantic relationship number nine (see page 69 of this document). The less-than-obvious sentence or sentence parts coded into a semantic relationship within a category (domain) were recorded on a domain analysis work sheet as follows: 1) the initials of the interviewee, 2) code for the institution and discipline, 3) the data bit, and 4) the semantic relationship and domain applicable to the data bit. (see Appendix E for domain sheet example). This system provided a means of tracking information for future reference, for instance when the researcher questioned previously arrived at categorization.

Theme Identification

Once domain analysis was applied to all interview data collected, the categories which emerged were searched for common themes that were repeated or noted as significant by the interviewees. There was a search for patterns across

both community college and university interviewees and across disciplines.

Generating Categories

Developing categories involves noting the similarities in the data. The researcher looked at the emerging categories to determine that they had internal convergence and external divergence (Guba, 1981); in other words, the categories should be internally consistent but different from each other. This involved "making decisions concerning when one unit of data ends and another begins. Often units of data will overlap, and particular units of data will fit in more than one category" (Bogdan & Biklen, 1992, p. 177). The researcher identified the salient, grounded categories of meaning held by participants in the study (Guba, 1981). Patton (1980) describes this inductive analysis as a process that uncovers patterns, themes, and categories, calling it "a creative process that requires making carefully considered judgments about what is really meaningful in the data" (Patton, 1980, p. 313).

Testing Emergent Hypotheses

As the categories and patterns emerged, the researcher began the process of evaluating "the plausibility of these developing hypotheses," which were the categories of

college-level characteristics (Marshall and Rossman, 1989, p. 118). Throughout the analysis, part of the process was to evaluate the data for their "informational adequacy, credibility, usefulness, and centrality" (p. 118). As part of the final analysis, the researcher had to decide whether or not the data were useful in illuminating the questions being explored and whether or not they were central to the issue under study. These decisions were made based on the issues raised in the review of the literature. For example, one section of the literature review was comprised of knowledgeable writers' opinions regarding college-level course work. The researcher compared the findings in this study with these opinions. The researcher also looked for defining characteristics that grew out of the research but were not part of the review of the literature.

Chapter IV

FINDINGS

This chapter contains the summary of findings from interviews with 17 college English and mathematics faculty from a community college and a public university in Maryland. Those interviewed were asked to describe the defining characteristics of college-level course work.

Description of the Sample

Approximately 600 typed pages of interview transcripts were analyzed, and the salient points highlighted and coded by discipline and by school. Each interview was summarized and noting the beginning point of discussion. The analysis of the first point made was inconclusive since no one began the interview from the same perspective, so this analysis is not included in the findings. The characteristics of college-level course work each faculty member discussed are summarized, using the words of the interviewees.

Sixteen full-time and one part-time (University Mathematics) professors participated, nine from the community college and eight from the university. This group of interviewees consisted of five English faculty and four mathematics faculty from the community college and four English faculty and four mathematics faculty from the

university. A profile of the faculty chosen to participate in this research follows.

Community College English Faculty - 5 full time

Professorial Rank	Degree Held	Teaching Experience
Full Professor - 4	PhD - 1	10 - 15 yrs: 2
Associate Prof. - 1	EdS - 1	21 - 25 yrs: 2
	MA - 3	26 - 30 yrs: 1

Community College Mathematics Faculty - 4 full time

Professorial Rank	Degree Held	Teaching Experience
Full Professor - 4	PhD - 3	10 - 15 yrs: 1
	SpA - 1	21 - 25 yrs: 2
		26 - 30 yrs: 1

University English Faculty - 4 full time

Professorial Rank	Degree Held	Teaching Experience
Associate Prof. - 3	PhD - 4	10 - 14 yrs: 2
Assistant Prof. - 1		20 - 25 yrs: 2

University Mathematics Faculty - 3 full time; 1 part time

Professorial Rank	Degree Held	Teaching Experience
Associate Prof. - 2	PhD - 4	10 - 15 yrs: 2
Instructor - 1		26 - 30 yrs: 2
Lecturer - 1		

Four of the five community college English faculty taught freshman composition and literature courses. One of these taught creative writing but had had over 20 years experience teaching composition and literature. Another was an adjunct

at three universities, teaching graduate literature courses in the summer, as well as an occasional evening upper-level literature course. A third community college instructor was completing a Doctor of Arts Degree in teaching English at the community college. All of the community college mathematics faculty taught mathematics from developmental courses through calculus. One of this group also taught in the computer science discipline. The community college faculty had final degrees from: American University, George Mason University, Goddard College, University of Iowa, University of Maryland (3), University of North Carolina, and Western Michigan University (see Appendix C).

All of the university English faculty taught literature and none taught a freshman composition course, although one of them chaired the Freshman Writing Course. She facilitated the choice of textbook and supervised the teaching assistants. This professor also taught a graduate course for first semester graduate students who were teaching assistants.

All of the university mathematics faculty taught calculus courses and higher level mathematics, including graduate level courses. One of the interviewees had a dual appointment in mathematics and in curriculum and instruction. None of the university mathematics instructors taught the first level of college mathematics. The

university faculty had final degrees from: Columbia University, Johns Hopkins University (2), University of California-Berkeley, University of Maryland, University of Minnesota, Stanford University, and Yale University (see Appendix C).

This study was conducted with two culturally similar institutions. As the study progressed, it became apparent that several of the community college faculty had gotten their doctorates from the university (one community college English instructor and two community college mathematics instructors), and had studied under the very professors being interviewed.

Description of Findings

Based on content analysis eight categories of characteristics emerged and are listed below in order based on how many of the interviewees mentioned them.

- 1) Problem solving using higher order thinking skills
- 2) Mastery of subject matter
- 3) Connections within and across disciplines
- 4) Maturity of the student
- 5) Essential knowledge base from high school
- 6) Course content
- 7) Pedagogical issues of writing, reading, evaluation of the student, and the textbook

8) Rigor

This chapter consists of three sections. The first is an analysis of each characteristic in rank order; the second is a discussion of additional findings; and the third section compares the findings to issues about college-level course work which were raised in the review of the literature.

CHARACTERISTICS

Solving Problems Using the Higher Order Thinking Skills

Community College Faculty Comments

English

The following comments regarding the use of higher order thinking skills in problem solving are representative of the five community college English faculty, all of whom taught writing and literature courses. For instance, one instructor asserted, "College course work is related to Bloom's Taxonomy--the upper levels." Another instructor illustrated this, saying, "College writing involves analysis, synthesis, and evaluation." A third instructor pointed out, "In college writing the synthesis is hard because students can't ignore key arguments that don't support their thesis"; in other words, students have to make decisions about how to use the facts they have found--

especially facts that contradict or do not support their purpose. An instructor of creative writing noted "we teach methodology or teach analytical tools or methods, and say to the student, apply this yourself," making the point that college-level course work requires the application of what has been taught. His colleague observed that students "solve the problem by dissecting it, then putting it together." One quotation that clearly reflects the views of the five instructors is that "we don't spoon feed students; they need to think."

Mathematics

The mathematics instructors expressed much the same viewpoint about college-level course work as did the English instructors. The representative comments which follow reflect the opinions of the four mathematics faculty at the community college. As one instructor pointed out "I cannot imagine teaching mathematics without critical thinking." Another commented, "I think that the level of reasoning and level of understanding does differentiate what you are expected to learn in high school from what you do in college. In mathematics it comes down to a higher level of abstraction." A third instructor commented: "There is much more problem solving in college. ... The instructor introduces techniques for solutions of problems and then the student applies these as appropriate." He went on to say

that "problem solving starts with problems where there are two variables, then three, then four; [and in college math there are often four or more variables], but only two [of these] may be needed to solve the problem." A comment made by the fourth instructor illustrates how the student demonstrates critical thinking; saying the instructor "needs to see process and the student needs to tell me other ways of doing it."

University Faculty Comments

English

The four university English faculty responses that included references to problem solving and critical thinking skills are represented by the following comments taken from the various transcripts. One instructor stated that in college, "students have to make decisions about how to sort facts." A second instructor explained that students use higher order thinking skills to "take facts and draw reasonable conclusion from them." Taking this point one step further, another instructor pointed out that in college, students "have to defend choices and [their] logic." A challenge for the student, another pointed out, is that they "need to hang on to both similarities and differences when comparing." As a literature instructor commented "I keep asking them, what is the implication or significance of something." In literature "they need to get

to the analysis, not read for plot." Two instructors talked about the importance of doing close analysis, one describing it as "being rigorously responsible for every ... word on the page, at all sorts of levels." The other instructor commented that because 'close analysis' is evidently not required at the lower level, he gets "kids in my 300 level classes who may never have had to do a close analysis of a poem."

Mathematics

The four mathematics faculty from the university also discussed problem solving using critical thinking as the following representative quotations illustrate. One professor stated that students must ask themselves "Why am I doing this?" and "What is involved here in the multiple steps to solving this problem?" Another faculty member pointed out that in college the instructor doesn't tell the students each step to take: "It isn't just solve this equation. It is set up the model for this, here is a graph, solve this problem using the information that is buried in here. Not 'do this,' but 'solve this problem.'" Comments from the other two interviews include the following: "The students need to provide the process when solving problems." When students come to college "they really notice that there is a change in the kind of questions that are asked; and the level of critical thinking they are asked to do." College

students are expected to "find and analyze and evaluate." Once the student has solved the problem, where he or she has "taken a stand," it is necessary that they be able "to support that stand, not just report." "In college," notes one of the university mathematics instructor, "there is a bigger background of things to integrate when solving problems." Students in college are "trying to explain a more complex phenomenon. They are trying to explain things where there are three or four variables in the problem rather than just two;" a point also made by a community college mathematics instructor. According to a university mathematics instructor, the difference [between high school and college] "is the complexity of the problem environment in which people work, and the way they have to integrate many things from prior knowledge; the subtlety of some of the things with which they deal." Repeating what was said by a colleague, one instructor commented "Faculty won't take the responsibility to tell students the steps. The student must set up the model."

Summary

There was a great deal of similarity in the comments among and between the groups as the respondents discussed problem solving using critical thinking skills. One explanation for this is the similarities in the philosophies of the institutions. From the interview comments, the

development of thinking skills is inherent in college course work; so the agreement among those interviewed appears logical. Different "disciplines may require students to think and reason differently, but what is common to all subjects is the dialectical process" (Gardner, 1989, p. 112).

All of the 17 faculty interviewed discussed problem solving utilizing the higher order thinking skills as a characteristic of college-level course work. The higher order thinking skills include analysis, synthesis, interpretation, evaluation, critical thinking, inference drawing, and conceptualizing (Bloom, 1969). These are the thinking skills necessary for college-level problem solving which were mentioned in the interviews. Bloom (1969) contended that higher order thinking really is not appropriate before adolescence because the maturity is not there. One of the defining characteristics of college-level course work discussed later in this document is the maturity of the student. According to Bloom (1969), there is a relationship between higher order thinking and maturity.

In college, according to those interviewed, complex problem solving occurs in almost all aspects of college-level course work. These problem solving situations often involve multiple variables drawn from various sources, where the development of a model for solution requires selection

of the appropriate variables.

Mastery of Subject Matter

Community College Faculty Comments

English

The following comments, taken from five interview transcripts, reflect the need for students to master their college course work. One instructor noted that college-level work "requires them [the students] to take their acquired knowledge and apply it from everything they've done all semester." A second interview included the comment that the written "exercises require accumulated and applied knowledge; that which has accumulated over the course of the semester," meaning the student must master the material before it can be applied. Elaborating on mastering subject matter, a third instructor commented that "college asks us to acquire information; to develop a knowledge base." A fourth instructor developed this idea further saying, as that knowledge base grows "students get better as they go along, it clicks..." Other points mentioned in two of the interviews include: "Understanding of context and acquiring a vocabulary that is part of the discipline" is part of mastery; another noted that "a college education should leave the student enriched."

Mathematics

Three of the four community college mathematics faculty discussed mastering subject matter. As one instructor noted, in learning when "students attempt to move information into long term memory, if they don't attach the facts to anything, then [they] are not making [their] own knowledge base at all." Another instructor commented in a similar vein, saying college students need "to learn toward long term memory," since "college strives for deeper understanding" and "this deeper understanding enhances long-term memory." A third interview comment regarding mastering subject matter noted that "one of the goals of the calculus reform movement is to ensure that the student retains the knowledge gained," and that things are not immediately forgotten.

University Faculty Comments

English

All four university English faculty made comments regarding mastery of the subject matter. The following quotations, taken from the four interviews, are representative of the comments. According to one instructor, as an early step in mastering knowledge, "college course work should prepare students to take facts and make reasonable conclusions from them." A second instructor agreed saying that certainly, college "students

should come out of college with a certain number of facts," but college students also need to "be aware of nuances of words; rhetorical effects" and a third instructor took mastering knowledge further explaining that students should "try to get at the essence of concepts." The study of literature requires "intense engagement with text," explained the fourth instructor. He later stated "Students need to be conscious of their learning and reflect on it." This was a point made by a community college English instructor in discussing maturity.

Mathematics

Three of the university mathematics faculty interviews included comments about mastering the subject matter. The following quotations are taken from these three interviews as representative samples. One instructor noted that in college, students "develop a set of skills, in depth," and "conceptually pull a skill that they have learned to a broader set of applications." Another instructor pointed out that college mathematics is "... not only doing algebra but [being aware] of the broad applications of algebra," a point clarified by a third instructor who stated "students need to master a body of knowledge in order to be successful in the next course" or in their major which may be, for instance, engineering. He continued by stating that the result of the mastery of subject matter is that it "raises

students' perspectives to a higher level."

Summary

Across the interviews, the comments regarding the necessity of mastering subject matter were similar. Those who cited the necessity of mastering course work in college were consistent in their reasoning. As the respondents explained, mastery of course work means remembering the information over the long term because that learning is in context rather than in bits and pieces in isolation. Memorizing is not mastery, but is considered the lowest of the thinking skills (Bloom, 1969).

Seven of the university faculty pointed out that college-level course work requires the mastery of a body of knowledge. All of the university English faculty, each of whom teaches literature, cited this characteristic, as did three of the mathematics faculty at the university. Eight community college faculty mentioned this, with all five of the English faculty and three of the four mathematics faculty citing this characteristic. In total 15 of the 17 faculty interviewed named mastery of a body of knowledge as a characteristic of college-level course work.

Connections Within and Across Disciplines

Community College Faculty Comments

English

Three of the community college English instructors made comments regarding college-level course work having connections within their discipline and to other disciplines. The following representative quotations are examples taken from the three interviews. The researcher notes that in this study, interview comments were often suitable to more than one characteristic as illustrated in the following:

I think it is the level of thinking, the demands of thinking, of making connections. I can't imagine teaching anything ... without making connections to everything else.

Another instructor pointed out, "I don't just mean writing ... within the classroom environment, but [writing] that is applicable outside." The third instructor claimed it should be obvious that "you cannot make connections until you have information." In discussing a literature seminar, one instructor spoke of how "one book dialogs with another." She made this comment while discussing a seminar where each student was assigned a book, and students compared and contrasted their books in class.

Mathematics

All of the community college mathematics faculty in this study were of the opinion that connections of topics must be made throughout a course. An example, according to

one instructor, is the "calculus reform [movement] which forces students to interrelate all of the concepts."

Another instructor noted that college mathematics requires the "conceptualization to be able to draw those conclusions and draw out inferences and relationships between topics." But connections in college-level course work must go beyond a particular course, as a third math instructor emphatically pointed out, connections apply "course to course, absolutely; that is one of the defining differences between high school and college." According to a fourth instructor, "it certainly has to be course work that the student would be able to use in more than one situation."

University Faculty Comments

English

All of the university English faculty commented on connections within and across disciplines. The following are representative of the comments made during the course of their interviews. One instructor noted that connections begin with the "integration of things from prior knowledge;" another, making the same point said connections begin with information "from previous chapters;" and a third continued by stating that college course work requires "bringing information from a lot of sources." In college, students "need to recognize patterns ... that something that occurs on page eight is connected to page twelve, and is beyond the

plot." Repeating a point made by a colleague, the fourth instructor said, "Students have to know the connections, and you cannot know connections without getting information." One instructor noted that "one section of my syllabus points up the relationship between and among what students read." An example of connections within the discipline was "first there is Hawthorne and Hawthorne is connected to Faulkner,... [the notion of] the influence from previous authors." He continued with the comment that students need to "understand how things hook up."

Mathematics

All of the university mathematics instructors in this study made comments which fell into the connections within and across disciplines category. A point made throughout the interviews was that most college courses are designed to teach skills that will be used in more advanced courses. One instructor noted that calculus "students need to master a body of knowledge in order to be successful in engineering." Another comment pointed out that "it [college-level mathematics] is focusing on the connection of disciplines." A third instructor explained that college students must "draw relationships between topics." The fourth instructor included both areas of connections in the statement that "college students have to be able to relate in the same course and from course to course." Finally,

according to an interview comment, the connection is "applicable outside the classroom." As stated by one of the mathematics professors, students should "see how what they are doing connects to what they've been doing and to where they are going." A good description of math connections across disciplines is "the notion that mathematics provides conceptual models for representing phenomenon in other fields is a pretty strong image of mathematics at the college level now." "It certainly has to be course-work that the student would be able to use in more than one situation," the point being that connections must be made outside of the course work. One instructor noted that

At the college level typically there is still quite a bit of procedural learning but there is more emphasis on showing how those procedures connect to each other, showing how they have a rational basis, having somewhat of a conceptual framework that shows what the big ideas of the course are.

Summary

The comments among and between the disciplines and institutions regarding connections within and across the disciplines were similar. This seems reasonable because both English and mathematics are basically tool subjects that are used extensively in college course work across the disciplines.

A total of 15 of the 17 faculty interviewed mentioned making connections within and across disciplines as a defining characteristic of college-level course work, seven from the community college and eight from the university. Seven English teachers commented on connections, three of the five community college English composition and literature faculty mentioned this characteristic. The researcher did not probe this point during the interview so it should be noted that if a point was not included in an interview it does not necessarily mean the interviewee had no opinion on the topic.

All of the math faculty interviewed mentioned connections across disciplines. Two of the university mathematics faculty had not made this a strong point during the interview, but were in agreement on this issue at the state-wide mathematics meeting when state curriculum guidelines were drafted (see Appendix F). These guidelines stipulated that all general education mathematics courses should explore mathematical applications to other disciplines, and that mathematical concepts and techniques must be introduced which can be applied to further study in math and/or other disciplines (see Appendix F). Connections within and across the disciplines has been described by Gardner (1989, p. 116) as "an integration of knowledge and understanding that allows students to think and create

independently."

Maturity of the Student

Community College Faculty Comments

English

Three of the five community college English faculty emphasized the need for college students to evidence maturity. Maturity is necessary because it is assumed that "in college the student understands that he or she is responsible for a great deal of the learning." A second instructor comment concluded that maturity is necessary in college, because success is based on "the willingness and initiative of the student." In describing a component of maturity, the third instructor said, "Much of academic maturity has to do with how much they read, and what." Another descriptive comment made during the interviews was that "college-level maturity includes structure in thinking that students have to have which typically they don't have at a younger age." College students need to be aware of their experience and ability, "the notion to make someone a little more conscious of their learning." College "students are not monitored." A point which was consistently repeated describes the mature student as one who "wants to learn and will take responsibility for that."

Mathematics

Three of the community college mathematics faculty brought up the issue of maturity as a component of college-level course work. In addressing maturity as an age factor, a mathematics instructor at the community college noted that one "would not expect someone who is 15 to be able to draw the same conclusions as someone who is 25." Following the same theme, another instructor pointed out that "you expect a different level of maturity for the college-level performance. You expect them to be able to do more on their own, but that is not the course as such, it's a matter of expectation." Other points taken from the interviews include the faculty expectation of "self direction and independence and initiative," and that "there is a maturity component here, in [the student's] mind, the desire and so forth, which is college level." The third instructor optimistically commented that hopefully "the student wants to learn and will take responsibility for that."

University Faculty Comments

English

All of the university English faculty made reference to the need for college students to be mature. According to one instructor, one characteristic of a college-level course "is going to be the level of sophistication and the measure of raw intelligence that they come in with." "Maturity is

expected," because there is the assumption, as noted by a second English instructor, that "these are fully formed adults" who are responsible students. A third instructor noted that due to developing maturity, college "students are beginning to understand that it is okay to have different opinions." The fourth instructor contended that "students must evidence the willingness to try. Closed minds cause problems."

