



**Integrating Theory
and Research With Practice**

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Introduction

Another strength of General College is its integration of research with the latest theory and best practices in higher education. Lundell, Chung, and Higbee outline some of the recent research trends and pedagogical accomplishments of the faculty and staff in the college. The college's strength lies in its multidisciplinary, collaborative approach to advancing the field of developmental education and access-related research on diversity in higher education. The college has historically offered a context for integrating theory and research with practice, which in turn has also influenced the development of assessment methods for diverse students with a range of academic skills.

Tom Brothen and Cathy Wambach's chapter provides the historical context and theoretical basis for an assessment model that was developed in GC. They point out how influential University of Minnesota faculty and administrators were in developing prediction models still used in college admissions throughout the U.S. today. Yet they also describe how the founding of the General College provided a means of access for students whose success might not have been anticipated on the basis of predictive formulae alone. Brothen and Wambach call our attention to the belief of such notable figures in UMN's history as President Lotus Delta Coffman that equal educational opportunity is a public good, a concept reasserted in a recent U.S. Supreme Court decision. They also delineate how an objective comprehensive examination was developed and implemented in GC, while the college's founders still asserted that no single test should determine a student's future.

This confluence of theories, research, and models for assessment have placed General College at the forefront of the nation's field of developmental education. This section will address two examples of this approach, past and present.

Contributions of the General College to Theory and Research

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ABSTRACT

General College (GC) has a visible national role in the field of access and developmental education research and theory. It is a leader in the field, and recent trends in research by faculty, staff, and graduate students in the college have created an enhanced view of the ways that theory, research, and practice intersect in the classroom to improve student learning. A variety of disciplinary areas are represented in this research, and engaging and progressive models for curricular revision and student-centered pedagogies are being developed and applied. The future of GC research reflects a continuation of its theory-grounded development of an integrated and inclusive model for access and advancement in higher education for a diverse range of learners.

The General College (GC) is a unique academic unit. It is a self-contained developmental education unit at a Carnegie I research university that integrates student support services with instruction, basic academic skill development with regular college course content, and the no-nonsense know-how of practitioners with the insights of a broad range of theoretical perspectives and active research agendas. As such, it is difficult to identify peer developmental education programs with respect to which GC might be compared or evaluated.

To get an overall picture of GC's contributions to student access, retention, and learning, then, requires a different tact. In this chapter, our approach will be to sketch the history of developmental education and learning assistance, with special attention to changing theoretical orientations and models. With this historical framework serving as a backdrop, we then turn to a discussion of GC's research mission, current research models, and the role of its two research centers, the Office of Research and Evaluation (ORE) and the Center for Research on Developmental Education and Urban Literacy (CRDEUL). In this way, we can situate and evaluate GC's contributions in the larger historical context of what has been tried, what has worked, and what has not worked.

A number of authors have begun reconstructing the history of remedial and developmental education, including Arendale (2002a, 2000b), Bullock, Madden, and Mallery (1990), Casazza & Silverman (1996), Clowes (1992), and Maxwell (1997). Although all of these sources provide useful perspectives, the work of Clowes stands out because it combines all of the following: it is more critical, it is written from more of an outsider's perspective, it addresses the low status of developmental education in higher education, and it explicitly points to research and theory as a means of improving that status.

Clowes (1992) loosely structured his account based upon historical periods presented in *Beyond the Open Door* by Cross (1971): the Period of Aristocracy (colonial time to Civil War), the Period of Meritocracy (Civil War to 1950s), and the Period of Egalitarianism (1960s and 1970s). Finally, Clowes added what he called the Period of Reconsideration or Retrenchment (1980s onward), in which all facets of public education came under increasingly critical scrutiny (p. 477). He noted in passing that this latter period may well signal a return to the more elitist ideological orientation of the Period of Meritocracy.

While remedial programs existed during both the Period of Aristocracy and the Period of Meritocracy, Clowes (1992) found no evidence of sustained study of such programs. One shift is worth noting, however. Remedial programs during both periods were dedicated to basic skill building. But whereas during the Period of Aristocracy such skill building occurred before students entered college in special preparatory departments and schools, the Period of Meritocracy saw the rise of specialized stand-alone college courses in reading, study skills, and mathematics.

It was not until the Period of Egalitarianism during the 1960s and 1970s that developmental education really came into its own (Clowes, 1992; Cross, 1971). During this period a key conceptual shift occurred away from the traditional emphasis upon academic skill building and its inherent deficit model, and towards an alternative approach that focused on enhancing student success, broadly conceived, to include not only academic skills, but social and personal needs as well (Clowes, 1992, p. 466; Dwinell & Higbee, 1991b; Higbee, 1988, 1993, 1996b). This shift marked the emergence of a distinction between "remedial education" as basic skill acquisition on the one hand, and "developmental education" as an integrated and pluralistic approach that considers the "whole person" on the other (Boylan, 1999; Clowes, 1992; Cross, 1971). What is not clear is just how far-reaching or successful this conceptual shift has been, a point to which we shall return later in our conclusion. Within the Period of Egalitarianism, Clowes identified several different strands in research and theory related to developmental education and offered negative assessments of each one.

The first strand involved attempts to identify and characterize effective developmental education program models and best practices. Researchers identified different ways of structuring programs: skills based versus more integrated, isolated courses based in traditional academic departments, specially designated courses not based in traditional departments but taught by disciplinary faculty, learning assistance centers, and separate instructional units dedicated to remedial or developmental education (Clowes, 1992). Attempts to determine the optimal structure were inconclusive, however. Some researchers concluded that a separate department was best, others stressed the importance of strong support services, and others advocated the learning assistance model. But as Clowes summarized, "It appears that the search for the ideal program is over. Acceptance that there is no 'one best way' to design remediation programs represents a tacit acknowledgment in the field that the delivery of remediation is a complex and multifaceted enterprise" (p. 469).