Mathematics

Three of the four mathematics instructors at the university asserted that maturity is an important component of college-level work. One university mathematics instructor summed up the comments of his colleagues, stating that

some of the students are just not ready for it. I know, they're not ready age-wise, maturity--they are still at the 'you show me and I repeat it 50 times stage' and trying to get them to step up conceptualizing, that my peers know something and I can learn from someone besides the teacher, and then I really have to be able to generalize--this is asking an awful lot of a 17 or 18 year old.

A second instructor noted that maturity allows the student "to think about more complex things because one has a broader base or broader background." From another

perspective, the third instructor noted "I would like them to be responsible, on their own, doing their homework."

Summary

At the university, all of the English faculty and all but one of the mathematics faculty discussed the need for student maturity, as evidenced in part through responsibility as a characteristic of college-level course work. Six of the community college faculty, three from English and three from mathematics, discussed the attributes of maturity of the student as a characteristic. All of those interviewed when speaking about maturity used that term as almost synonymous with responsibility.

Community college faculty were more apt to stress the responsibility of the students. The university faculty put more stress on intellectual maturity, although both groups addressed both issues. There was similarity in the responses from the different disciplines within the institutions.

Thirteen of the seventeen faculty interviewed mentioned maturity of the student as a characteristic of college-level course work, six from the community college and seven from the university. Many instructors interviewed stated that in college, learning is the student's responsibility, where the student needs to seize the opportunity to learn through

lectures and assignments, and as one university mathematics instructor said, "seek answers to questions during office hours."

Essential Knowledge Base from High School

Community College Faculty Comments

English

In the words of a community college English instructor, college course work is based on "knowledge and techniques students bring with them from high school," and she went on to state that this base is essential to college-level course work. One of her colleagues continued, exclaiming that "a defining characteristic of any college-level course is that expectation." In explaining the high school knowledge base a third instructor said that "it includes math skills through high school algebra II, as well as reading and writing ability." Four of the community college English faculty talked about developing the students' skills based on previous knowledge, and the following comment from the fourth instructor is representative of the group: "College-level course work is on the continuum from what they learned in high school;" making the point that college students are expected to perform beyond high school because of this assumed preparation.

One of the interviewees decried the current level of

the essential knowledge base that college students need. "The low-skill level of students is a terribly serious problem that I don't think anyone has addressed to satisfy me." Because students come in deficient in the essential skills, another instructor said that he had "found through the years the department loosened its standards. English 101 became more and more challenging to teach because more students came in under-prepared."

Mathematics

Three of the mathematics instructors specifically talked about the need for students to bring algebra skills to college. As one of them explained, in the beginning college mathematics course, students find out that "it is not doing the algebra, but talking about applications of it, so it is conceptually pulling a skill that they have to a broader set of applications." The skill they must have is from their high school, as a second instructor pointed out, is a background of "two years of high school algebra," and he went on to state "we make the assumption that our students should know how to do this but they don't always know how because of the reality of what went on in the high school." A third instructor also made the point that "college math begins after high school algebra II and builds on that knowledge."

University Faculty Comments

English

The university faculty expressed concern about the knowledge base that students bring to college, specifically noting that they need writing skills. One professor stated that "in writing, they don't know what a sentence is or what a fragment is; they don't know what syntax is or how to use syntax." The university faculty all discussed how they dealt with lack of writing skill, most requiring re-writes of papers. A few suggested that struggling students go to the college writing center for assistance. The other instructor who commented on essential writing skills as preparation for college work, talked about the faculty discussions of the need to continue to teach writing in the literature courses because many students do not have the skills they need. Only two of the university English faculty specifically stated that there are essential skills that college students must have; but all of them commented on the fact that students were coming to college ill-prepared. The researcher did not draw the conclusion that all of the university English instructors believed that college-level course work depended on an essential knowledge base from high school although that case might be made.

Mathematics

Several of the mathematics instructors shared the

opinion made by one instructor that, "calculus requires integrating a lot of pieces that you have learned in high school mathematics in order to do reasoning of a more complex sort." His colleague said that [a lot depends on] "how much of a grip they have on the knowledge they bring with them." All of the university mathematics faculty talked about the fact that mathematics is on a continuum, building on previous knowledge. The third mathematics interview included the professor's opinion that "they [the students] have no clue as to what they are doing, they just plug numbers into a calculator" and he felt that they should have some basic understanding of algebra. The fourth interview included the instructor's expectation "that they can solve liner equations; [not to mention that they] be able to handle fractions, percentages, and calculators;" ... "they have to be able to take the words off of an English page and put it into a mathematics page."

Summary

Thirteen of the seventeen faculty interviewed felt that college-course work builds on previous knowledge; seven were from the community college and six were from the university. Six of the nine English faculty and seven of the eight mathematics faculty were of the opinion that an essential knowledge base is prerequisite for college-level work. In the words of a community college mathematics instructor,

"College level is one that builds on all those standard high school courses." There was no disagreement among the 13 community college and university instructors from both disciplines who talked about the necessity of a knowledge base to be brought from high school. The other faculty interviews simply contained no references to this issue.

Course Content

Community College Faculty Comments

English

Only two of the community college English teachers specifically discussed the course content as defining a college-level course. One of them said that "college-level course work has, inherent within its content, the opportunity for students to take risks, to understand their personal limits, and then to push beyond those limits." The other noted that "it is not so much level as approach. Taking what you know and applying it in writing argument and writing persuasion. It is often the way a course is taught that designates it as college, not necessarily content."

Mathematics

All of the community college mathematics instructors believe that course content is a defining characteristic of college-level courses. As one of the instructors explained, college mathematics is on the continuum of the study of

mathematics; "Some of the topics may be similar [to high school algebra] but they may be dealt with or treated in a different way. Some of the topics may be brand new, things not touched upon in high school." When the student covers something familiar [the student] should be learning a little bit new about the topic--as the second of the interviewees asserted, "getting a deeper understanding." A third commented that "it is both the content as well as how you approach the content and what you do with it." There appeared to be two opinions on course content, as illustrated in the fourth instructor's comment: "College-level course work is defined through "both the content and approach."

University Faculty Comments

English

Three of the university English instructors addressed course content during their interviews. One noted that it is "the complexity of the content," and went on to say that "college-level demands appreciation of language in every sense of the word." A second instructor stated students will "not have had most of what I teach in high school, basically because it is too hard." The third instructor commented that in college, students must deal with "complexity of content."

Mathematics

All of the university mathematics instructors discussed course content as a defining characteristic of college-level course work. According to one, the content of "college-level course work is more sophisticated than high school work, with more complex or subtle concepts." The student is encountering "content [that] is relatively new." A second instructor illustrated the same problem the community college English faculty had in differentiating between course content and approach to teaching content: "I guess my first defining characteristic has something to do with intellectual skills, the thinking, the approach to taking the course, not so much content." So while course content is mentioned as a characteristic of college-level course work, the approach to teaching that content is part of that defining characteristic for at least some instructors. The third instructor commented that the approach to "complex content is to facilitate a deeper understanding of the subject." In college course work "content has more deep and subtle issues." In further explanation, the fourth instructor said that it is "content and mode of thinking that is beyond what one does at a high school level."

Summary

A total of 13 of 17 faculty interviewed mentioned

course content as a characteristic of college-level course work, six from the community college and seven from the university. The community college English instructors discussed the expectations of students in a college course; however, the specific naming of content as a defining characteristic of college-level course work was cited by only two community college English instructors. The approach to teaching a college course appeared to be an important characteristic with this group. As several interviewees pointed out, mathematics and English skills are developed from elementary school upward. As the student matures, the content becomes more sophisticated and the approach to teaching the content becomes more sophisticated. The university English and mathematics instructors discussed the complexity of the course content as defining college-level course work.

Pedagogical Issues

Four aspects of pedagogy were mentioned in the defining characteristics of college-level course work: writing, reading, and evaluation of the student, and the textbooks.

A. Writing

Community College Faculty Comments

English

All five of the community college English faculty felt

that the level of writing was a defining characteristic of college-level course work. One of the instructors pointed out that "You assume a level of writing ability at this point" because "good writing is essential to college-level course work." Another expressed the opinion that there is a necessary "prerequisite ability in writing, a certain level of expertise." According to a third instructor, the student is expected to know "how to do certain English tasks such as putting together sentences in a paper." A fourth instructor said, "A college writer has to be able to use the words and ideas of others in honest and effective ways, which can loosely be called research." A further description of college writing was provided in one interview: "College-level writing involves gathering evidence, weighing and balancing, planning, outlining; protracted work." As mentioned above in the discussion of higher order thinking skills, an interviewee described college writing as hard because "the synthesis is hard--students cannot ignore key arguments that don't support their thesis." Further interview comments include: College writing must "include argument and be persuasion heavy. It is analytical writing." In college, "writing has to be an intellectual engagement with the course work." As one community college English instructor pointed out, there is "the notion of write to learn, students need to write for whatever course

they are in."

Mathematics

Only one of the community college mathematics instructors included writing as a defining characteristic of college-level course work. She explained that "the calculus textbook requires that students justify their answers, so they have to write." "Not only must college students solve problems but [they must] be able to produce models and explain them in writing." One mathematics instructor, while not stipulating writing as a characteristic of college course work, stated the he "requires the students to explain the process." The first instructor noted that "the biggest complaint about the journal writing was not that they had to write but that I would correct their spelling."

University Faculty Comments

English

All of the university English faculty believed that writing is essential in college--as one instructor exclaimed "they need to be able to write," and went on to state that "the kinds of students who have difficulty in the reading have difficulty in the writing." When students experience difficulty, a second instructor commented that he would point out that there are mistakes and suggest that the student "go to the writing center; get some tutoring." In commenting on writing, the third instructor acknowledged

that "they just have a very hard time with it. I am sure part of it is due to the difficulty of the material. Part of it is that they have written very little." Several of the instructors explained that literature courses, while discussion based, have required writing assignments. The fourth instructor said that he "would like to see a fairly uniform sense of the need to include a real writing component in these [literature] classes. "Yes, they are supposed to be literature classes, but we must face up to the fact that the kids in these classes do not know how to write."

Mathematics

Writing is now required in some mathematics courses, including "keeping journals in which mathematical processes are described." Many of the interviewees encourage journal writing, some require it. A second instructor said, "Students are often surprised that papers are required in mathematics courses." In college, "math students have papers assigned as in other courses." According to the third university mathematics instructor, "it's entirely different than anything they've had before. Some of the English majors are delighted because they get to write." In addition to papers, the take-home examinations require students to "write clearly how they approached the solution to problems, and to explain the final analysis. This

writing process is essential in the calculus reform movement." Writing is a process which facilitates learning. The researcher notes that writing is a step in higher order thinking--precise communication of thought--which actually demonstrates what students know.

Summary

Writing was not included in the mathematics courses, prior to calculus, at the community college. This accounts for the fact that three of the four community college mathematics faculty did not cite writing as a college-level characteristic, since it is assumed that they were responding from their discipline perspective. The fact that all English faculty felt writing is a defining characteristic is fairly obvious since this is inherent in their discipline. According to scattered references to college-level in the literature, most would agree that writing skills are essential in college course work (Cohen & Brawer, 1991; McGrath & Spear, 1991; Richardson et al, 1983).

All of the English teachers interviewed mentioned that writing is an essential characteristic of college-level course work, which is not surprising. Only one math instructor at the community college, one who teaches calculus, indicated that writing skills are an essential. The rest of the community college mathematics instructors

did not mention writing. Most of the interviewees spoke from their discipline's point of view, which may explain why writing was not often mentioned by math faculty. Writing is not required in any of the community college mathematics courses until the calculus level. At the university, three of the mathematics faculty interviewed mentioned writing as a characteristic of college-level course work, and these three require journals and outside papers. One of them spoke about writing as "essential to learning from an across-discipline perspective," not just for mathematics. A total of 13 of the 17 faculty cited writing as an essential characteristic of college-level course work, six from the community college and seven from the university.

B. Reading

Community College Faculty Comments

English

All of the community college English faculty made reference to reading as a defining characteristic of college-level course work, while none of the four mathematics faculty mentioned it. The first instructor stated, "There should be a demanding amount of reading in a college-level course. I think it is critical." The second instructor commented, "Reading and writing are elements in college [course work] regardless of curriculum." The third noted that, "I want them to read in depth." The fourth

instructor illustrated her reading requirements as follows: "I have them read 200-250 pages a week; it is reasonable in the humanities. Or a whole play ... it would be a novel a week if I teach the American Novel." The fifth English instructor commented:

In college, one has to work to one's limits and challenge it beyond. One should come in with a grade 12, 13, or 14 reading level, and challenge oneself to go beyond that. How can one expect to get to higher level courses, or understand any science or critical literary analysis journals if one cannot read at that level; and not just read but comprehend and understand. Critical literacy has to be an element of college course work.

University Faculty Comments

English

Three of the university English faculty stressed the necessity of good reading skills for college-level course work. One instructor stated that "as long as reading is a sort of rote thing that your brain can do, you are never reading in a deep way. It is when you learn to embody through reading, you learn to argue and to take these things really seriously that then you become a real reader. And a lot of students are not." A second instructor said that college students "must become good readers," because the

reading material is complex, "and its complexity is important because it has to do with the complexity of human life. The average or below average high school student really doesn't understand that reading has anything fundamental to do with expanding yourself." Another point made by the third instructor was that the "discussion aspect of literature classes is about what they [the student] read." The English instructor whose comment was used earlier regarding reading as "close analysis of small amounts of text," (see page 79) went on to say "I think the other thing is to be able to write something coherent about that close attention."

The Director of the University Honors Program, who participated in this study, said:

... have them do close reading. That is what they need most. They don't need to be going after big abstract themes, but they need to focus closely on the text and that is really one of the most important things--which they don't get in high school. Close reading is taking a chunk of text, like a short chapter or a few pages, or a paragraph or a short poem, and go through it either line by line, or theme by theme; asking what is the author doing here and why these particular words are being used.

Another university English instructor, in talking about what

he desired of his students said, "Probably 10 times in every class you find yourself saying; but what does it say? What does the text say? What does it say there? What does that word mean? What does that sentence mean? Can you put that sentence into other words?" He continued by commenting that "readers need to have a sense of literary history and history of ideas; what authors came before which others; and what went on in the Renaissance, and what went on in the 14th century, what went on in the 18th century ... They must be able to move around a text and become a good reader."

Mathematics

Only one university mathematics instructor included reading as a characteristic of college-level course work. She said that "we have the wordiest [Mathematics] tests in the first two years probably--that is in Math 110. Because we are handing them word problems all of the time." They have to be able to "take the words off of an English page and put it into a mathematics page." "They have to take it sentence by sentence and translate it. They have to be willing to read words and that is something our students do not know how to do."

Summary

The differences within the institutions are attributable to the discipline. Only one math instructor from the university mentioned reading as a characteristic of

college-level course work and none of the community college mathematics faculty discussed reading. The community college English instructors discussed reading and cited it as essential, but their comments did not describe the type of reading. The university English instructors described the type of reading they expect. The English instructors from both institutions indicated that reading for college courses greatly exceeds what students have done in high school both in quantity and in complexity.

While all but one of the nine English instructors mentioned reading as a characteristic of college-level course work, only two of the mathematics instructors mentioned this characteristic. Mathematics instructors do not normally give reading assignments. The researcher assumed that mathematics instructors did not include reading as a characteristic because most of the mathematics interviewees spoke from their discipline perspective. Six of the community college instructors mentioned reading while only four of the university faculty considered reading to be a characteristic of college-level course work.

C. Student Evaluation

Community College Faculty Comments

English

Four of the community college English instructors mentioned the way students are evaluated as being a

characteristic of college-level course work. Contrasting high school and college-level examinations, the community college English instructors stated that they "give comprehensive examinations;" and that the usual formula for over-all course evaluation is a mid-term and final examination, several quizzes, and several papers. One instructor notes that her examinations include sections on "recognizing quotations. I want them to know what play, what author, what context." A second instructor commented that "Evaluation of writing is difficult because it is so personal." She went on to say that she uses "essay exams and papers to arrive at a grade in the course."

Mathematics

A mathematics teacher from the community college stated that the "rigor of college is expressed in the exams, the type of questions which are asked." College examinations were further defined as "requiring interpretation and the drawing of inferences." Mathematics faculty from both institutions stressed that college examinations are "not like high school tests which regurgitate homework problems; they require critical thinking skills." As one instructor commented, college examinations are "comprehensive exams, of course." Another instructor noted that he thought "when you get right down to differentiating a college course, one of the characteristics should be the type of testing that is

done. The level of response that is required--getting away from the purely mechanical, where interpretation and being able to draw those inferences" is essential. Only two of the community college mathematics faculty included student evaluation as a way to define college-level courses.

University Faculty Comments

English

Those interviewed felt students should be graded by the papers they write and by written examinations. Faculty also use "weekly quizzes [to] keep students on target and lead into class discussions." The essay test format preferred by those interviewed, as explained by a second instructor "places an emphasis on the student's ability to recall and organize what they have learned, and then write about it." As at the community college, the university English faculty used "essay exams for mid-terms and finals" and, of course, "we need to give comprehensive examinations." One professor pointed out that his students are challenged because "I use abstract essay exams," which he felt distinguished a college-level exam from high school level. Only two of the English faculty expressed the need to include evaluation of students as a defining characteristic of college-level work.

Mathematics

Several times during the interviews faculty used the term 'regurgitation of homework' and in discussing

evaluation one of the mathematics instructors stated that in college "tests are not regurgitation of homework." It was also noted by two of those interviewed that the expectation is that there will be "comprehensive evaluation." As one of the two who talked about evaluation explained,

College exams require critical thinking. We are trying to get [the student] to see the concepts and how to apply the concepts. We are not trying to get a regurgitation on test, of what we taught [them]. We want you [the student] to apply what you have learned in slightly new settings, not exactly, not completely different, but we want it to be somewhat different so you have to think.

Summary

Ten of those interviewed described the type of student evaluation which occurs in college as one of the defining characteristics of college-level course work. Of those who included evaluation as a characteristic, there was much similarity in the comments across the colleges and disciplines. This choice of a defining characteristic reflects the opinion of Adelman (1986) who noted that in order to know college-level learning is taking place, objective tests should be abolished and students should be graded on the quality of their thinking as expressed through their writing.

A total of 10 of the 17 instructors interviewed described the kind of evaluation which is characteristic of college-level course work, 6 from the community college and 4 from the university. According to many of the interviewees, college examinations are comprehensive, usually in essay format, and do not repeat questions from homework assignments. A university mathematics professor stated that one of the biggest complaints she got about pre-calculus tests was that they were not like the homework. It is interesting to note here that the term "regurgitation of homework" was used by three mathematics instructors, two from the university and one from the community college. All of the community college and university English instructors commented on evaluating their students through their written work. These instructors also included short quizzes and examinations with identification test questions in their evaluation process. The researcher included this characteristic as defining college-level course work because the interviewees described it even though only ten indicated it should be a defining characteristic of college course work.

D. Textbook

Community College Faculty Comments

English

A community college English instructor commenting on

the criticisms of higher education, discussed the concern about textbooks becoming less rigorous. She stated that "textbooks have been 'dumbed down' to some extent," an expression also used by a university instructor interviewed in this study. "The reading level and the length of selections, [and] the vocabulary has gone down." She felt that the publishers are, to some extent, defining adult concerns the same way society does. "If something is written about in newspapers and magazines, if it is the subject of poems and stories that are designed for the adult reader, then circularly they become acceptable." Only two of the community college English instructors included textbooks as a defining characteristic of a college-level course.

Mathematics

The following two comments convey the two schools of thought concerning college course work and textbooks at the community college. It was noted by one instructor that "once a textbook hits the market and becomes a popular text, it becomes a defining characteristic of that mathematics course across many institutions." A second instructor commented that, "The instructor selects the textbook most appropriate to how they understand the course, and at what level. The choice is not made by 'let's define the course.'" Only two of the community college mathematics

instructors discussed the affects of textbooks in defining college level.

University Faculty Comments

English

Two of the university English instructors included the affect of the textbook as a characteristic defining a college course. The university literature instructors agreed that students should read as much as possible from the original which "is one of the reasons teaching Beowulf is so difficult." One instructor felt that "in general [texts] are way too prominent on college campuses because often they are written at a less than college level. Often they put students in the position of thinking that the book is right, the answer is in the book, it's all settled." The literature faculty use anthologies and stand-alone texts, and usually do not use textbooks as such, which may be why only half of those interviewed even mentioned textbooks. As a second instructor commented, "In medieval literature there are only a few canonical texts that you probably want to teach anyway." "I get the Norton Anthology and supplement it .. with an Anglo-Saxon book. I normally do not use a textbook."

Mathematics

According to one of the three mathematics instructors who discussed the affect of textbooks, "the teaching

assistants (TAs) meet every couple of weeks but between times, if they have questions, they basically follow the text. So the text in some ways does drive the course. We are trying not to let it define it." Another instructor made much the same comment: "We use the same textbook in lower level courses ... with so many TAs teaching the course it wouldn't work otherwise. We can't let them choose the textbook," and a third instructor commented that "they need the text as a guide to exactly how to present [the material]."

The following excerpts from the interviews present the views of the interviewees. "College textbooks are often written by college professors teaching the subject," so the assumption can be made that the "better people are writing these books and that they are trying to maintain an appropriate level as opposed to just writing a book for the mass market. Therefore, textbooks used as a defining characteristic is not incongruous." "These texts are commonly written by people who are teaching a college course--the same course you are buying the text for." "Textbook publishers ascertain through marketing research that in order to get adopted by an institution, they have to include specific topics; and soon they are meeting the needs of the mathematics departments; ... certainly the textbook is a huge factor in driving what you teach." "Textbook

writers go a long ways toward defining what that course is and even there you run into a problem because you can find the same college ... text being used in high school."

Summary

Two English faculty commented on the fact that publishers are producing less rigorous textbooks, one from each institution. Another similar point from the interviews was the need at both institutions to use the textbook as a course guide. The same text is used in all sections of a course at the university in the first two years of English and mathematics. This is done to provide a guideline for the large number of teaching assistants at the university. The same principle was applied at the community college where the text serves as a guideline for the large number of part-time instructors. The mathematics faculty from both institutions appeared more concerned about the textbooks than the English faculty, and the researcher accounts for this because the literature instructors did not rely on textbooks.

A total of nine of the 17 instructors interviewed mentioned textbooks as a defining characteristic of college-level course work, four from the community college and five from the university.

Rigor

Community College Faculty Comments

English

Of the five community college English faculty interviewed, only three stated that rigor should be considered a defining characteristic of college-level course work. One instructor stated that she was "going to try to challenge my students." A second compared academic rigor to growing pains, saying, "it's painful, but what ultimately happens? You reach your potential." A third commented, "So make them stretch." The second instructor who commented on growing pains went on to talk about college-level course work: "I think at its heart college level work has to be intellectually and emotionally discomfoting. Uncomfortable. It must make one very, very uncomfortable and I think the over-used and trite word is challenging."

Mathematics

The rigor of college-level course work was clearly delineated by one instructor as "the type of testing that takes place; the way students are expected to perform in examinations and the level of response that is required; how deeply they [the students] understand the topic." He went on to explain that college course work gets "away from the purely mechanical into interpretation and being able to draw inferences." Part of the rigor of college course work is

"the amount of and type of out-of-class preparation."

There was only one community college mathematics instructor who included rigor as a defining characteristic.

University Faculty Comments

English

Two of the university English faculty described rigor during their interviews as a characteristic of college work. An interesting point made by the first instructor was that "college students need to be willing to take risks, to live in uncertainty, and to struggle to answer questions." The rigor is there because college instructors often do not supply "an answer in a box", leaving the student to "find the answer" and "to be comfortable with the fact that there may be more than one correct answer."

According to the second instructor, rigor in college course work results in a challenge to the student which often causes discomfort. The rigor is "reflected in the ambiguity in language" in the study of literature. He noted that "a college education should ... let them feel a little bit comfortable with not having all the answers, right now."

Mathematics

Only two of the university mathematics instructors mentioned rigor during the interviews. One commented that "there is a faster pace than in high school," which adds to the rigor of the course work. He went on to state that he

believed "the work is more challenging because students have left perhaps 50 percent of the students behind and the competition has increased." His colleague said that rigor is expressed in the "amount of time the student must spend outside of class in preparation."

Summary

Just less than half of those interviewed cited rigor as a characteristic of college-level course work. A total of eight of the 17 faculty interviewed mentioned rigor and its resultant challenge as a characteristic of college-level course work, four from the community college and four from the university.

Additional Findings

Lack of Preparation

Thirteen of the faculty interviewed expressed concern that student preparation is not what it should be, and in particular that the writing skills and reading skills of college students are very poor. These were not necessarily the same 13 who mentioned that there needs to be an essential knowledge base brought to the college from high school. Of those faculty who discussed lack of preparation, six were from the community college and seven from the university. Seven of the nine English faculty interviewed

had this concern, and six of the eight math faculty expressed their concern.

Community colleges, as open admissions schools, pay close attention to the difference between elementary skills and advanced skills. The discussion about lack of elementary skills is important to the community college since its mission includes offering developmental course-work for those not yet ready for college classes. There was a great deal of comparing college course work to high school course work during the interviews at both institutions.

Community College Faculty Comments

English

Three of the five English faculty at the community college expressed a concern about lack of preparedness and each of the following quotations offers a slightly different aspect of this situation. As one instructor pointed out, "Education is a sequential process, building on what you already have ... college level is one that builds on all the standard high school courses. If you don't have it, you are not there." Another instructor expressed her grave concern: "They don't have the context, they don't even have the general knowledge that one needs for a college-level course." Lack of preparation is of concern because, "when the students are not prepared there begins a chipping away at the level at which the course is presented," exclaimed

another instructor.

Mathematics

The following comments were taken from the interviews and are representative of the group's concern about lack of preparation. Three of the four mathematics instructors discussed this issue. When you start solving problems, "if you don't know what tools are available, you can't get out there and say this is how I am going to solve the problem." "Most of our students are not fresh out of high school. They haven't been doing math so we have the forgetting factor. Although they were exposed to some of these fields, they are not functional in them. So they are doing some repeating and it makes some of them very angry."

University Faculty Comments

English

All four of the English professors at the university mentioned that they felt their students were not prepared. As one of the professors stated, "Most of these kids have just never learned, have written very little." Another commented, "I routinely give half of the students Ds and Fs on the first paper. And I require that they rewrite that paper, and that they come to talk to me, and that they go to the writing center if they want to get a good grade. I let them re-write and I give them a whole new grade." In literature classes "the nature of the reading is too hard

for them." In one of the interviews it was pointed out that "almost all of the English 200 level is taught in translation. I've given up trying to do the Chaucer in Middle English, I just think it is too hard on the kids ... but English 402, which is our Chaucer course, everything in the course is in Middle English." One instructor commented that another problem related to preparedness is that so many English "students appear to lack pleasure in reading," and another commented "they simply do not read in depth and appear uncomfortable or unsophisticated about the media by which literature happens." An interesting point was raised in one interview: "It is one of the jobs of education to let students know who really has ability and who doesn't. It is not a judgement of their soul, but it is the kind of intelligence that they have."

Mathematics

Three of the four university mathematics faculty also expressed concern about student preparation for college-level work. "They have no clue as to what they are doing, they just plug numbers into a calculator." Repeating a point which was made in the discussion of the need for reading skills, one university mathematics instructor noted that students "don't know how to take the words off of an English page and put it into a mathematics page and when I move up to [the next] level to [Math] 115, I'd like them to

be able to do more of that on their own."

Summary

Thirteen of those interviewed for this study expressed concern about students' lack of preparation; similar concerns were expressed by both institutions and in both disciplines. The researcher accounts for this similarity because the two institutions draw most of their students from the same secondary school systems and from the same socio-economic geographical area. Specific areas of deficiency were not described by the university faculty. The community college faculty were able to more clearly state areas where students were lacking skills necessary for success in college-level course work. It is, however, important to note that the university faculty mentioned this issue, specifically all of the university English faculty.

Credentials of the Faculty

Faculty credentials were discussed by several of those interviewed, but the discussion was not directed toward defining college-level course work. The issue arose in discussions of course content, student evaluation, and textbook choice. At the university, a large part of freshman and sophomore level course work is taught by teaching assistants (TAs). A university instructor pointed out that "the 200 level English courses are taught by

graduate students, relatively advanced graduate students." At the very lowest level, first semester English and first semester mathematics, "the TAs are often first semester masters degree students." "They go into 101, and you get MA candidates who are barely graduated; just graduated a few months before and they are thrown into 101 English classes." This is important because one of the criticisms of community colleges is that their faculty often do not have doctorates. However, the academic credentials of the community college faculty in this study exceed those of university teaching assistants who teach comparable level courses.

The community college requires a minimum of a master's degree in the subject being taught. If a faculty member has a master's degree in a related field, that individual must have a minimum of 20 graduate-level credits in the course they teach. This enables instructors to see "where the students are going." "I think that is the big problem trying to help students through constructivism; if the instructor is not aware of what is happening at the next level they cannot prepare them (the students) to that (level)."

At the university, teaching assistants are used extensively, as they are in most major research universities. This university hires an instructor to "chair" a lower-level course, but that individual does not

necessarily teach the course. The responsibility of the chairperson is to coordinate the teaching assistant schedules, the committee which chooses the textbook, and the development of the course syllabus and common examinations. It is the culture at the university under study that courses belong to the department and the university, not to the faculty member teaching the course. This is accepted by all and facilitates the instruction of the lower-level mathematics courses since there are so many teaching assistants. Tests and examinations are given on the same days, the textbook is the same for all sections, as is the syllabus. It was pointed out by one of the university mathematics professors that "few full professors are willing to roll up their sleeves to teach such a [lower-level] course."

One university mathematics professor stated that it is better to have no less than doctoral level instructors because lack of sophistication on the part of faculty could hinder the growth of students--"if they begin down a road unfamiliar to a teacher without full credentials, that faculty member may sideline discussion because he or she is not aware of the potential of the direction being taken." On the other hand, one of the community college mathematics instructors, with a PhD completed the month of the interview, was appalled by the mathematics requirements of

her doctoral program, citing the fact that many doctoral students in the math education program were not required to take math after their masters course work.

Transfer Issues

During the course of this study, the researcher was invited to participate in the State's community college and university system's state-wide mathematics and English discipline meetings. The Maryland began the implementation phase of the mandatory General Education Program, to begin in the fall semester 1996, at which time all of Maryland's public post-secondary two- and four-year colleges must adhere to an established format of general education courses. The implementation process began with MHEC's recommendation that there be state-wide intersegmental discipline meetings to communicate the new policy as well as to elicit suggestions and recommendations from the various discipline areas. The first of these meetings was called by the mathematics faculty at the university. Three more mathematics meetings were held, the last being in May 1996. The English discipline meetings began in the spring of 1995 and concluded after three meetings in the fall of 1995.

These discipline meetings resulted in the setting of academic guidelines for freshman composition and freshman math (see Appendix F and G), which were adopted by the

Maryland Higher Education Commission as guidelines for general education courses in English and mathematics in the State's public colleges. Two of the community college and one of the university English faculty who were interviewees in this research study participated in the state-wide discipline discussions. Two of the community college and four of the university mathematics faculty who were interviewees for this study also participated in the state-wide mathematics discipline meetings.

The researcher was a co-facilitator of the English discipline meetings, working with the Assistant Vice President for Undergraduate Studies at the University. The researcher also participated in the above meetings in her role as the community college's coordinator of articulation for the university system. As stated above, the first of the statewide discipline meetings was called by the mathematics department of the university involved in this research study. The English faculty were not as well organized, nor were they aware of the implications of the MHEC decision regarding transfer of general education course work. The researcher was instrumental in arranging the statewide English meetings not only for professional reasons, but because of the ramifications of such meetings for her research. The guidelines developed through these two sets of discipline meetings substantiate the findings of

this research.

In addition to the English and mathematics discipline meetings, the researcher, along with the Assistant Vice President for Undergraduate Studies at the university, coordinated discipline meetings in psychology, biology, accounting, and art. The researcher will continue coordinating these discipline meetings through the Maryland Higher Education Commission. The findings of this research have been valuable in these proceedings and will continue to contribute to the discussions.

Maryland has developed guidelines for the transfer of all general education credit as a result of the discipline meetings. The guidelines for English and mathematics are included in this research and they substantiate several of the present findings (see Appendix G and H).

The instructors interviewed for this study did not mention concern about the transferability of course work, except that they believed colleges are unequal. The point was made earlier in this study that transfer issues are not pertinent to instructors.

Findings Relating to the Review of the Literature

Academic Standards

Critics have argued that there is no definition of what

clearly distinguishes between pre-college and college-level academic work (Adelman, 1986). In this study, the defining characteristics of college-level course work was explored in order to make such a distinction. Once the defining characteristics were identified, a comparison was made between and among community college and the university English and mathematics faculty responses to elicit any differences in opinion.

"Many of the strong academic high schools are better than weak colleges." "There are good conceptually oriented high school courses and weak procedurally oriented college courses." Both statements are comments made by first a community college mathematics instructor and second by a university mathematics instructor. This point was made during the interviews as a point of reference in comparing high school course work with that which is college-level. A further point was made by a community college mathematics instructor: "Academically strong high schools often offer course work that is more rigorous than that offered in weak colleges, and all colleges do not have the same standards of rigor." This is often ignored in the transfer of credits from one four-year college to another, but is questioned when the transfer of credit is between community college and four-year college (Dougherty, 1991; Mellander, 1992; Richardson & Bender, 1986).

Some of the advanced placement calculus teachers in the high schools "do a very good job and the students are prepared to go on," but just as often the students are not well-prepared, according to a university mathematics instructor. "The fact that you give it [advanced placement mathematics] in high school does not mean it is taught appropriately, or well, or that students are prepared to go on," commented another. "Some of those high school courses are very good courses and some of the people who teach them are doing a very good job with them. But yes, some of them get pretty mechanical. Pretty low level, that is certainly true; but that is probably true at college too," reflected a third university mathematics instructor.

The diversity among higher education institutions leaves colleges without generally recognized reference points in the "quest" for quality (Carnegie, 1987). "What is defined as college work in college A and in college B may be completely different, not only in content but in what the student is expected to exhibit or accomplish," stated a university mathematics instructor. Most of the mathematics instructors interviewed discussed the issue of college standards, citing one possible cause for this, and in the words of a community college instructor, the "growing use of technology and the corresponding decrease in the need to work on manipulative skills--thereby changing the structure

of some courses."

Change in the Curriculum

In the words of a community college mathematics instructor, "the curriculum is not standing still." In mathematics, for instance, "everything they [the students] should learn is changing because the computer can do the manipulations..." "The whole mode of approach and what we teach is changing, or theoretically changing," commented another community college mathematics instructor. A math instructor from the university noted that "calculus used to be the beginning college level math course, 20 years ago." According to a community college instructor, there has been a redefining of what some mathematics courses really should be about:

Maybe it was taking X number of hours before, but in retrospect, you look back and say, this material wasn't necessary, and this wasn't, and we don't have time to do that. We can shorten this and tune things down a bit. As time goes on, requirements change. Requirements as to how you use calculus. No one sits around anymore doing a lot of hand calculations, things can get done a lot faster. Also, some of the things you needed to do those hand calculations you don't need

anymore. So the course gets changed a little bit and as it gets changed, and massaged over a few years, it frees up time so that now it is possible to move down [to high school] when it wasn't before.

The whole "notion of what is a college-level course changes with the generations. College level may not ever be clearly defined unless you get into fairly broad generalities." A community college math instructor pointed out an example of content changing. "We currently have a general education type math course, Math 112, and it deals with topics the people who teach the course never had until they taught the course ... it is new in the last 30 years." Not only mathematics has changed. An English instructor at the university stated, "The canon folded so the structure for the study of literature is intense engagement with text," a reference to deletion of a Shakespeare requirement for English majors at the university.

A math instructor from the community college stated, "We have to deal with the people who may have been out of school for a long time, and what was college level at that time is now different." According to a university math instructor there is a difference depending on when you went to college: "There is no doubt about it. When I went to college, 10% of my high school graduating class went to

college. Now it is up to 50-60%. I think all graduating seniors go on to college of some sort." As he reflected on the changes in the student body, one community college mathematics instructor commented that "we don't have as demanding a thing as we did 25 years ago." This point was taken up by a community college English teacher who said "standards shift, all standards, over time."

Decline of Standards

Two national reports were published in 1984 (NIE's report and the NEH report discussed in the review of the literature); the first reporting on the perception that American undergraduate education is declining and the second suggesting a reshaping of the undergraduate curriculum. The topic of the first report was discussed by the community college faculty in this study from the perspective that students arrive at college ill-prepared to be successful which has led to the need to incorporate an excessive amount of developmental course work in colleges. The literature indicates that community colleges have lowered their standards, providing less than college-level work (Eaton, 1994; Cohen and Brawer, 1987; Richardson et al., 1983). Several of the community college faculty commented on how lower ability of students affects their courses. One community college English instructor elaborated on the topic

of students who come to college with poor skills, a situation which:

suggests that there is something very fundamentally insidious about the system, not about the college system in and of itself, but the schools, the education system across the board. When we look at the fact that 40% of our incoming students have to go through some developmental level. I think that is not appropriate.

Another community college English instructor stated that as we get students who know less and less, we begin to chip and chip away on what it means to be college level and after a while, and I know this happens to me, I look at a paper that is a really good 10th grade paper and I'm so delighted to see a paper that I can read that I give it a higher grade than it deserves.

A community college mathematics instructor commented that "there is the movement toward the mean in accommodating the students rather than saying 'this is what is expected.' And that is what makes it so difficult to define a college-level course... you cannot define a college course as being measured by what a student is able to learn." One of his English colleagues said that when he "began college teaching in 1967, approximately three-fourths of the students were basically literate. Since that time the level of academic preparation has lessened."

All but four of the faculty interviewed expressed concern about the lack of preparation of their students, citing poor reading skills, poor writing skills, lack of a general knowledge base, and a lack of a sense of responsibility for their own learning. The issue of renegotiated standards raised by McGrath (1991) and Richardson (1983) was a concern at the community colleges. The university faculty did not mention the issue. Lack of preparation makes developmental work necessary at colleges; an expense to both the college and the student--a point raised by a community college English instructor who stated:

I think that in some way it is tragic, what is happening. That somewhere along the way from kindergarten to high school, the student has not been given or not maintained or retained, absorbed, somewhere between the two, information that says that when you get to college, you can read and write and calculate on something higher than a 7th, or 8th or 9th grade level. For me, 12th grade is 12th grade.

She went on to say:

The question needs to be, why is it missed? Not just that we can take care of it, that we can provide that developmental curriculum until students get to the non-developmental curriculum.

But why is it being missed? Why is someone sitting in a college classroom with a 7th grade level of ability?

In addressing college-level standards one community college English instructor commented as follows:

For community college instructors to give substantially less reading [than is expected at the university] is to say to the students, you are not college level. ... We are saying to them that the English course you are taking is not near as good as that at the university. That is cheating students. We hurt our students when we meet the students at their level and keep them there.

The faculty from both institutions agreed that community colleges need to utilize the same academic standards as the university in order to ensure the success of transferring students.

In comparing community colleges and the universities, a university instructor related a conversation she had with a community college transfer student:

He went back to a community college to pick up everything through pre-calculus that he needed. He has made the following comment to me several times, in terms of the difference between my class and the community college. "There they just teach

you to follow the track. They give you the problems, and you know the test is going to be like those problems, homework is going to be like those problems. You just follow the track." He said the university is trying to teach us to go beyond that, to think independently, to learn shortcuts, to learn other ways at going at this."

A community college English instructor who teaches a graduate course at an excellent private university as well as upper level courses at another state university compared the students at the different institutions:

So the difference is, when I go into a course at Hopkins, they have the syllabus--they would not think of NOT getting the syllabus ahead of time--they ask me, does it matter in which order I read these books, because they already have the books. When I go to UMBC the students are less directed so students have the books by the first day and have begun to delve, having some questions. Here [at the community college] I have students who ask, do I have to buy the books? Where do I go to buy the books? Unless I am teaching an honors course.

Critics of community colleges generalize to all community colleges, and a great deal of their criticism does not appear to apply to the community college in this study.

The university instructors did not express concern about the success of the students transferring from the specific community college used in this research. In fact, the Assistant Vice President for Undergraduate Studies at the university stated that this community college's transfer students at the university do just as well as the students who begin their studies at the university, particularly those with 2.5 or higher grade point averages (personal communication, June 4, 1996).

The extensive use of part-time faculty at community colleges, a negative point raised in the review of the literature, was raised in the interviews. The community college in this study uses a common course syllabus and common texts and tests to ensure that the requisite course material is covered. "There is no way to carefully monitor what is going on. If you tell a part-timer and a full-timer that this is what is on the exam, your students need to know it; it gets taught." The university uses the syllabus because of the extensive use of teaching assistants in lower-level course work. The community college instituted a competency examination for freshman writing as a way to gauge the success of their students because there are so many part-time instructors. Students must successfully complete the writing competency examination in order to pass freshman writing.

Bender (1986) and Eaton (1988) both raised the issue of testing at the community college, that it may not be as rigorous as at the university. This study shows that both faculty groups believe that comprehensive written examinations are characteristic of college-level course work. Richards' (1983) criticism that community colleges were becoming less rigorous was addressed by two English instructors at the community college and one mathematics instructor at the university. As an explanation of why this occurs in any college, an English instructor from the community college noted that "there is such a lack of knowledge, general knowledge, that it is watering down our college-level courses. Because if you have to go back and give them the general knowledge that we assume they know, [you cannot cover necessary course content]."

College-Level

There are some scattered references in the literature as to what constitutes college-level course work (Adelman, 1968; Astin, 1993; Carnegie, 1987; Cohen & Brawer, 1991; Eaton, 1994; McGrath & Spear, 1991). Descriptions of Advance Placement courses in freshman composition and calculus are included in the literature review. Both colleges accepted advanced placement credit, but there was some reservation about the level of preparedness in the high

schools. Concern was expressed about the level of expertise of the high school mathematics instructors in teaching such courses.

It was the opinion of those interviewed that mathematics mastery comes with advanced degrees, which most of the high school teachers do not have. Note that first semester masters students teach calculus at the university, and while they have similar education, they have no experience.

Critics of higher education (Simpson, 1993) claim that college students lack, among other things, knowledge of their culture. This allegation was mentioned by one of the community college English faculty, and made it necessary for her to provide for her students the background for what they were reading. Thirteen of those interviewed in this study mentioned, when discussing the essential knowledge and skills students must bring to a college-level course, that college students have deficiencies and therefore make a poor transition from high school to college.

One literature teacher from the university said that although he did not want to relate what they were reading to the students' personal lives, he did want them to be able to relate to the subject under study. While discussing connections across disciplines, others interviewed in this study also cited as a problem connections between what

students learn and how they live. The point was clearly made during the interviews that students need to be able to solve problems, and that this skill is applicable across college and life in general.

Summary of the Findings

The categories which resulted from the first stage of analysis were studied to ascertain similarities across and among all cases that could indicate defining characteristics of college-level course work. This examination of the data revealed eight characteristics common across the community college and the university, and across the disciplines of English and mathematics.

An interesting and significant finding from this study that went beyond the discovery of the defining characteristics of college-level course work was the concern on the part of college faculty that recently graduated high school students were deficient in the knowledge and skills needed to be successful in college-level course work. This minor theme related to the major theme of the essential background for college-level course work. Two characteristic categories included more than one concept. The first characteristic, problem solving, included the use of higher order thinking skills of analysis, synthesis, interpretation, evaluation, conceptualization, critical

thinking, and the drawing of inferences. The category of pedagogy included evaluation methods, writing and reading requirements, and the affect of textbooks.

The institutions chosen for this study were culturally similar. For instance, the same vocabulary was used by the instructors. For example, the term "regurgitation of homework" was used by two university instructors and one community instructor. Several alluded to the point that college-level course work would cause the students to have head aches, and that students may have trouble sleeping because of the academic challenges.

One of the reasons for the statewide discipline meetings in Maryland was to ensure that concepts presented in the lower-level general education courses were similar so that students will be successful as they move through higher education in Maryland's colleges and universities (see Appendix H). Such equivalence was perceived as not always being the case; so guidelines were developed for freshman writing and the first level of college mathematics. Building a knowledge base was the purpose of the meetings and not the transfer of credit. In fact, Eaton noted that community colleges should have "shared understandings ... among institutions about what can be considered collegiate" (1994). The community college in this study met this criteria. Two of the community college campuses use part-

time instructors referred from the university; many of the two faculties work together on committees. The chair of a two-year college mathematics group works with director of MARYEMPT (the university's mathematics testing program for high school students used to determine their progress toward college-level mathematics); the chair of the general education program at the university works with the chair of the mathematics department at one of the community college campuses on resolving math transfer issues.

In general, this research determined that the community college and university English and mathematics faculty interviewed for this study believed that college-level course work is designed for mature learners who take responsibility for their learning. Course work involves problem solving utilizing higher order thinking skills, drawing on knowledge and techniques previously learned in other courses and disciplines. Courses are reading and writing intensive based on sophisticated inquiry, where the answer is seldom apparent. Mastery of course material is essential not only because it is evaluated through comprehensive essay examinations but because it is connected to further course work and applications beyond the classroom.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to explore the defining characteristics of college-level course work. The determination of the defining characteristics of college level is important for two reasons. First, defining college level may provide guidelines for some of post secondary education in order to help ensure the success of transferring students, which is useful for community college students. The second reason is that critics of community colleges question the level of academic work occurring there; indeed, critics question the standards in all colleges and universities today.

There is very little in the literature which describes college-level course work. Due to the lack of empirical studies in this area, the method used to gather data was semi-structured elite-interviewing. The units of analysis were mathematics and English faculty at a university and a community college. This was done to ascertain if there were differences or similarities in the responses from the different types of institutions and from the different disciplines. The choice of two specific institutions and two disciplines was made in order to reduce the probability of the confounding variables of college culture and the

culture of the discipline.

This chapter consists of two sections. The first presents a summary of findings related to the research question, and a comparison of the findings to issues raised in the review of the literature. The second section discusses interpretations and recommendations for future research.

Research Question

This study was designed to explore the defining characteristics of college-level course work through the following research question:

What are the perceived similarities and differences between and among community college and university English and mathematics faculty in identifying the defining characteristics of college-level course work?

Research Procedure

Seventeen interviews were conducted and content analysis was used to analyze the interviews. The original research proposal called for 16 interviews. After the interviews were scheduled one of the community college English faculty stated as she began her answer to the first question that she did not believe that she could describe a college-level course. After a replacement interview was

scheduled, the first faculty member came to the researcher requesting that she be allowed to begin again. She provided an excellent description of college-level writing as well as some other insights into this study; so the researcher decided to include her interview comments with the others. The same interview format was followed except for the false start.

The university and community college for this study were the largest institutions of their type in the state thereby having the potential of providing a sufficient number of individuals from whom the researcher could choose to interview. The choices for interviews were made with the assistance of the Assistant Vice President for Undergraduate Studies at the university and through consultation with instructional deans at the community college. The researcher chose the interviewees who were identified by their colleagues as being knowledgeable about and interested in curriculum issues. Each potential interviewee was contacted to determine if he or she were interested and available to participate in the study. All of the faculty nominated and selected agreed to participate. Appointments were made for the interviews, and letters were sent to the participants confirming the appointment and reiterating the purpose of the study (see Appendix A).

The researcher initiated the interview with a broad,

open-ended question that asked interviewees to describe the defining characteristics of college-level course work in all the detail they could. Probes were used when the interviewee faltered or did not immediately respond. Similar probes were used in all interviews so that if the interviewee was influenced, they were all influenced in the same way (see Appendix B).

The interviews, which proved to be remarkably similar across disciplines and colleges, were transcribed, and analyzed to begin the process of categorizing the data. The researcher provided transcripts of the interview to each interviewee for confirmation purposes. Four interviewees were contacted a second time, two from the community college and two from the university, to clarify points in the transcripts.

Data Analysis

Using a cut and paste method, the researcher placed cuttings of the salient points on poster board, developing groups of characteristics as the researcher proceeded using a content analysis methodology called domain analysis, a structured methodology for arranging data into meaningful categories of information. Several categories developed that did not define college level such as curriculum changes, and the lack of preparation of first year college students.

Summary of the Findings

Content analysis of the data was accomplished through domain analysis, a structured methodology for arranging data into meaningful categories of information. This resulted in the following eight categories of characteristics:

1. Problem Solving using the higher order thinking skills
2. Mastery of subject matter
3. Connections within and across disciplines
4. Maturity of the student
5. Essential knowledge base from high school
6. Course content
7. Pedagogical issues of writing, reading, evaluation, and the textbook
8. Rigor

A further analysis was then conducted looking at the comparisons among and between the community college and the university and the English and mathematics faculty.

Each category of a college-level characteristic was presented using quotations from the interviews and summaries of comments that described, in the words of the faculty, the points they were trying to make. These commentaries were broken into sections based on institution and discipline. The final paragraph in each category was a comparison of the

responses from each institution by discipline.

Problem solving using the higher order thinking skills was a characteristic discussed by all of the 17 faculty involved in this study. The higher order thinking skills necessary in college-level work are those listed in Bloom's taxonomy: analysis, synthesis, interpretation, evaluation, inference drawing and conceptualizing; all of which may be used in critical thinking. At least one of these attributes was mentioned by every interviewee.

The point was made that complex problem solving occurs in college-level course work. These problems often involve multiple variables drawn from different sources; students must develop a model for solution, and evaluate their solution.

Mastery of subject matter is a characteristic of college-level course work discussed by 15 the 17 faculty interviewed. Mastery of subject matter means that the students have a deep understanding of the subject; it is not memorizing bits and pieces, out of context. It should be noted that there was no probing question that addressed mastering subject matter; so it was assumed researcher that if a topic was not mentioned in the open-ended interviews it may simply have meant that the interviewee had not considered it.

Connection within and across disciplines is a

characteristic cited by 15 of those interviewed.

Connections within the discipline means that students must draw on previous knowledge across a semester in preparation for comprehensive examinations. Connections also means across disciplines, i.e., mathematics is used in many fields such as the study of economics or chemistry. Hopefully, connections can be made between college work and future employment. All of the university faculty mentioned the importance of making connections within and across disciplines, as did all of the community college mathematics instructors as well as three of the community college English faculty.

There appears to be a relationship between the third characteristic, mastery of subject and the fourth characteristic, connections within and across disciplines. Students must master course work so that it becomes part of long term memory, and therefore, is retrievable in order to make connections within and across disciplines.

Maturity of the student was cited by 13 of the 17 faculty. All of the university English faculty discussed aspects of maturity necessary in college-level course work. Student maturity includes the willingness of the student to take responsibility for their learning. The interviewees were in agreement that maturity is necessary in making judgements, and drawing inferences. In the words of a

community college mathematics instructor: "You would not expect someone who is 15 to be able to draw the same conclusions as someone who is 25."

Thirteen of the 17 faculty in this study talked about how college-course work builds on an essential knowledge base; seven were from the community college and six from the university. Faculty comments were similar across disciplines and institutions. Both subject areas, mathematics and English, are part of the curriculum from elementary school upward, so this finding is not surprising. As one community college mathematics instructor explained "college level is one that builds on all those standard high school courses."

Course content which was included as a characteristic of college-level course work by 13 of those interviewed, was discussed from two perspectives. The community college perspective is illustrated in the following comment from a community college English instructor: "It is not so much level as approach ... it is often the way a course is taught that is college, not necessarily the content." A mathematics colleague further explained: "It is both the content as well as how you approach the content and what you do with it." The university faculty had a second perspective. According to a university English instructor, college students "will not have had most of what I teach

[when they were] in high school, basically because it is too hard." A university mathematics instructor illustrated the point saying: "A college-level course is more sophisticated [than a high school course]... with more complex and subtle concepts." So a difference of opinion appears to exist between institutions on this point with the community college expressing that college level is reflected in the approach to teaching, while the university faculty cited the complexity of the course content.

The pedagogical issues were subdivided and were comprised of writing, reading, evaluation of the student, and the textbook. While these topics were not discussed by everyone, there was great similarity across the disciplines and across the institutions in the comments made.

The discussions of writing in college were included in all of the English discipline interviews at the community college, but only one mathematics instructor mentioned it. This is attributable to the fact that writing is not part of the mathematics courses at the community college until the calculus level. The mathematics instructor who teaches calculus commented that "the biggest complaint about the journal writing was not that they had to write but that I would correct their spelling." According to one university mathematics instructor, "Students are often surprised that papers are required in mathematics courses." She went on to

say that "it is entirely different than anything they have had before. Some of the English majors are delighted because they get to write." The university mathematics instructors use journal writing, papers, and take-home examinations which require clearly written approaches to problem solutions.

Reading was discussed by all of the five community college English faculty, but by none of the four mathematics faculty. The researcher attributes this to the fact that mathematics instructors were responding from the discipline perspective, and freshman and sophomore mathematics courses are not usually reading intensive. This applies to the university mathematics interviews as well, since only one of the four university instructors discussed reading. All of those who talked about reading in college agreed that it greatly exceeds what students have done in high school both in quantity and in complexity.

Student evaluation, as a characteristic of college-level course work, was a concept included in four of the five community college English interviews. The instructors' comments were mostly directed at evaluating writing. All of those who talked about evaluation described the model used as being a mid-term, a comprehensive final, and at least one paper. In literature classes, instructors include identification-of-character type questions on their

examinations, so that they were not exclusively essay format. The university model for mid-term and final examinations was comprehensive essay evaluation. The two mathematics instructors from the community college and the two from the university described evaluation in college-level mathematics as very different from that which occurs in high school. In college the tests are not like the homework; students must draw from what they have learned and apply this in "slightly new settings" ... "so you [the student] have to think."

Discussions about the textbook took place in nine of the 17 interviews. The comments were similar across institutions. The English faculty do not rely heavily on textbooks, using anthologies and stand-alone books instead. The mathematics faculty rely more heavily on textbooks, believing that this reliance, while it may drive the course, does not completely define the course. The university mathematics department uses the same textbook for each course in all freshman and sophomore mathematics because of the large number of teaching assistants. The common textbook provides a teaching guideline for this relatively inexperienced group. The largest campus of the community college also uses a common textbook across all of its mathematics sections partly because of the large number of part time instructors. While this group is experienced, a

common text and a common syllabus helps to ensure that material required for the next level is covered.

Just less than half of those interviewed included rigor as a defining characteristic of college-level course work. Of the seventeen interviews, eight contained references to rigor; four from the community college and four from the university. Examples of what the instructors said are as follows. From a community college English instructor: "It must make one very, very uncomfortable and I think the over-used and trite word is challenging." According to her colleague from the mathematics department: the rigor of college work is in "the type of testing that takes place; the way students are expected to perform in examinations and the level of response that is required; how deeply they understand the topic." An English instructor from the university commented that the rigor is there because college instructors often "do not supply an answer in a box", leaving the student to "find the answer," and "be comfortable with the fact that there may be more than one correct answer."

The research findings were compared with the literature, which supported these findings. The results of this systematic study are reflective of the opinions of the following writers.

Judith S. Eaton, in Strengthening Collegiate Education

in Community Colleges (1994), makes the point that "the term college-level is central to the description of the collegiate role" in community colleges (p. 110). Eaton states that the college level

of the curriculum refers to the intellectual goals set by classroom faculty for the course content and academic tasks that are assigned. These academic goals have two characteristics: (1) they encompass subject matter that goes beyond the level of high school general education yet precedes the academic specialization characteristic of upper-division and graduate-level university work and (2) they incorporate qualitative and quantitative skill development aimed at ensuring that students can complete baccalaureate liberal arts and career studies if they wish.

Eaton goes on to characterize college-level course work as that which incorporates "tasks that require creative thinking, the ability to coherently articulate ideas orally and in writing, and the ability to reach and defend conclusions" (p. 110-111). She describes academic tasks as those that

enable students to develop analytic and synthetic reasoning abilities, to understand and replicate theory, and to function at a conceptual level that reflects creative thought and careful scrutiny of

intellectual constructs.

Arthur M. Cohen and Florence B. Brawer, in the second edition of The American Community College (1991), discuss the collegiate function of the community college as one which "has tended to center on courses based on reading and writing, textbooks and examinations" (p. 292). The authors state, "One test of the level of a course is the degree to which it makes intellectual demands of its students" (p. 303); and go on to say that "the collegiate function, the higher learning, teaches reflection, [and] use of the intellect" (p. 304).

The Academic Crises of the Community College (1991) by Dennis McGrath and Martin Spear presents an interesting point regarding the issue of course content versus approach to teaching the course, making the distinction between 'skills' and 'content,' between 'method' and 'findings.' On that grid, courses are of two basic sorts: those that teach how to think, or read, or write, or compute (skills courses), and those that provide information, that teach what to think (content courses). When that conceptual division has been made the big question that teachers dispute is whether skills and content are necessarily intertwined, or whether they might be taught effectively in isolation from each other.

A commentary of the Carnegie Foundation for the Advancement of Teaching entitled Missions of the College Curriculum (1987) included several points that the researcher found relevant to this study. College faculty and administrators "should formulate more clearly the advanced learning skills necessary in college (p. 264). This was followed by the statement that the same group should

make integrative courses a more central feature of intellectual activity--concentrating on broad structures of thought as well as on areas of more specific analysis (p. 264).

It was further suggested that college administrations "assist the primary and secondary school in teaching basic skills and providing compensatory training in them, when necessary, at the college level" (p. 264).

"In 1954, a committee was appointed at the University of California at Berkeley to formulate, among other things, a statement defining the objectives of its College of Letters and Science (Carnegie, 1987, p. 153). The following excerpt from Missions of the College Curriculum, (1987) reports three of the recommendations of this committee. These recommendations reflect the problem solving using higher order thinking skills, and reading characteristics of college-level course work found in this study.

(a) the development of intellectual curiosity and the wakening of new intellectual interests; (b) the development of the ability to recognize facts and their relationships, with consequent liberation from uncritical loyalties evidenced by prejudice and provincialism; and (c) the development of mature habits of reading and observation (Carnegie, 1987).

In the 1970s, the Dean of the Faculty of Arts and Sciences at Harvard University suggested some criteria of an educated person. The first criteria was "an educated person must be able to think and write clearly and effectively" (Carnegie, 1987, p. 156). The second criteria was "an educated person should have a critical appreciation of the ways in which we gain knowledge and understanding of the university, of society, and of ourselves ..." (Carnegie, 1987, p. 157). He cited as a third characteristic that "an educated individual should have achieved depth in some field of knowledge" (Carnegie, 1987, p. 157).

The faculty interview comments made in this study were similar in nature and touched on many of the things covered in the reievw of the literature. There were almost no differences between the responses from the community college faculty and those of the university faculty. There was also little difference in the responses of English faculty versus those of the mathematics faculty. In the areas of pedagogy,

there was limited discussion in some areas, which the researcher attributes to lack of probing questions regarding pedagogy. One area where comments differed was between the community college and university faculty on the subject of content versus approach to teaching content as defining college-level course work; the community college faculty stressing approach to teaching content and the university discussing the complexity of course content.

Recommendations for Further Study

Further study is recommended at colleges with diverse geographical locations and socio-economic levels. The size of the institutions should be varied. Further research at different types of higher educational institutions is also suggested such as private institutions, urban research institutions, small liberal arts institutions, engineering colleges, and technical community colleges, as well as comprehensive community colleges in different geographical and socio-economic settings. Research should include faculty from disciplines other than English and mathematics. The two disciplines chosen for this study are tool subject areas, which are used in other classes throughout education as well as in life in general. For example, research in other disciplines may not include the category of connections within and across disciplines, which is a strong

category in this study. In addition, English and mathematics are cumulative subjects, building on previous knowledge where the previous knowledge is essential. Other disciplines may not require the same degree of essential knowledge base.

One area that may require additional research is the determination of the college instructor's role. The role of the teacher at the college level differs from the secondary teacher or the trainer. This is an area not addressed in this study but worthy of further research as to its relationship to college-level course characteristics. Clearly, if a college-level course must require the exercise of higher order thinking skills, then the instructor must do more than convey information. Determining whether teaching assistants, increasingly prevalent in the lower-level courses at the four-year institutions, have the skill and experience to enable such response may be instructive.

A final reason that additional research is necessary is to confirm or fail to confirm the findings of this research study. Research at differing institutions and in differing disciplines would determine the extent to which those variables affect the findings in this study.

Interpretations

The impetus for this study was the issue of

transferability of course credit. The researcher has been the coordinator of state-wide articulation at the community college used in this research. In this role, the researcher has been instrumental in promoting, in association with the Maryland Higher Education Commission, statewide discipline meetings at which guidelines were developed for the transferability of college-level general education courses within the State of Maryland.

The researcher has also had direct contact with the transfer system of the State of Florida; having interviewed several community college administrators during the course of her internship at the Maryland Higher Education Commission. The focus of the internship was to draft the working document that the Commission used to consider the possibility of using common course numbering in higher education.

The transferability of college course credit is a significant issue especially to community colleges. There are no clear guidelines or standards for either the community colleges or universities to use in determining the transferability of particular courses. This absence makes course transferability an ad hoc decision.

The potential of this study is that the defining of college-level characteristics may lead to a definition of college-level acceptable for transfer by all institutions of

higher education. A system may be developed whereby courses are evaluated using characteristics whose presence would identify that course as college-level and mandatorily transferable within a state system and conceivably nationwide.

A disturbing but not surprising ancillary finding from this study is that students are not prepared for college-level course work. Interviewees were almost unanimous in their criticism that students lack the basic skills essential to perform the functions herein described as college level.

Although the ramifications of this finding affect both community colleges and universities, community colleges bear a heavier burden due to their open-admissions policy. The increasing use of scarce resources for non-credit developmental course work may force legislators and the education community not only to re-assess the open-admissions policy but more importantly the failure of elementary and secondary schools to prepare students for college-level work.

A more insidious result of this finding is that both of the institutions studied may have lowered their expectations. It is one thing, for example, to state that a college-level course must be rigorous but it is another to maintain a level of challenge which excludes those without

basic skills. The dichotomy in the interviewees' comments is that they specified characteristics of college-level courses at the same time they indicated that students lack the basic skills to meet their criteria. Unless a majority of their students failed their courses, the inference is that they accepted less than their own standards. Could it mean that there has been a failure to apply standards which has contributed to the devaluation of the bachelor's degree?

In an egalitarian society, where college attendance depends less and less on intellectual ability and capability and more and more on eliminating cultural and economic disparities, defining the characteristics of college-level course work may be more an exercise in what should be rather than what is.

Although the two disciplines studied, English and mathematics, are offered and usually required at the secondary level, it was clear from the interviews that a higher order of thinking is expected at the college level. Properly taught, a college-level course should not enable a student to succeed using memory alone.

The one characteristic that links all eight of the characteristics enumerated by the interviewees is the necessary use of higher order thinking skills. Clearly this is the sine qua non for college-level courses which distinguishes them from secondary courses and from training

courses.

A college course should present concepts to be understood rather than to be memorized. Students should synthesize information and be able to comprehend and apply abstract ideas. The student should become informed through analysis and synthesis, through determining why 'x' and not 'y'.

If one accepts the premise that to be a college-level course, content must require the use by the student of higher order thinking skills, there are evident ramifications for evaluating both courses and students. As to the former, whether, for example, a course meets transferability requirements, an analysis of its content would indicate the necessity for the use of higher order thinking skills. As to students, a far more sensitive but nevertheless necessary determination may be whether there is the capability to perform the higher order thinking skills required by the course. A test such as the Miller Analogies test used by graduate schools, may be a useful predictor in this regard. It may well be that someday a prerequisite for a college-level course may be evidence of ability to perform higher level thinking skills.

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Appendix - A

Letter sent to each individual to be interviewed.

Dear Professor :

Thank you for agreeing to participate in my research. As we discussed, the purpose of this study is to determine the difference and similarities in the defining characteristics of college-level course work, between and among two- and four-year college English and mathematics faculty. The defining characteristics of "College level" must be identified if transfer of course credit is to be equitable and if transfer students are to be prepared academically to continue their baccalaureate studies.

In my research, I will use elite interviewing, a form of theoretical sampling, which involves the purposeful selection of those people who offer the most theoretical relevance to the situation and concepts under study. During this interview I will ask you to describe the defining characteristics of college-level course work, in all the detail that you can provide. The interview should last approximately one hour and I will submit a copy of my transcript of the interview to you for editing.

Sincerely,

Margaret R. Miller

Appendix - B

Interview Questions

The following questions were designed to elicit indirect responses to the research questions, without leading interviewee responses.

1. Please describe the defining characteristics of college-level course work in all the detail you can provide.

The following were used as probes.

1. What are the prerequisites, if any, for the course you are teaching?
2. What expectations do you have regarding the ability of the students?
3. What are your course requirements?
4. How do you evaluate the students?
5. What happens in your classroom? How do you engage the students in the process?

Appendix - C

- Professor A: University Assistant Professor, English; BA, MA, PhD; Assistant Chair of the undergraduate English program; academic adviser; participates in English curriculum planning at the university.
- Professor B: University Associate Professor, English; BA, MA, PhD; Chair of freshman writing course; instructor of graduate English teaching assistants; coordinator of state-wide discipline discussions between community colleges and universities.
- Professor C: University Associate Professor, English; AB, MA, PhD; Director of the undergraduate honors program; former associate dean of undergraduate studies, teacher at the Folger Theater.
- Professor D: University Assistant Professor, English; BA, MA, PhD; Chair of the undergraduate English program; coordinator of 200 level English teaching assistants.
- Professor E: University Instructor, Mathematics; BA, MA, PhD; Chair of freshman mathematics course; Chair of text book committee for MATH 110; participant in statewide discipline meetings.
- Professor F: Community College Professor, Mathematics; BA, MA, PhD; Campus Chair of the Mathematics Department; President of the Maryland 2-year College Mathematics Association.
- Professor G: Community College Associate Professor, Mathematics; BS, MA, MS, PhD; Acting Campus Chair of Mathematics; Dissertation on the effect of calculus reform methodology; participant in the state-wide discipline discussions between community colleges and universities; participates in mathematics curriculum planning at the community college.
- Professor H: University Instructor, Mathematics; BS, MEd, PhD; Coordinator of mathematics teaching assistants; consultant for transferability of

mathematics courses; participant in the state-wide discipline discussions between community colleges and universities.

- Professor I: University Professor, Mathematics; BA, PhD; Director of the Maryland Early Mathematics Placement Test Program, a free service of the university to inform high school students of their progress in college-preparation mathematics; dual appointment in curriculum and instruction and undergraduate mathematics; helped draft the mathematics guidelines for community colleges and universities based on the state-wide discipline meetings.
- Professor J: Community College Professor, Mathematics; BS, MA, PhD; Member of Faculty Council (governance), former instructor at a Maryland 4-year private liberal arts college; current instructor of all levels of mathematics; involved in mathematics assessment policy discussions.
- Professor K: Community College Professor, English; BA, MA, PhD; Faculty member at a community college, a four-year college and a graduate school; participant in the state-wide discipline discussions between community colleges and universities; Director of the Women's Studies Program at the community college as part of a federal grant.
- Professor L: Community College Professor, English; AB, MA; Chairperson of English Composition and Literature, participant in the state-wide discipline discussions between the community colleges and universities; coordinator of the writing-across-the-curriculum program.
- Professor M: Community College Professor, Philosophy, Professional Writing, and Foreign Languages; A.B., M.A.; Coordinator of campus advising committee; member of college-wide academic advising committee which is a policy making committee.
- Professor N: Community College Assistant Professor, English; B.A., M.A.; Director of Writing

Center; Doctoral student in George Mason University's program in Teaching English at the Community College; Co-chair, Teaching and Learning Committee of community college Middle States Accreditation Committee.

Professor O: Community College Professor, Mathematics; B.S., M.A.; On sabbatical with a National Science Foundation grant studying mathematics instruction; College-wide academic advising committee, a policy making committee; member of the College-wide Academic Regulations Committee.

Professor P: Community College Professor, English; B.A., M.A., EdS (in teaching English in the Community College); instructor of developmental writing as well as freshman composition and literature; former faculty advisor to Phi Theta Kappa, the community college academic honorary society.

Professor Q: University Professor, Mathematics; B.A., PhD; participant in the discipline discussions between community colleges and universities; participant in state-wide discussions on mathematics preparation held with representatives from secondary schools and colleges.

Appendix - D

Example of semantic relationship

Self directedness

Use initiative

Desire to learn

How much they read

and what they read

Okay to have different opinions is a

Students want to learn characteristic **MATURITY**

Structure in thinking that is not of

typical at a younger age

Motivation to succeed

Responsible for own learning

More independent reading

Interest in learning generated by

the student

Appendix - E

Memorandum from the Secretary of Education beginning the process of defining the characteristics of college course work in general education courses.



MARYLAND HIGHER EDUCATION COMMISSION

GOVERNOR
William Donald Schaefer

The Jeffrey Building
16 Francis Street
Annapolis, Maryland 21401-1781
(410) 974-2971

MEMORANDUM

DATE: December 13, 1994
TO: Maryland Higher Education Commission
FROM: Shaila R. Aery
SUBJECT: Report on the Committee on General Education

At its October 12, 1994, meeting the Education Policy Committee discussed a number of issues related to student transfer. These included re-examining the general education section of the *Minimum Requirements for Degree-Granting Institutions*.

At the November 7, 1994, Commission meeting I informed you of my intention to form a work group to advise me on issues related to the transfer of credits. Subsequently, I requested segmental executives to appoint representatives to a Committee on General Education. I also requested that these be academic administrators having the authority to represent the larger campus community (e.g., Provost, Vice President of Academic Affairs, etc.).

The charge to the Committee was to examine the fulfillment of general education requirements as it relates to student transfer. Currently, each campus may establish its own general education requirements within the guidelines established in the *Minimum Requirements*. The Committee was asked also to analyze the current requirements and propose changes that would establish a set of general education requirements common to all public colleges and universities. These requirements, if completed by a transfer student at one public campus, would satisfy the lower-division general education requirement at all other public institutions.

The present system has a number of obstacles to efficient progress of a transfer student toward a degree. Attached to this memorandum are tables based on data in a study by the University of Maryland Office of Articulation of general education transferability. Table 1 of the attachments indicates that presently a very large number of courses are not accepted in transfer as general education courses. Table 2 indicates that a substantial number of courses counted as meeting general education requirements at community colleges are not accepted in transfer for any form of credit. Further compounding the transfer issue is the variety of general education requirements among the public colleges and universities.

COMMISSION MEMBERS:
Charles B. Saunders, Jr., Chair
Quentin R. Lawson, Vice Chair
J. Glenn Beall, Jr.
J. Henry Butts

Edward O. Clarke, Jr.
David T. McLaughlin
Osborne A. Payne

Richard P. Street, Jr.
Constance Corneil Stuart
Otis Warren, Jr.

SECRETARY OF
HIGHER EDUCATION:
Shaila R. Aery

Appendix - F

On August 11, 1995, instructors of freshman writing, representative of Maryland's two- and four-year public institutions, met to formulate a statement regarding English composition. The following statement was developed in order to clarify the English component of the Chief Academic Officers' (CAOs) response to the Maryland Higher Education Commission's guidelines for state-wide General Education. This was the third meeting held this summer and followed a review of freshman writing syllabi from the two- and four-year schools.

STATEMENT OF EXPECTATIONS (Freshman Writing)

I. Each institution will develop a freshman writing program, which may include a sequence of courses, consistent with the needs of its student population and its mission. However, the freshman writing course* designated by the institution as completing the general education freshman composition requirement should

- be informed by current research in composition and rhetoric and
- advance students' understanding of themselves as writers, including understanding that they participate with others in public discourse and have moral and ethical responsibilities in that discourse.

II. Students who complete the designated composition course should write well organized and balanced expository prose. They should be able to

- formulate and support a thesis
- inform, argue, and persuade
- address a range of audiences effectively
- employ advanced conceptual skills: analyze, synthesize, evaluate, formulate
- support claims with adequate and pertinent evidence
- support generalizations with legitimate specifics.

III. To achieve these goals for students, the designated composition course should be designed to promote students' ability to

- understand writing as a recursive process as well as a product
- manage that process through skills of sorting, drafting, revising, editing

* or an equivalent course

- recognize stylistic options, their range of choices among them, and the reasons for using each
- use the conventions of standard written U.S. English and manuscript presentation
- understand the primary principles of scholarly inquiry and research, including how to identify appropriate issues, formulate appropriate questions, find relevant information, and effectively incorporate findings in their own writing
- respect and use the conventions of documentation
- craft an extended piece of expository or persuasive writing

Appendix - G

Minutes of the Statewide Mathematics Meeting, February 23, 1996 Montgomery College, Rockville

21 institutions were represented at the meeting, including 16 community and junior colleges and 5 universities.

At the suggestion of Denny Gulick, the following representatives of the Chief Academic Officers (CAO's) Segmental meetings attended:

Helen Giles-Gee (University of Maryland System)
Sara Smith (Montgomery College Central Administration)
Lorena Wertheimer (University of Maryland, College Park)

After a review of the past year's results of the statewide mathematics meetings and the responses by the CAO's, Helen Giles-Gee discussed the need for clarification of the competencies prerequisite to college-level mathematics courses and expectations for general education courses at the college level.

Two issues are germane to general education mathematics courses. On the one hand, the transfer regulations approved by the Maryland Higher Education Commission (MHEC) in the fall of 1995 state that a general education mathematics course must have a prerequisite of at least Algebra II or its equivalent. The interpretive statement approved at the statewide mathematics meeting in March 1995 appears to resolve this issue.

On the other hand, the first principle tentatively approved by the CAO's in February 1996 states that "general education courses in the five specified areas (English composition, mathematics, arts and humanities, social and behavioral science, biological and physical science) shall provide sufficient breadth and depth in fundamental core knowledge and skills and introduce students to 'ways of thinking' in that discipline." This issue was the main focus of the present statewide mathematics meeting.

After an extended debate, which included a discussion of Mathematics for Elementary School Majors courses as well as the four principles approved (tentatively) by the CAO's at their February 1996 meeting, the attendees voted unanimously to endorse the following statement concerning "attributes" of general education mathematics courses for public institutions in the state of Maryland:

Special Attributes of General Education Mathematics Courses

Based on the Principles of the Chief Academic Officers, the mathematicians statewide submit the following guidelines for content and standards of general education mathematics courses:

All general education mathematics courses must:

1. Have performance expectations demonstrating a level of mathematical maturity beyond Algebra II (high school intermediate algebra).
2. Include development of analysis, synthesis and problem-solving skills, and introduce students to "ways of thinking" in mathematics.
3. Introduce mathematical concepts and techniques that can be applied in further mathematics and/or other disciplines.
4. Explore mathematical applications to other disciplines.

We also note the following items from the meeting.

1. There was no decision as to whether courses labeled Mathematics for Elementary Education Majors should fulfill the general education mathematics requirement. However, if they are mathematics courses AND meet the adopted set of attributes, then an institution should be able to include them in the set of courses that meet the general education mathematics requirement.
2. Helen Giles-Gee noted that in light of the on-going deliberations concerning assessment and expectations of high school mathematics courses and graduates, it is likely that representatives from high schools and colleges and universities statewide will need to meet to consider issues of mutual interest.
3. There was some concern that the resolutions adopted at statewide mathematics meetings would (by principle 2 of the CAO's) be merely "recommendations" to the CAO's, which could be accepted or rejected. On the one hand, because of the structure of the institutions involved, these resolutions can be only advisory. On the other hand, Helen Giles-Gee spoke of the appreciation of the CAO's for recommendations made at discipline-oriented meetings (such as the mathematics meetings). She added that the CAO's are agreed to taking such recommendations seriously and communicating carefully any of their potential concerns of such recommendations.
4. Topics such as acceptable scores of AP and CLEP, the AAS degree, and grandfathering arose briefly at the end. These will be subjects we anticipate discussing at the next statewide mathematics meeting.

At adjournment the attendees agreed to meet on a Friday afternoon late in April (presumably April 19 or April 26). If you would like for your institution to host such a meeting, please communicate with Denny Gulick (301 405 5157; dng@math.umd.edu).

Finally, we hope that you will share with your colleagues the four attributes listed above and approved at the meeting, so that your colleagues will be aware of them.

Denny Gulick
Professor of Mathematics
University of Maryland
College Park, MD 20742
February 29, 1996

P.S. We include a list of all who attended the statewide mathematics meetings in November 1995 and in February 1996. If there are any inaccuracies, please let us know.

EDITED INTERVIEW 1

English - Community College

Q: My question, as I said in the letter, is that I would like you to describe the defining characteristics of college level course work in all the detail that you can.

A: Okay. I think that I am approaching this from a couple of perspectives--as an instructor and also as a student. Not only as a student in a doctoral program within my discipline, but as someone who intentionally places myself in learning environments, on a regular basis, to study and learn things of which I know little or nothing. That gives me perspective about what it means to be a good teacher and to get good education, and to be presented with good education. I think at its heart college level work has to be intellectually and emotionally discomfoting. Uncomfortable! It must make one very, very uncomfortable and I think the over-used, and trite, word is challenging. I'm trying to not overuse that term. With that said, I think one needs to have everything that they've ever believed, questioned and shaken and reexamined on a fundamental level--at its most fundamental level. We can't be comfortable anymore. Now that doesn't mean to say that

we have to ultimately change what we believe. But we have to question it in a very profound way. We shouldn't be able to sleep well--now that we are in college.

If we're doing this correctly, we're going to be almost tormented by what the input is--by what we are taking in. In every class we should just be so consumed by the process of questioning and the feelings of discomfort that we want to do what ever we can to find a way through it. We have to also accept the fact that it might not be on our time frame. That finding our way through it may be on the time frame of the process. We have to be open to the process of being intellectually and emotionally very uncomfortable.

I think we have to be willing and to be very, very unsafe. Intellectually and emotionally unsafe. Otherwise, if we go to college or if we teach in college and we get into a pattern or routine. What is a routine? It is the same thing--we are never looking at anything that could broaden our horizons--broaden our perspective, take us to new intellectual and emotional heights. We must go out onto the high wire without any net, because if we know the net is there we'll never take any terrific risk. I think the only way that we become more than what or who we are,

greater than who we are, is to take the risks. Course work has to in some way have within itself, inherent within its content, the opportunity for students as well as instructors to take the risk to understand where our personal limits are and then to push us beyond those limits. Once we get to another level, and begin to get comfortable there, the work must push beyond it again, and again and again.

Q: That is really good. That's is, hopefully, what is going on in a college class.

A: That is what I think should be happening in a college class. I purposefully designed a course that would do that. The students who are willing to come along with me on the journey--because really that is what it is--come away just fundamentally different and enriched. Not just different for the sake of difference, or change for the sake of change, because I don't think that is necessarily a good thing. They are enriched in a way that their lives now are better, that they can do things they didn't think they could do, they can take chances they didn't think they could take. I don't just mean in writing or within a classroom environment--it is applicable outside. I think that one of the things that could make college work relevant or more relevant, is that in every curriculum, regardless of

the nature of the curriculum, humanities or social science or science or physical sciences or anything else, there needs to be a practical element. There need to be internships across the board. That is one of the things that I thought would be an intriguing idea when I was working on a project to design a community college last fall. We are so accustomed in the community college system that if you are in automotive tech, you have to take some sort of humanities class. However, we never say in the humanities curriculum or the more traditional curricula that students should have to take something of a practical nature. I can remember in high school, struggling with math and thinking to myself--I don't understand algebra and geometry. Something that would really have helped me and that I had an interest in, was taking an accounting course or a business math course because I can see its applicability--now. I know some day I'm going to need a check book. I'm going to have to learn the practical, fundamental nature of these things. I remember my guidance counselor telling me that I was above that. That I was a college track student and that I was above taking any business courses. I always resented it and still remember it.

I thought, if we're talking about being well rounded; for the student who is in a more technical or practically oriented curriculum, why isn't it fair then to say to those of us in the more traditional curriculum, that we should be exposed to a welding class or an automotive class to be well-rounded. Being well-rounded is not just a one-way street. The street is two-way.

Q: Do you think that might have been the idea behind our old applied studies area of general education?

A: I don't know.

Q: That is exactly what it was--there were the maths, the business management--and I always wondered why is that there?

A: I don't know enough about it. But I think that the really good education is integrated, and we are too compartmentalized. Really successful education programs are not compartmentalized. You take a history course for an hour and a half twice a week. Then you go from your history class, ten minutes later, to your English class. Then you leave that and go to your chemistry class. But there is a course curricular integration where students get input from all of the curriculum without it being so cut and dried, and compartmentalized and boxed. One of my favorite essays

in the whole world and that I have my 101 students read is "School is Bad for Children" by John Holt. I just love it because it really points to all of the stuff that is so wrong about school--not education. That is a real big point we make when we talk about the essay--it doesn't say education is bad, it says approach to disseminating information doesn't work well. There are better ways to do it. I think that reading and writing have to be intensive elements regardless of curriculum. I guess that is my third point. The notion of write to learn, journal keeping, double entry journals, one-minute responses that Joan Naake [is presenting]. There is the notion that the only reason I have to write anything is because I'm in an English class. No! You need to write for whatever course you are in, whether it is chemistry, or psychology. You need to read as well. I think that those two have to be part of college content--defining college course content.

Q: That's part of expectations of the student--that they need to write and need to read all of the time, obviously.

A: I was reading an article--it was the lead article in Sunday's Washington Post magazine about a 27 year old hot-shot lawyer who went to Cornell, then to Georgetown Law. I thought this is interesting; I'll send it to my

sister who went to Cornell Law and is not a practicing lawyer per se, but is vice president of a real estate section of a big bank. I thought it would be interesting for her to see because she had gone through that experience and has many friends who are part of the attorney world. This article said that this young attorney keeps a journal. The article keeps coming back to his keeping this journal. I decided that I'm not going to just send it to my sister. I'm going to make copies of it and give it to my students this fall. They will see that he is not an English teacher, yet he writes; he writes to find meaning and to learn things about himself and the world around him. I think it has to be, those two elements have to be. Even in the automotive tech curriculum, they should write to learn, the notion of writing to discover. It is essential and reading to discover as well. Has to be. I think that there needs to be, not only the emphasis on the practical, but the aesthetic. Doing it because it's there to do. Take art history because art is wonderful. Do it for the sake of doing it. Simply do it for the enrichment and not necessarily with any more of an outcome or any more of an objective than just to be able to say I did it. Just to have it there. Whatever "it" is. Talking anecdotally. Have you seen

the Daedulus software?

Q: No

A: There are a number of different levels in it. One of them is simply to write. Not necessarily because you are going to do an essay, not necessarily because you are going to be graded. Not because anyone else will see it, but simply because it's asking you to challenge and question what is in your head.

It was designed initially by PhD students at the University of Texas. It has been used very successfully at the Rockville Campus, and I've been through a couple of Daedulus trainings because we're trying to get it for Germantown. I want Tom to buy it and Tom, from what I've heard is interested in getting it. It is a shell into which the instructor feeds prompts and directions. It is all self-designed; and you can give students journal prompts or free-writing prompts that don't have to go anywhere after that. They don't have to become the basis for anything other than just the fact that they were exploring. They were just exploring a question that the teacher provided or a question the student provided. In my classes I do a lot of journal writing. I have my students do what I call an own-choice web once a week. They draw a web and in the middle write in their own choice. Off the

web are these little pods of different things they are thinking about; whatever is on their mind. It can be something troubling. It can be something they want to do, a vacation they want to take and they don't have enough money. Should they or shouldn't they quit their job and find a new one. They write all of these down and then pick one and then just write about it, and maybe nothing else happens with it. I don't make them write an essay. Its just for them to consider. From that it may give them an informed idea of what to do with the specific ...

Q: I'm convinced that the more you write, the better you write.

A: yes

Q: But what about input from an instructor, as to style, correctness. How does that enter into what you are talking about right now. Do you look at it and say ...

A: Comma splice?

Q: because what I would be uncomfortable with is just a creative writing stream of consciousness

A: I think that is why in any classroom where it is writing intensive, and particularly in the writing classroom, we do a lot of types of writing. Some writing is just for the sake of getting it done. There are many other assignments that have an outcome--the

essay, in which style, and grammar and punctuation and fundamentals, mechanics are addressed. But you know, we all do all kinds of writing. For example, when I send e-mail messages, I'm not particularly concerned with my spelling or anything like that. I'm just interested in the fact that the information is sent. It has to do with the audience; if the audience is just the student, writing for himself or herself, then I don't care if there are comma splices or not. If the student is writing for a larger audience, his classmates, her classmates or me, or writing for publication in any number of traditional or nontraditional definitions of publication, then the requirements are much different. By giving students a broad range of assignments, they begin to understand that audience is important, and what that what they have to do, depends on their audience.

Q: Okay. Since I am not writing this down, I'm not sure we've touched on say the prerequisite knowledge.

A: That is such a double edged sword; on one hand I am glad that the community college environment is able to provide developmental courses for students. I love teaching my developmental courses. On the other hand, I think that in some way it is tragic what is happening. Somewhere along the way from kindergarten

to high school, the student has not been given or not maintained or retained, absorbed, somewhere between the two, information that demonstrates when you get to college, you can read and write and calculate on something higher than a 7th, or 8th or 9th grade level. For me, 12th grade is 12th grade. What does that mean? College is college and I would like to see it mean the same thing, wherever one goes. That is not to say that I don't believe we are providing a necessary service to students, and that they shouldn't be in college. What I think it suggests is that when students can come to college, real college, with 7, 8, 9, 10th grade skills, there is something very fundamentally insidious about the system, not about the college system in and of itself, but the education system across the board. When we look at the fact that 40% of our incoming students have to go through some developmental level, I think that is not appropriate.

Q: Did you see in the Washington Times, the lengthy series of articles on higher education and standards, and costs to the taxpayer, that raised more questions than it answered, because there really were no answers. It was a very interesting series of articles. There was a discussion about the role of the community college and it does vary according to the state; California says

one thing, Florida another, etc.

A: It's troubling to think that the role of the community college, which is always a double edged sword, is to provide for a student, what he or she missed all these years. The question needs to be, why is it missed? We should not just accept that we can take care of it, that we can provide you that developmental curriculum until you get to the non-developmental curriculum. Why is it being missed? Why are you sitting in a college classroom with a 7th or 8th grade level education?

Q: Some of our students start in continuing education.

A: Right, continuing education or nothing, because the pre-developmental curriculum which we are supposed to have has not been fully implemented.

Q: What does that say? Pre-developmental?

A: Does that then mean that a student who is in sixth grade, regular sixth grade, a 12-year old can come to college? Should a 12 year old come to college? What are the implications and ramifications of this? I think it's much too brief. It's much too band-aid.

Q: It is a serious problem.

A: It is a terribly serious problem that I don't think anyone has addressed to satisfy me. I'm not happy.

Q: Part of what I am looking at is how can we begin to address it if we don't know exactly what it is? That

is what I am attempting.

A: Thank you, Peggy

Q: Wouldn't it be nice if we could determine

A: What is happening? You know what I think is happening is that there is no real relationship between kindergarten through college teaching. We are all very much isolated; we are all alone doing our own thing. It's very easy in that type of environment to say it's the other's fault.

Q: Everybody does that, the high school blames the junior high, the junior high blames the elementary, the elementary says it is the parents fault, and I guess the parents say the grandparents.

A: We've done that long enough, and that has solved nothing. We are still getting students in college with 7th grade and 8th grade reading and mathematics levels.

Q: Your answer to the question, what prerequisite knowledge, means college-level ability, to be able to read and write at the college level.

A: We have to establish what college level is. All things being equal, I would say, that one has to work to one's limits, and challenge it beyond. I don't think that you should come to college with a 7th grade reading level and necessarily challenge yourself to go to a 9th grade level. You should come in with a grade 12 or 13,

or 14 reading level, and challenge yourself to go beyond that.

Q: Okay!

A: How can one expect to get through undergraduate school, even though we know that a BA or BS these days is really not much. You almost have to go beyond that. How can one expect to get to higher level courses and study any science or critical literary analysis journals and documents if we can't read at that level, and not just read but comprehend and understand? I would say that critical literacy has to be an element of this as well. It's not just the ability.

Q: I believe 12th grade has been established somewhat and the other component is the critical thinking part. I guess it all comes together, the skill level, the reading, writing comprehension and problem solving, we've talked about this, and the content.

A: Let me add that I see expectations regarding ability in perhaps a broader sense. While I agree we've touched on reading, writing, problem solving, I would take it a step further. I would expect when a student comes into my classroom that they are going to be willing to work possibly harder than they have ever worked in any course before. They are willing to take enormous risk with their writing. That usually means with their

personal belief system. I expect that. That is an expectation and that is upfront. I'll do the same thing. I'll take the same risks. I'll push myself as well. I will write with them. If we don't agree with that expectation, then there are plenty of other sections available.

Q: In other words, you are not going to grow if you don't take that extra step.

A: That presumes that people want to grow. That is not necessarily an accurate presumption. I don't want to be putting words in your mouth, but is not growth of the student part of being articulate, part of a college course? I formed a wonderful analogy after listening to a friend of mine. He is much younger and he was telling me how his legs hurt him and his arms hurt him. He said these were growing pains. I had not thought of physical growing pains in 25 years. When he said that, all of it made sense. It hurts, yes; it's painful, but what ultimately happens? You reach your potential. Well, okay, intellectual and emotional growth is going to be the same thing. I expect it. I expect that you will allow yourself to grow. That is not saying it is not going to be painful. I never promised anyone that. But that is what I expect. I think we all should.

Q: Wonderful! Now, what about evaluation?

A: Evaluation; there are lots of different types of evaluation, primarily on the heels of Angelo and Cross's classroom assessment. There are lots of different types of evaluation varying from note cards regarding context. Here is a comma splice; here is a run-on sentence. here is how you fix the two of them. They are kissing cousins. Here is how you fix them, and lets try some more. Now the class is over. Tell me what a comma splice is; tell me what a run-on sentence is. It is a very directed concept stuff. We move on to broader, larger evaluation, end of semester evaluation, mid-semester evaluation, for example, that asks students to delve in depth into their learning experiences. What have they believed to be formative exercises. What information did they find most valuable? What information was the least valuable? I've gotten real comfortable with giving take-home, group-based mid-terms. Let them all sit down together, take out the books together and argue what says what. This part of the mid-term is group work and grammatical based. They have to sit there with their reference materials and decide grammatically what type of sentence this is, and how it needs to be fixed if there is a problem with it. You see them sharing knowledge

and working as a group, brain storming and problem solving. I just sit back and think that--there it is. This is what they are going to do when they get to the real world. How many of us shut the door and sit there and thank that I can't figure this out. We just struggle with it and then we go to someone who can help us. Other types of tests are essays. They have to write their final exam, part of their final exam is writing their final essay, without it ever having to go through the draft stage with me. Because it is applied knowledge. It is weaning them from the first five or six essays that they've done, that have gone through a minimum of one or two draft stages with me. That isn't going to be the case next semester. Next semester someone else is going to be there, and eventually no one is going to be there. These are the things you need to know. It requires them to take their acquired knowledge and apply it from everything they have done all semester. I think it is important to assess in a lot of different ways throughout the semester by touching upon many different topics, graded and non-graded assessment.

Q: Is what you are talking about applicable to the developmental course work as well as to 101 or whatever you teach? Is this the over-riding way you are going

to handle it?

A: I was speaking about specifically in terms of mid-term and final, the English 101. I do similar things in developmental courses. Certainly I do the Angelo and Cross assessment techniques in every class whether literature, 101, or developmental. It doesn't matter. In the developmental course I tend to test in small increments and more often. There are also required tests that the college says I must give in the developmental courses. Even in the developmental courses I have them do tested and non-tested exercises, that require accumulated and applied knowledge from over the course of the semester. That requires abstraction from what they have read and what they have seen in video tapes of things I have shown them, to the written word, the essays. I require that part of their final exam be an essay it is an in-class essay.

Q: Do you think there might be a difference between high school developmental education and college developmental education. That point is raised in the article from the Times, that I mentioned earlier. I guess the other thing is the specific course requirements, the reading assignments, the homework expectations; the writing assignments which is what you have talked about.

A: In EN 101 five journal entries are required weekly, and also an essay every week which means that at any given time students are revising one or two essays while they start a new one. My courses are reading and writing and homework intensive. The reading each week is an average of three selections of anywhere between 10 to 30 pages. In addition to writing, there is in-class writing as well. In the essay writing we do an introduction to metaphor and to simile which we do in poetry form. I do a point of view exercise. These are all writing assignments some of which are expository and some of which are not. At some point everyone finds a niche even if it is for one assignment that is worth two percent of the grade. They can flourish. My expectation is that the homework be done, and if it is not, after about the second time it's not, I ask them to leave the class and come back when it is ready.

Q: What is the difference between English 101 and 102?

A: I think that it has to do more with writing approach than it does with skill level. If one successfully completed 101, then 102 or 104 should not be beyond one's skill level. It should be a honing of one's skill and a taking one's skills and learning how to use them in different ways. In 102 for example, it is very argument, persuasion heavy. That is not necessarily

something we do a lot with in 101. Writing skills, however, should be immediately applicable.

Q: Do you believe that EN 101 is probably not a college-level writing course?

A: Not my 101. although I wouldn't want to speak for anyone else, Joan's would not in any way be considered less than a college course. Her 101 is very demanding. Carla's 101 is demanding, Abby's is demanding. EN 101 hones skills. In a way it is a different level than 102; it's not so much level as it is approach. It is taking what you know and learning how to apply it in writing argument, writing persuasion. By virtue and the nature of the more writing and the type of writing, the analytical writing one does, one's skills will increase as well. I mean one would hope that by the time they are through 102 their skills are even more grounded. Certainly I would stand by my 101 as a college-level course against anybody else, here or any other school.

Q: Because of the way you define it?

A: Yes. It is absolutely in my definition and I know that I have had students say that their friend has taken 101 here or somewhere else, and they didn't do any of what I did. The definition of what I understand the course to be is different than somebody else's.

Q: Are you still within that guideline for the 101 course?

A: Yes, I go beyond it, but yes.

Q: That is the interesting issue that needs to be addressed state-wide. Do we have 101 and 102, or do we have just one course?

A: For 001 and 101 and the literature courses, and of course 104, the expectations are pretty much the same. The assignments may be different because of the nature of the course being different, but I think the definition of whether this is college, and how I define what happens in the classroom--I think varies little. The content may vary, but the definition doesn't necessarily vary.

Q: I understand what you are saying it that often it is the way a course is taught that designates it as college level.

EDITED INTERVIEW 2

University - mathematics

Q: I would like to spend some time discussing the defining characteristics of college-level course work.

A: I am involved in several projects to try to reform middle and high school education. I think what we are trying to do throughout math education is to make the character of the experiences less different. I think it might be easier for me to say what I think the differences have been. I think typically high school mathematics has been quite procedurally oriented. Students are shown a whole variety of procedures for doing specific things in mathematics and they get a lot of practice in those procedures. It leans too far to the rote side of learning, for my taste. At the college level typically there is still quite a bit of procedural learning but there is more emphasis on showing how those procedures connect to each other, showing how they have a rational basis, having somewhat of a conceptual framework that shows what the big ideas of the courses are. For an awful lot of college students, particularly during the first two years, I think it is fair to say they don't get very much of that sort of big picture. Even when we try to prove

things, to show how everything follows logically from first principles and so on, there is a lot of evidence that suggests they still learn to do proofs in a pretty procedural way. They memorize the proofs they know are going to appear on the exam and they regurgitate them and so on. While I think everyone's intention is that a college-level course is to have students have a more coherent view of the ideas and how they fit together logically, the actual net result is not that much different except it is with more complicated stuff.

Q: What do you mean by more complicated stuff?

A: Calculus is in some sense one of the dividing line courses although, what I really want to say is that there isn't any clear line.

Q: It is on a continuum?

A: Yes, calculus is the bridge between the top level of secondary mathematics and the beginning level of college mathematics. Calculus requires integrating a lot of pieces that you would have learned in high school mathematics in order to do reasoning of a more complex sort.

Q: It organizes thinking?

A: The subject really forces you to pull things together. Calculus is more complex in the sense that you can't get by with learning one little piece; you have to draw

together a whole bunch of the pieces you've learned before. The other thing is that calculus involves some concepts that are more subtle than some of the concepts of high school mathematics. I just came from our experimental calculus course; they are dealing with limits and the whole notion of infinitesimal and limits. That kind of stuff, I think is conceptually more subtle. There is that difference as well. The concepts are a little more subtle; the whole environment is more complex. It is a matter of degree rather than a complete shift of material. I don't think you can say there is a discontinuity between high school and college mathematics. Now, 120,000 kids every year take the advance placement exam in calculus, maybe even more, so it is pretty hard to say.

Q: There is a question in my mind about what happens in those high school calculus courses. For instance one of the professors in this study said that it depends on the school.

A: Some of those high school courses are very good courses and some of the people who teach them are doing a very good job with them. But yes, some of them get pretty mechanical. Some are pretty low level, that is certainly true, but that is probably true at college too.

Q: Yes, from one professor to another, one college to another. Which is again, what I am looking at.

A: I guess the difference is at one level, the complexity of the environment, the problem environment that people have to work in. The way they have to integrate a lot of things from prior knowledge, and the subtlety of some of things they deal with is also involved. There is a discussion now about calculus. We are in year ten of the reform of calculus nationally that started by people noticing that the way kids learn calculus is pretty rote, a pretty routine way. College isn't immune from that same kind of criticism.

Q: Mary Kay showed me the reform calculus book they are using on her campus. I might even have been able to do that, because you learn concepts and how to apply them.

A: Well, yes. I think there are different kinds of learning involved now, and different kinds of people can be successful. Some of the same people are going to be successful regardless. There are certainly people who just didn't have what I refer to as a bookkeeper's mentality which is being able to keep all the Xs and the numbers all lined up--memorizing procedures. There are some people who are pretty good at that. There are other people who like to see the big picture, who like to think conceptually, who like

to think graphically. The new approaches, I think, offer them that.

Q: So students can see what they need to know, and go back to see what tools they need to do it?

A: Well, the technology too, sort of equalizes the playing field in some respect. A lot of what is happening to mathematics is that the technical side is being mechanized and so the conceptual side is becoming more prominent. You have got to know what tool to choose and when to choose it and how to interpret what the tool produces for you. That is happening at the high school level as well. It is not happening as rapidly-- well, maybe it is happening as rapidly but neither one is very rapid. That may change. It is focusing on the connection of disciplines more now, such as the big ideas of the discipline, mapping what you learn in the organized discipline onto situations where it is applicable. I think that the people in high school are trying that as much as the people in college. Because of my involvement straddling the two fields I am very reluctant to say that clearly is the benchmark that separates high school from college.

Q: I don't think there is a clear benchmark.

A: In college, I don't think people really understand; I see that as a goal in high school as well.

Q: English and math teachers say it is a continuum. You cannot say this is the exact spot. You can take a good high school student and a weak college student--they may be at the same spot.

A: There are good conceptually oriented high school courses and weak procedurally oriented college courses. One of the interesting things for me, and at times very frustrating, is to work with prospective high school teachers who are now seniors in college but who are now turning their focus. Instead of learning more advanced mathematics, they are thinking about teaching high school mathematics, and to see what their goal will be as a high school math teacher is at times discouraging.

Q: They are looking back to their model.

A: That is right--very much. Their model is pretty much a "show 'em and tell 'em and drill 'em" model of high school mathematics. There is a whole ferment in the math education community which is trying to change that conception; but it clearly hasn't hit the kids yet. They are struggling. It is a real challenging proposition for them to think about this whole foundation that they rode through and were successful in, and is just now shaking.

Q: They can be at the vanguard of something really great.

A: That is what I tell them.

Q: Because they are already math inclined, interested in math, they are not put off by that "memorize it and do it." So the person who comes to you with the technical background might be more focused?

A: I agree with you, at the doctoral level, more focused, to understand, to think; right down to kindergarten and elementary. Just the scope of how much you can integrate and how big a picture you can see evolves as you grow older but I guess I am part of the school that thinks it is appropriate at every state for people to see how what they are doing connects to what they've been doing and to where they are going. Things like that. I would not like to see a dramatic change in the kind of activity that characterizes high school. From college, on the other hand, it is true that when students come here they really notice that there is a change in the kind of questions that are asked, and the level of critical thinking they are asked to do. Part of that is, I think, that in coming here they have left 80% of the distribution behind. It is more competitive, but it is also because the kids tend to function at a more conceptual level. They are the ones who come here. If you have mostly that kind of people, you can raise the anti pretty substantially.

Q: My cognate committee member in psychology has given me

some information about constructivist theory in math. It is interesting.

A: That is very much driving a lot of the reform point of view in pedagogy and even curriculum in math education now. It is a general derivative of Piaget. A few would agree that is the case. It is the notion that everybody has kind of a mental model of the universe in his head and the model you construct by interacting with your environment and reflecting on what you see and so on. Effective learning really involves helping kids to construct more and more sophisticated and powerful models of their world. The big thing about it in math education is the notion that for the most part that kind of construction of knowledge has to happen by the learner struggling with questions and in general it will not be very effective to just tell somebody what it is they are supposed to add to their model. The learning has to be a process of struggling with an idea.

Q: At all levels?

A: Yes, at all levels. It is influencing, in the national council for teachers of mathematics standards for high school, for all level of school, math instruction and assessment and curriculum and everything; that notion sort of permeates all the recommendations and the

consequence is that the roles for teachers and students are perceived to be, that they should be different than what they have originally been. The traditional role of the teacher is to stand up and spout off a lot of things and the student is to be the empty vessel.

Q: who just sits back--

A: Yes, there has always been tension about that. I think it is renewed right now. The three experimental courses we are running are based on the premise that it is probably more effective to get the kids to confront challenging questions and to have them interact with each other and interact with physical materials and so on; and to try to formulate ideas that help explain what they are doing. None of the teachers in those courses lectures. We don't explain how you do things. To be defensive perhaps, but also to be fair, this is experimental where we are searching for the best way to stimulate kids to construct knowledge and the best way for the teacher to play the role. We don't know. Some people claim they know.

Q: You really won't know for a while as this plays out over the years. I am trying to put constructivism in perspective. Is this right--you might work with one or two concepts in the 8th grade, you might work with eight or ten possible ways to do something in college.

A: Yes, you have got a bigger background of things to integrate. And again it probably doesn't jump in discrete steps. It builds continuously. One example of what we are doing in these courses that I mentioned in part because it reflects a difference between high school and college but I have to second guess myself. We, in each of those courses, are asking the students to keep a journal of reflections on the issues. Which is like asking the students to think about their own thinking. To think about their own kinds of learning, which is a higher level kind of response. Having said that, there are people who are trying to do this in high school as well--even in middle school. The notion is to make someone a little more conscious of their learning. Reflect on it; communicate with the teacher. Now the kinds of prompts you give a kid in middle school are not as sophisticated and complex as you give to kids in college. But this is what I think you would have traditionally associated with college, mainly raising your whole perspective to a higher level, which is something we are trying to do at all levels, it is just a relative step up that is difficult.

Q: There would definitely be a difference, maybe it is subject matter, say in calculus, raising someone's consciousness level in a calculus course certainly is

not the same as in a first experience geometry course.

A: There are some very deep and subtle issues underlying high school geometry. We traditionally haven't confronted kids or asked them to think about them.

Q: They memorize?

A: Well, yes, but college calculus is quite often that way too. I keep saying it is sort of relative. I don't see where I could draw in the sand and say this is high school.

Q: Are the topics in math different?

A: In math, traditionally the dividing line has been calculus. On the other hand, in Europe calculus has traditionally been a high school subject. That is because kids in the European schools specialize earlier than they do here. That is part of the reason. It is clear in this country that calculus is sort of the dividing line.

Q: But as you go through calculus, say calculus III, is there not more math sophistication?

A: I think it's primarily the complexity of the situation you are trying to understand. Not so much a more advanced world view, it is just that you are trying to explain more complex phenomenon. You are trying to explain things where there are three or four variables in the problem rather than just two. So you have to

visualize them in three dimensions rather than in two dimensions. I don't think students in calculus III have a more sophisticated view about underlying ideas of calculus, I think they just pull together from previous courses. Professor [name omitted] might give you a different perspective on this. There are clearly college kids who are able to think about more complex things because they have a broader base, broader background.

Q: That is not new, according to my interviews--and the literature, people are aware that you go to college with prerequisite knowledge and without that prerequisite knowledge you probably won't be successful. You have to get it somewhere.

A: The thing that people always fuss about, what does it mean to do college-level study, is you can go to college and start in French I. I started German I in college. I got credit for it, credit toward graduation. We went faster than I would have in high school.

Q: Everybody brings this up; I just had this discussion in the last couple of weeks.

A: I didn't take chemistry until I got to college.

Q: At our college you can't take chemistry without high school chemistry; they have a three credit course to

bring students up to speed. Along the continuum, elementary to graduate school, as I see it, college students are beginning the process of research. As the English faculty have put it, using the words and ideas of others; interpreting and evaluating them. How does this apply in math?

A: Math is used by a lot of people as a pretty instrumental subject. It is a tool. It is similar to going to Sears to buy tools because you want to do a job. For probably 99% of the students who take college math courses, they are not going to become mathematicians. As a matter fact the percentage of age cohort who get a doctorate in mathematics is like one half of one percent. Something like that. The percent of math majors is even worse than that. The percent of math majors in college is under 1% of undergraduates nationally. So it is a very small fraction of college students who take mathematics who are actually taking it with the idea that they are going to contribute to advancing that field.

Q: Is math like a set of tools that you have to acquire in order to do something else?

A: Math is a very useful tool. People approach mathematics to help them do research in economics or problem solve in economics, not to contribute to

mathematics. So to some extent I think another kind of demarcation between high school and college mathematics is a little bit more focus on how you can use mathematical methods of reasoning in order to solve problems in other disciplines. High school doesn't traditionally do that. The phrase that is used nowadays is mathematical modeling. The notion that mathematics provides conceptual models for representing phenomenon in other fields is a pretty strong image of mathematics at the college level now. It is not very common at the high school level.

Q: Can you explain this?

A: Our mathematical modeling course is an introduction to the notion of mathematics as representing other disciplines, for example, economics or biology. The point of view that is coming across, that we are trying to bring across, is that mathematics is one of the ways of knowing. It is a way of knowing that has power if you think of it as a way to represent situations. That is quite noticeably different from the way high school mathematics has traditionally been taught.

Q: I need to touch on a couple of other things. I need to touch on evaluation and to look at mathematics on the continuum, like student preparation.

A: In the first two years I would say it is not likely to

be very different from high school. You deal with more complex subject matter but the questions will be quite similar. You will get college students who will want to know exactly the kind of questions to prepare for. If you ask a question unlike anything you have asked before, they will consider it unfair. I think you will be hard pressed to say the test questions are remarkably different.

Q: When you get to calculus?

A: Well, yeah, but that is the primary nature of the subject. I think it is because the subject requires you to pull together a lot more things there. Calculating the derivative of a given function, it is symbolic, it's procedural. There are some conceptual questions perhaps, but you have a lecture with 300 people in it; you have to give standard exams. There is a real tendency to have them become fairly routine.

Q: Some of our math teachers got out old math books and made some comparisons with what is happening today. Is there a difference depending on when you went to college?

A: There is no doubt about it. When I went to college, 10% of my high school graduating class went to college. Now it is up to 50-60%. I think all graduating seniors go on to college of some sort.

Q: Some sort?

A: We offer a variety of options. It is not surprising that all of these kids are not prepared at the level that the top 10% are prepared. A number of years ago I think calculus was the starting point for a whole lot of people. First time freshman took calculus. A lot of the others who don't probably could but they are terrified. They take pre-cal even if they have a year of high school calculus. Here is a very specific example. I have taught this so-called soft calculus course many times since I have been here--almost 25 years. When I first taught it there were architecture majors and premeds, that is about who was in the course. Then it got to be required of all business majors, then it got to be a required course for a number of other fields. It is hard to teach the same course to such a wide population that you taught to those who were quite technically inclined. We don't have as demanding a thing as we did 25 years ago.

Q: Also, they may be asking more demanding things of high school students now.

A: I think that is true. When I look at the mathematical experience that the top kids have in high school today, they go a lot farther in high school than I did, a lot farther.

Q: I still think that there is a difference even though it is not cut and dried, and that the difference, according to these interviews, appears to be in the complexity, as you have said.

A: There is another point here when you get people who have been teaching a course for 25 years--you have to think very carefully to really remember that you have taught this twenty or forty times, but the student is doing this for the first time. There are lots of times when I think, now why don't you see that, it is so obvious. You have to keep reminding yourself that for the student it is the first time he has heard this.

Q: A good point.

A: Teachers by the time they get to the fifth period, they can't remember what they have said, and what they haven't said. Why can't you get this, I've been saying it all day long. There is another factor which I believe is true. As we get older we get further removed from the youth culture, and it is harder for us to be in tune.

Q: Let's get back to textbooks.

A: Faculty have input into the choice of the textbook. Professor [name omitted] has written a calculus book since he has been here and it is a pretty big selling book. Textbooks have changed, there is not much doubt

about that. They've gotten flashier. They are driven by marketing. I don't know if [professor X] will agree, but I believe the marketing research arm of the textbook publishing house finds that in order to get adopted by this school we have to include this topic and before long--Certainly the textbook is a huge factor in driving what you are.

Q: Do you all use the same textbook?

A: Yes, in lower level courses. Part of the reason is, with so many TAs teaching the course it wouldn't work otherwise. We can't let them choose the textbook.

Q: I think we have covered this fairly well, is there anything you would like to add?

A: Defining an educated person by the skills they possess is only part of the story. You are getting a world view.

EDITED INTERVIEW 3

University - English

Q: I would like for you to talk about the defining characteristics of college-level course work.

A: Well, beginning with a 200 level course, the key is paying attention to language. I wouldn't call it a critical sensibility, but a kind of basic awareness that language is not a transparent window. Students need to slow down as readers and to be aware of nuances of words and their rhetorical affects. They are so eager to translate a story into a plot; that is, what happened. For example, I gave them passage identifications from Flaubert and if they had spent any time looking carefully at the passage, they could never have assumed that a certain character could have been capable of thinking about his work as a sacred office, that was the phrase used in the passage. The students who missed it did so because they didn't pay attention; were not interested in what is meant in the phrase 'sacred office'. Many of them resist this, find it nit-picking. They don't find any pleasure and they don't have patience. This carries over to their writing--obviously the other side of the coin. There is not a sense of feeling responsible for control of

their own language. There are a whole set of problems at the grammatical level, but beyond that when they say something, and I ask them what they mean by a word or phrase they used, they are surprised that they have to be able to defend their word choices and their logic in that way. So, the same students who have difficulty with the reading have difficulty with the writing. Not always, but usually.

Q: Is the reverse true?

A: Yes. Generally they go together, but the writing is easier to teach. One just marks the paper, indicates this is not a sentence, and directs the student to the writing center to get some tutoring. The reading is more difficult to teach. For example, I had a student tell me that he had failed the course once and still didn't get it. Usually I am able to diagnose reasons. He implied that the reading was some kind of foreign language and that there was some kind of magical secret to translating--which is the word he used--these texts into symbols or into literary significance. I ask students what is the implication or significance of something but they are at the level of "this happened". My feeling is that they believe it is a set of devices or techniques or strategies. Strategies implies an imposed game metaphor which is a description I heard at

a high school committee. I just want them to appreciate language, the use of one word and not another. They don't get much work in poetry which is always to me the acid test. Poetry is the most difficult for them. They are "freaked out" because they think it has to be mystified and that there have to be deep, hidden symbols. They come to college with all this baggage and part of what is done in a college course is to get them to question their own assumptions. Some don't have many, and some aren't aware of the ones they have. This questioning is at a more rudimentary level than say the 301 level course for English majors where the questioning is of concepts such as what is an author, or what is the relationship between author and meaning; and explores what are the boundaries of intentionality. Forget about all those questions for a 200 level literature course.

M: Really?

A: Yes.

Q: So, there is questioning at both levels, but there is more in-depth questioning in the upper-level courses.

A: It is more the nature of the questioning. It's doing them a disservice to ask questions about critical concepts which are central to the study of literature. In a way we have this problem with a lot of our

graduate instructors who teach many of our 100 and 200 level courses. They are overly ambitious. They came up with a manual with a series based on writing which, I think, was a mistake to begin with. They designed the manual for 101 with a series of interlocked writing assignments. I do not think that writing assignments is the way to organize a literature course. The first writing assignment was for the students to discuss or analyze the contingency of the work of art, a totally preposterous assignment. They wanted them to read the Scarlet Letter and learn something about puritanism. Totally inappropriate. But this is what they do at the graduate level. There is this interest in the new historicism and so on. The problem is that they were trying to immediately translate their experience as graduate students; so we try to suggest a sharp demarcation. This is the first time I have taught the 200 level course for a while; I am shocked at how rudimentary the level. There is an incredibly wide range of ability with some really smart students. For many, the reading was too hard; they read for the plot.

Q: That is not reading very much in depth.

A: Yes, not at all. They had trouble with Freud, Freud's Door. Freud is hard. But some of them reacted by saying that this guy is crazy and sort of dismissed it.

They have trouble seeing Freud's relationship to other fiction writers. It is difficult.

Q: They can't get to the analysis. It's like complaining about the level of the individual student, but it is getting at the issue of what they need to be able to do.

A: Right. They describe; they don't analyze. Over and over again I tell them that they can assume that I know what happens in the story and they do not need to summarize the plot. I ask what are the implications, what are the consequence, what is the affect. Those questions mean nothing to them. They are hard. When they think of significance, they think of some mystified way, some secret meaning. My sense is that in high school there are two poles, especially in poetry. Anything the student says is okay. The response to poetry is sort of a watered-down reader response, just do you like it? or what does it remind you of? The teacher does not control the discussion. Any response is okay. Then, the opposite pole is the teacher explaining the meaning of what they are reading. There is a middle ground between these extremes. This is language, and language is public, not private. People who speak in private language are called schizophrenics. When a word is used, it has a

certain range of possibilities which need to be discussed. One has to see how one word in an Emily Dickenson poem relates to a line later on. Students are not good at recognizing patterns; that something that occurs on page eight is connected to page twelve and is beyond plot.

Q: They can't reach that point just by virtue of being 19 years old. There is something that is not happening before they reach you?

A: I don't think it is related to experience. I am not interested in their experience, or their lack of experience. I am interested in language. And again, over and over I say, poems are machines made out of words, texts are words. That is not to say that words don't refer to experience, but they are just not very comfortable or sophisticated about the media by which literature happens.

Q: At this point, are they choosing English as a major?

A: What I am talking about are people like English majors who say, oh God, I've got to take a science course. Some of the best students are science majors, that is obvious. A lot of them are just being asked to take a course for distributive studies. Some have not even taken freshman writing. You have a whole range of students. I have some beautiful writers, I have a few

students who are A students. I have those who seem overwhelmed by the whole college experience.

Q: You have a really interesting point here, it's not the experience, it's not what they have done before, it's the here and the now and to be able to do something with the here and the now.

A: It's language. I was amazed at, within the university system, what is required of incoming students. There is a section known as reading and literature, and there is a section called writing. There is no section called language. So in writing, they don't know what a sentence is, or a fragment is; they don't what syntax is or how to use syntax. And that translates into reading. I do a lot of close reading. But what you see in the other courses is something else. The model of both science and social science at the university is that there is body of information that must be conveyed. The teacher basically lectures on the information. The students are tested on it. They write, they take notes and they are expected to regurgitate it. It doesn't happen in literature courses. The model for literature courses is discussion. You look at passages. We did a story by a Bangladesh woman in a recent class. It is a team-taught course and my co-instructor is Indian, and she

did a lot of lecturing because there is an enormous level of ignorance that I had, and the rest of the class had, about Hindu mythology; about the caste system, about the history of British imperialism, and so on. That was unusual. That situation required that. We study another story that resisted historical contextualization which is what I wanted them to see. It was a very mysterious story about a brutal murder essentially. Part of the problem was that you didn't understand how it connected with anything. You just had to read it over and over again. Then one of the weaker students said that he noticed that there is a reference to the cape as being S shaped and then a page later there is another reference to an S shape. I said "great"! At last they began to recognize connections, which was my hope at the beginning of the semester. At the beginning he couldn't do that and then he learned that there are these kinds of patterns.

Q: It is like viewing reading as a television program where they are told what occurs.

A: What happens. The idea is that here are these characters that are like real people and there is no notion of the fictionality of fiction; things that are constructed. So again, little things, as in Madame Bovary when Flaubert uses the word 'perhaps'; "perhaps

Charles was thinking this" and I seize on this. I say, he is writing the story, he obviously knows or does not know, and what they have to begin to see is that any demarcation is an act of inclusion and exclusion. They take the story as it is given them and say that is what happened. They don't see this as a representation. They have no concept of representation; that a character is a certain way because an author is writing a certain way. Characters are constructed, constructed artifacts. Again, a more sophisticated move than for an English major, would be to see how social roles are also constructed. They have a very sharp distinction about reality and imagination. It's either one or the other. They don't see how reality has to be imagined both by readers and writers. The other thing that is triggered here is that they are incredibly moralistic. This is a very interesting American phenomenon--in American education. I can't imagine French readers of Madam Bovary having my class's reaction to this. Their reaction essentially was the 1840s reaction of the French bourgeoisie who were outraged at her for having an affair, for her wanting to have something more out of her life than being married to some boring dullard.

Q: Your class reacts negatively. That is interesting.

A: She deserves what she gets. She should be punished.

There are large historical reasons for this reaction in American education. But there is a very strong strain of high-tone moralism in American education. I am not interested in judging characters, I am interested in analyzing characters.

Q: Do you think that they judge rather than analyze because its easier to judge?

A: Yes. It's easier and it also works into the model of verisimilitude that literature is not made up of words--literature is a transparent document on reality. So just like you would judge your next door neighbor for his or her behavior, you judge characters. They are just not interested in language. They just don't have the patience. They have tin ears; they have trouble with tone and *Bovary* is really complex tone. We don't know if it is mockery or irony. It is very hard to situate the narrator. But the key thing to me is that I always have to bring this up.

Q: In discussion, they don't have an opinion?

A: In discussion they are beginning to understand that it is okay to have different opinions, like in a court of law there is a consensus arrived at by evidence. They don't have a sense about the ground rules for evidence. But again, in 300 level courses, I would foreground these theoretical issues and what constitutes these.

In 200 level, I just want to get the discussion going and I'll say "Where is your evidence to support that?" But then I don't ask the follow-up question that I would ask in a 300 level course--"Why did you choose that as evidence?" A kind of meta-commentary, a sort of self criticism. I can't do that in this class. I am much more willing to interrogate people about their assumptions at the 300 level than at the 200 level. In writing, and also in discussion, I ask them to say where did you get that and where is your support and leave it at that. I am amazed, not with all of them, of course, that they are just not interested.

Q: Putting this positively, the college level demands the knowledge of language?

A: Appreciation of language in every sense of the word. We use film sometimes, and they immediately understand when they see a movie like Die Hard, that is constructed by hundreds of thousands of two-second shots and that you move from this shot to that shot. When you slow down a film, they are really stunned because film is one of those things which is simultaneously very constructed and yet very powerful in terms of creating the illusion of reality. It is very dramatic to stop a film, freeze frame it, and show how a shot is constructed. What it means to edit. It

is much easier for them to understand the grammar of film than language. Maybe it is like the air they breathe. But part of what we do as teachers is like the air you breathe--make it smokey so they feel it in their lungs; so they slow down. A lot of them still haven't gotten it. We have mid-terms and on these exams we ask "What is the significance?" They just don't seem to get it. I don't know how to teach it other than to give examples. There is no formula. That is part of the problem. It is very frustrating. All I can do is go over things slowly. Some of them already have the hang of it and some are getting the hang of it. My experience in teaching fundamental writing and fundamental reading is that it is a lot harder to teach fundamental reading. Because in reading, and I am not talking about literacy where they understand each word, but rather what happened and if they understand it. That it is not linguistic competence; it has to do with meaning. But it is not what they want to do. They see it as a very esoteric exercise, almost a kind of religious symbol hunting. They need a stronger sense of how ordinary language works, how in ordinary language there is a lot of ambiguity. You read signs and they could mean this, or they could mean that. They just haven't gotten that.

Q: I think that what is happening in this particular semester is overpowering you. What is another aspect?

A: There are other aspects. A lot of courses are organized around fairly traditional time periods such as the second half of a western civilization course; but instead of teaching what you would regularly teach, starting at Shakespeare and Milton, what happened is the canon has dropped out, that idea that there is a fixed set of authors and great texts. As a result what has become foreground is critical thinking and reading; and we moved from Flaubert to Freud. If they are sitting there with their notebooks and they are taking notes then they are going to be disappointed. There was that element in those 200 level courses, and some teachers still teach it that way. So that if you can't get them to think, and get them to have headaches, and be challenged about that, then at least there is a kind of lecture mode, where you say first there was this guy Browning and he is a Victorian poet--write this down--get a date--

Q: And pray for a multiple choice question.

A: Right. So there is some knowledge base still. But that has become challenged. I started the first class, this class is Western literature. What does the word western mean? I got them to start with a 17th century

Japanese. Because I am not comfortable making those large scale historical analyses it was left up to the Indian instructor to illuminate the story. I do ask them to read the background stuff, however I don't think it is appropriate at the 200 level for them to do historical research or to even provide a lot myself. My view is let us read it and talk about it and see what is going on. And because the canon has sort of faded in establishing a sort of structure, a structure for literature, what you have is very intense engagement with text as text.

Q: The choice of text is critical here?

A: It is and it's not. In my view, probably a minority view, I don't care what I teach. We just use this anthology. We go through the anthology and my co-instructor suggested teaching one by the Bangladesh woman. That was fine because I do a lot by range. We are doing an Egyptian playwright I've never done. It doesn't add up to anything expect that there are a bunch of interesting writers from different places.

Q: And we all end up at the same place after we've done it?

A: Right. Now when I teach American literature I don't teach it that way. I have a stronger sense of first there is Hawthorne, and Hawthorne is connected to

Faulkner. I am more interested in the question of influence and even at the 200 level they need to be conscious of that. I allude to how, for example, in the Indian story it relates to Flaubert for a particular reason. We have a theme to this course I should point out, which is "women in the market place." We read how women have been treated as commodities in different cultures, in relation to discourse.

Q: The theme idea should draw the student in.

A: That is right, and an over-riding theme lends a certain coherence to the course. But that is at the level of theme. I don't think you read thematically.

Q: It is just a crutch? What is the definition of Western Civilization in the literature? Because you are reading from the Japanese--is it the influence?

A: It is interesting because these anthologies have changed dramatically through the years. This course is called Western literature, that is the title on the books. We don't teach it that way; we teach it as world literature. It is interesting to begin with a Japanese work because Japanese is incredibly isolationist. Whatever they arrive at regarding this question of women as commodities has nothing to do with what is going on in the West. Now the people at Brown University were comparative literature people and their

view was that the purpose of comparative literature was to emphasize similarities. There are these universal kinds of issues like love. They would juxtapose a Japanese writer against Defoe's Moll Flanders. What I am interested in is that the students here really tend to emphasize similarities. So it relates to this moral issue indirectly; that they have assumed, coming in, that literature is about human emotions or human values that are trans historical. When I gave them a comparison/contrast paper, almost all of them emphasized comparison and very few were interested in contrast. We read something about the 19th century feudal system and another from the 1830s, about a gambler--Queen of Spades. It was really interesting, and there are some very striking similarities. An older woman is called a witch in one, there is a witch in the other. The similarities only make sense if they recognize the differences. Again, I think it is hard for these students to hang on to both similarities and differences when comparing two different things. The tendency would be to look at how the women are treated in both of these stories, and say it is all the same. If they recognize a pattern, they will pattern things and lose sight of discrimination. The edges get fuzzy. At a very broad level of generality that is

okay, but I would say, what about this? and what about this? Their view is that I am such a nit-picker because they are in the ball park. My sense is that in high school that was okay. People were just happy if they understood what happened in the story. If they could plug it in to some theme.

Q: It has to be rewarding for these students, for instance the engineers, to think about something so very different.

A: Some of them like it. What I do in discussions unnerves a lot of them. Some really like it, some don't. My style is a little different than the other teacher and we do switch off. But this is an unusual class and should not be considered a normative model. I will jump from passage to passage and just say, isn't this so and so. They can't take notes. If they take notes and they look at what was said, it is totally incoherent. I just want people to listen and to follow. So it is almost like mental gymnastics. I don't write on the board. We also have guest lectures. One of the guests was very clear, saying here are three reasons why this author is important, and so on. The students loved it. But I will look at a passage and link it with another one. They will be disoriented. Someone will ask a question which will cause maybe a

fifteen minute digression and then I'll go back, but that is my own teaching style. Even graduate students complain about it.

Q: Because they want to be able to write down exactly what was said.

A: Yes, but you would think graduate students would be more flexible. For example, Tom teaches medieval literature and gives them tests about factual things. I give compare and contrast tests with very abstract topics because I thought freedom would be good for them. It was a disaster. I ask them to discuss the representation of power, how women in these stories are simultaneously given power and yet be limited. They have trouble with that complexity, that something that can be simultaneously the very thing that bestows power, limits it. Let's go back to the witches. They were interested, and they said women are powerful because they are beautiful. I asked "what about a witch?" Isn't ugliness a form of power, a certain kind of revulsion which memorizes? They never thought that way; their thinking tends to be linear. They want really big sign posts, structure, formulas. Literature is really hard. There must be a willingness to live in uncertainty.

Mathematics - Community College

Q: I'd like you to describe the defining characteristics of college-level course work.

A: I want to start with a different approach because I think the problem you are having in getting to the definition for college work is because there is none, and never has been. Not a real definition for college-level work.

Q: Which is why I am doing this dissertation.

A: It is an evolutionary process. What is college-level work today wasn't college-level work fifty years ago. One hundred years ago plane geometry was taught at Harvard as a college course. Now it is a standard 10th grade course. Twenty years ago calculus was taught basically as a college level course. Now it is a high school course. It is offered very routinely; but done differently. So the whole notion of what is a college-level course changes with generations. So I don't see a college-level course ever being clearly defined unless you get into fairly broad generalities. A college-level course is something that is taught more predominately at the college as opposed to the high school.

Q: That is a thought.

A: You look at the evolution of mathematics and history. United States history is taught both places.

Q: Therefore it is not the content?

A: It is not the content, that is right. You look at our algebra, our trig courses, the calculus course; even differential equations. You can find good technical high schools where they are doing good differential equation courses. And the same thing with linear algebra. There is a point where they do not go any further. It is not because the students at that institution wouldn't have the ability to do it. They run out of time. Even some of the higher level courses which are not done in the high schools are not omitted because there aren't students at these special high school who couldn't do them. They are omitted because grade 12 is ended. There is no more time. So it goes well past content or even the reasoning ability of what the students are expected to be able to do. In the specialized high school settings, what they are expected to do is much greater than what you will find in a lot of colleges.

Q: Yes. That is a good point. A good high school may be stronger than a weak college.

A: It is a very mushy topic. There is no "here is where it crosses the line".

Q: It is a continuum.

A: It is a continuum. What is defined as college work in college A and in college B may be completely different. The difference may be not only in content, how much the course is expected to cover, but in what the student is expected to be able to accomplish or to exhibit in terms of reasoning abilities, and so forth. But there are obviously categories of courses that are predominately looked at as college-level courses. It is kind of like saying that a set is defined as a collection. Anything I throw in there makes the set. They might not be connected in any way. It is just a matter of this is what was decided to be thrown together here.

Q: In the high school set?

A: And in the college set. When I think about differences and what I perceive as differences, it comes down to, I think, rigor; sophistication as to how it is presented. Certainly you teach elementary algebra to someone differently than you would teach it if you were doing remedial courses. In the latter you are reviewing it. You expect college students to have a larger vocabulary at that point; be able to understand more complex sentences or phrases and be able to put these things together. So if it is not the content, what is it?

Q: Except on the extreme end.

A: Except on the extreme ends. Yes. For that nebulous gray area, there is overlap between the two. In calculus a good example is in basically 95% of the high schools--not really the good technical schools, the college-prep type places that are really strong. The difference between their calculus and our calculus is we strive for deeper understanding of what the course is about.

Q: So they can apply it?

A: Apply it. So they can get past the mechanics.

Students can do very well with the mechanics; they come in with A's out of high school. However, they have no feel at all for what they are doing. It is just: here is a formula; this is how I do this. How did I relate this to any particular type of environment or any type problem solving? That gets into the rigor, and to the conceptualization. Those two items separate them from the high school level. The same thing, I believe, would happen in the history courses. How do I analyze this? Or the English courses, the literature courses especially. You wouldn't expect someone who is 15 to be able to draw the same conclusions from a story as someone who is 25.

Q: That is prerequisite knowledge, gotten by living?

A: That is maturity. You expect a different level of maturity for the college-level performance. You expect them to be able to do more on their own, but that is not the course as such, it is a matter of expectation.

Q: I am looking at the characteristics of a college-level course and what you said was that there must be the rigor, and maturity.

A: The conceptualization, to be able to draw those conclusions and draw out inferences and relationships between topics. Typically, in high school, students do not draw relationships between topics--distinct topics.

Q: It is more rote.

A: But in college it is different. Students have to be able to relate, in the same course and from course to course.

Q: Course to course is college--more so.

A: Course to course, absolutely more so. It is one of the defining differences between the two.

Q: That says a lot, what you just said.

A: I've thought about this a lot over the past several weeks. I keep coming back to the question, is there any such thing as a college-level course? It is not college-level course; it is college-level expectation for the course.

Q: But the kind of things you talked about, I wish it were

possible, when a course is being critiqued or designed or evaluated, that someone looks to see if there is rigor and there is an attempt to see that there are the things you mentioned earlier.

A: You do that in the type of testing that you do. They have to be aware of the type of testing that will occur. They [the students] are going to have to make inferences from what they have learned and to apply that.

Q: So it requires thinking.

A: That is right. It is not a repeated homework problem as in high school, that is basically what they run into I think, and that is part of the rigor game. I see it all wrapped up in that rigor package and in the conceptualization, being able to look at this and being able to understand what the underlying concept is; as opposed to what it says literally. At the college level, that is what we have to strive for. In other words it comes back also to the problem solving, being able to rationalize. That is where the inferences and conclusion drawing come from. You have to have that feeling for what is represented there before you can start putting those things together.

Q: To solve the problem?

A: Right. When you start solving the problem, if you

don't know what tools are available, you can't get out there and say this is how I am going to solve the problem, you don't know where to go. Typically when I see students having trouble with problem solving, it is because they don't understand what the tools are that they have available. I see it as college-level course work rather than college-level courses.

Q: It is not the content?

A: There are certain areas, again, where you can definitely say these are college-level courses. That is because of the amount of maturity and structure in your thinking that you have to have which you typically don't have at a younger age. It is something, particularly in mathematics and English, that has to be developed. It is a sequential process--building on what you already have. If you look at it from that perspective, college level is one that builds on all those standard high school courses.

Q: The math folks tried to define college-level math and ended up saying that the preparation for it would be a minimum of the second year of high school algebra.

A: Every student is expected to be at that level. We are going to begin with that assumption and build courses based on that. Then you could say under that definition that something is college-level work where

in reality it isn't.

Q: Some math people say that calculus is college-level math. This is somewhat traditional even if they have had AP in high school.

A: Calculus used to be the beginning college-level math course, 20 years ago.

Q: Why do you think this happened?

A: I think that it happened for the same reason that geometry is no longer a college-level course; now it is a 9th or 10th grade course. There is more to be learned; so you can't take too long working up to that point or people will have to spend most of their lives going to classes before they ever get into the work force. That is one reason. The other reason is when something is new people look at it as being difficult and something they cannot do. Many times we simply short change the students, especially the good students, by thinking that they can't do something that they do quite easily. When it was found out that high school students could understand calculus and that they could work some problems once the ice was broken--they moved calculus down. Things that were traditionally graduate courses have moved down to the undergraduate curriculum. You can find lots of those in mathematics as well as in other disciplines. It is very easy to

find those.

Q: Does technology help this?

A: What makes this possible is not just the redefining of college-level courses but also redefining what that course really should be about. Maybe it was taking X number of hours before, but in retrospect you look back and say, this material wasn't necessary, and that wasn't, and we don't have time to do that. We can shorten this and tune things down a bit. As time goes on, requirements change as to how you use the calculus. No one sits around anymore doing a lot of hand calculations; they can get done a lot faster. Also, some of the things you needed to do by those hand calculations you don't need anymore. The course gets changed a little bit and as it get changed, and massaged over a few years, it frees up time so that now it is possible to move it down when it wasn't before. There is time to do it.

Q: Also, it takes the anxiety out of it.

A: Sure. Also, it says we don't need to do a lot of this extraneous material that was done before. In differential equations, for example, there is a whole section of infinite series approaches to solving differential equations; it's only in the last five years that people were wise enough to say that no one

used this anymore. This is an exercise. Numerical approaches, approximation techniques are much more important; as a result a chapter goes and another chapter replaces it. It requires a third as much time to cover the rest. These things keep happening. When these things happen, it not only shortens the course, it also makes it a little simpler, not so much in concepts but in terms of pure manipulations. It is like building a house and building a box. You are doing kind of the same thing but it is a much more complex process to build a house. But you still hammer the nails.

Q: Do the changes in mathematics and other disciplines reflect the fact that so many people are going to college now and that there is a kind of regression to the mean.

A: In some instances I think you are right. In other I think you are not. In the differential equations, the courses for the engineers and those in the hard sciences, we are not going to that mean. We are not watering down the course. It is not being done in that sense. In many courses at the elementary algebra level, we do.

Q: It is college level just because it is taught in college?

A: That is right. There is this movement toward the mean in accommodating the students rather than establishing what is expected. That, too, is what makes it so difficult to define what a college-level course is, because there is so much of that goes on. It is no longer, "this is what you have to know"--it is "what do you think this group can learn."

Q: Yes.

A: That is a bad part of it and it happens all too frequently in the very elementary courses.

Q: But I really believe that is not what the State of Maryland is about. When they say, at the level of college-level algebra, they don't want something below that.

A: You can list a set of concepts which you could get consensus on. This makes a college-level algebra course.

Q: Right now?

A: Right now. It is done all the time.

Q: Look at a textbook.

A: Or look at a college catalog. It is defined. These are the topics covered. It is also defined, unfortunately, by whatever textbook is available; and, of course, you usually have multiple choices. You pick the one which is most appropriate to how you see the

course and at what level you view the course. It is not done by "lets define the course"; but by looking at some sample texts and seeing what our choices are for this material.

Q: Let's see how far they are from us?

A: To quite an extent the textbook writers and publishers drive that decision as well. It is not entirely that, because if you assume that the better people are writing these books and that the better people are trying to maintain a level that is appropriate as opposed to just writing a book for the mass market, then using that as a defining characteristic is not so bad.

Q: It has something to do with a college course; the student is studying from this, doing exercises from this.

A: And these texts are commonly written by people who are teaching the same college course for which you are buying the text. They have a pretty fair idea, but it sort of propagates what that definition is just by default. Once the book hits the market and becomes a popular text, it becomes a defining characteristic of what that algebra course will be.

Q: Are textbook companies responsive to universities?

A: Always, but if they have a best seller, they are not

going to change it easily and try to push another text, even if they have a lot of people saying we need something at a different level now. Eventually something might become available, but eventually might be several years past when it should have been done. My point is that textbook writers go a long ways toward defining what that course is. Even there you run into a problem because you can find the same college calculus text being used in high school.

Q: How is a student evaluated on that?

A: I think when you get right down to differentiating a college course, one of the characteristics should be the type of testing that is done. The level of response that is required which gets away from the purely mechanical and into interpretation and being able to draw inferences. This is what I learned, but I recognize over there that this is an instance of 'that'. I need to use 'that' to solve the problem I just found. Here is a whole other level of abstraction with which students just have a difficult time. They don't recognize that the form which was defined over there and the form that is over here represent the same problem and hence are solved the same way.

Q: They don't think to look for it?

A: They don't think to look for it. I think that if I

were going to pin it down to one of the most important characteristics to show the difference between high school and college level, it would be that testing situation. How deeply they understand the topic and how they are expected to use that understanding. Mathematics is famous for the spiral approach. You keep going round and round. You keep hitting the same topics but each time you should be learning something a little bit new about that topic, and get a deeper understanding of it.

Q: The continuum.

A: You keep going around and up the side of the spiral in algebra and each time you round the spiral you are a little bit higher, and you learn a little more about it.

Q: Mary Kay was describing the constructivist theory. According to Mary Kay, from the very lowest level students work with one or two variables. Then as they get a little further on, they work with four variables, then eight; and you build on it and build on it.

A: In the United States, we have done things differently in mathematics than the Soviet approach. The Soviet approach is taught from the general to the specific. We were always taught the specific and gradually worked our way up to the general statement which covers all of

these. This thing on the variables reminds me of this because if you learn how to work with dimensional space first, that is all you have to learn.

Q: Because you have to go back and find which subsets help you solve this issue. That is what sometimes is done with developmental students; you throw them in the pond and see if they can swim.

A: That is right. Again, I think that generality is what differentiates the high school and college-level work. In high school, they tend to be much more specific, to look at these individual items and never really generalize to the point that these three or four or five processes were really the same problem. That is the college approach, to get to that generalization.

Q: You covered it well. My basic interests are the evaluation of the students, the text, the kind of prerequisite knowledge the student needs.

A: I don't see anything else that is out there. It is impossible to say that this is definitely college level, because you will find someone, somewhere, who teaches it at a lower level. So it gets past the material. It is how well it is learned, at what level. Even in our calculus sequence I, II, and III, there is overlap. In the third semester we repeat what occurs in I and II in the context of several variables. When

you look at linear algebra, you are looking at multivariate type behavior. You find out that all of those things you were doing in the elementary sets are all wrapped up in these much more general procedures. In elementary geometry and algebra, we covered things like transposing axis, or how it changes the set of coordinates when we change the axis from here to here. You rotate the axis. You find out in linear algebra that you don't need special rules. You use one general rule and that covers them all. I think that level of reasoning and level of understanding does differentiate what you are expected to learn in high school from what you do in college. In mathematics it comes down to a higher level of abstraction.

Q: That is a good explanation.

A: This is what we have to do. This is what is expected of you. You are not in college courses to stay in the same place. You cannot look at a college course, or define a college course, as being measured by what a student is able to learn. Or by their age, because the student may not ever be able to learn elementary algebra. I am a firm believer in Piaget's theories. First of all I believe mathematics is an aptitude. You can have a very high IQ and still may not be able to do very well in mathematics. Technology helps students

perform the operations, but it doesn't help them really understand the concepts. You still don't understand it; you just get rid of the fear.

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EDUCATION

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George Washington University
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M.S. Guidance and Counseling, 1965

Virginia Commonwealth University
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B.S. Business Education, 1958

EXPERIENCE

Current: Department of Student Development, Montgomery
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Coordinate the automated transfer program (ARTSYS)
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Commission's Student Transfer Advisory Committee performing research as needed. 1991-92.

Administrative Associate, Office of the Academic Vice President, Montgomery College. Facilitated articulation with both the Montgomery County Public Schools and with four-year institutions; coordinated program and discipline evaluations throughout the college, and coordinated the publication of two College catalogs. 1988-89.

Office Technology faculty, Montgomery College, Takoma Park Campus. Coordinated the Office Technology department, mentored part-time faculty; supervised the Office Technology laboratory. Served as Chair of the College Committee on Curriculum. Elected to the College Faculty Congress. 1982-88.

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RELATED EXPERIENCE

Consultant, Educational Testing Service (ETS) and American Association of Colleges (AAC) on a Kellogg Grant proposal for developing advising software, Fall 1993.

Member, Maryland State Department of Education, Teacher Education Task Force Steering Committee Resource Panel.

Former Chair, State Honors Articulation Committee through the University of Maryland System Administration.

Coordinate state-wide discipline meetings, with Dr. Loretta Wertheimer from University of Maryland, College Park, as part of the implementation of the new Maryland Higher Education General Education Policy.