A second strand of research and theory goes beyond attempts simply to seek out exemplary developmental education programs. Instead, Clowes (1992) described three conceptual frameworks that were and perhaps continue to be explored in the hope of guiding the development of successful new programs. One framework focuses on characterizing different types of developmental education students and their different educational needs. Another framework stresses the need to consider affective as well as cognitive factors to enhance the success of at-risk students. A third framework emphasizes general organizational principles that call for different program tracks targeting pretransfer issues, basic skills acquisition, adult basic education, and students with disabilities. Attempts such as these can be viewed as trying to make sense of and get a handle on the complexity and multifaceted nature of developmental education. Unfortunately, Clowes contended that "No concept or theory has emerged to guide program design. Developmental education has emerged as a term frequently used, but developmental education is so broadly applied it is difficult to gain guidance from the multiple interpretations and practices with which it is associated" (p. 471).

Clowes (1992) characterized a third strand of research and theory that attempts to identify psychological traits of developmental students and to use these traits to clarify lack of satisfactory academic performance (p. 473). If such traits could be found, then educators would presumably know what to focus on in order to help developmental students improve their academic performance. Candidates for these general psychological characteristics or traits include "... intelligence, motivation . . . , cognitive style . . . , self-concept, locus of control, field dependence/independence, anxiety . . . , coping behav-

iors, and . . . right and left brain dominance” (p. 473). Overall, though, Clowes argued that subsequent research has found “. . . no solid evidence to support a direct causal link between any one of these concepts and underachievement or poor achievement in higher education” (p. 474).

Finally, a fourth strand of research and theory centers on learning theory and using it to “provide a theoretical foundation for an instructional design that . . . allow[s] remediation to succeed” (Clowes, 1992, p. 475). Clowes considered three possibilities: behaviorism, cognitive psychology, and developmental psychology. Behaviorism is associated with such instructional approaches as “individualized instruction, programmed instruction, computer-assisted instruction, and mastery learning” (p. 475). Clowes associated cognitive psychology with teaching strategies that emphasize cognitive style. Developmental psychology is presented as the champion of the affective domain, especially as applied by student services professionals (Dwinell & Higbee, 1991b; Higbee, 1989; Higbee & Dwinell, 1990b, 1992, 1993, 1995). Although Clowes noted that developmental educators have tried hard to base sound practice on developmental psychology, nonetheless he concluded that “little evidence exists for the successful integration of developmental theory into the practice of remediation” (p. 475).

It might be objected that Clowes’ (1992) discussion and conclusions are too negative and out of date. Is it not more accurate to say that, although no overarching theoretical framework has emerged to inform and strengthen developmental education, still progress has been made? Also, many of the research programs and theories that Clowes found wanting are still active areas of work. Is it not more fair to conclude that solid answers have not been found *yet*? And, finally, Clowes’ overview was published in 1992. What about more recent developments such as constructivism, conceptual change theory, multicultural education, or Discourse theory? Have these newer approaches not made a difference?

We are sympathetic to such objections. However, the question remains, can we confidently assert that as a whole the field of developmental education is, in fact, currently grounded in research and theory? Or, as Clowes (1992) issued the challenge:

No theoretical or conceptual basis has been established as an undergirding for program design in remediation. The field appears dominated by an eclectic approach in which promising ideas and practices are identified, modified, adopted, and occasionally assessed. Theory is used after the fact to justify practice as often as it is used to plan practice; there is no way to distinguish the two possibilities. It appears the field is driven by neither theory nor research; rather, it is grounded in practical experience . . . (p. 475)

For the field of developmental education taken as a whole, unfortunately, we believe that the answer is “no, we are not firmly grounded in good research and theory.” But this is not to say that progress has been negligible or that there are no promising attempts to improve this state of affairs. Our basic contention is that in order for developmental education to meet Clowes’ challenge, there must be sites at which developmental educators are actively researching and theorizing in addition to engaging in exemplary practice.

That brings us back to the General College. Because GC is one site at which faculty, staff, and students not only do developmental education but also have the opportunity to carefully and systematically study what they do, how they do it, and why they do it, we believe that considering GC’s mission, theoretical models, and research centers is important. Doing so will provide a valuable glimpse at where the field of developmental education currently is, and, perhaps, where it needs to go.

Defining General College’s Research Mission

As the historical chapters in this book have outlined, GC has focused its mission on theory, research, and practice that enhances student development for the widest range of learners possible. Situated in a land-grant, Carnegie I research university, this college has, as a central part of its focus, a strong mission of engaging in and contributing to research at the national level while also focusing on providing access for students and generating knowledge and insights that can enhance and work with the social community surrounding the university. Although the focus of the college has shifted over time and remained responsive to external political visions of its role, the central commitment of the college’s faculty, staff, and graduate students has been to develop and strengthen the nation’s canon of research addressing student development, learning, and diversity as it impacts and supports students’ transitions into higher education and workforce settings. Specifically, this has included a focus on retention, transfer, and graduation issues, as well as discipline-specific and content-area emphases on improving curricula to address a range of students’ talents, vocational goals, and their avocations in life.

Specifically, GC’s mission centrally addresses theory, practice, and research on student learning and curriculum development. Its research emphasis is twofold, according to the current mission statement of the college:

1. To develop, through teaching, research, and service, the potential for baccalaureate education in students who are serious about fulfilling their previously undeveloped or unrecognized academic promise, and
2. To generate and apply knowledge concerning how best to understand,

broaden, and deepen academic achievement in our increasingly diverse, multicultural society. (General College, 2005)

This mission has historically placed GC's primary research activities in the related practice-driven fields of developmental education, student development, learning assistance, and higher education. As noted in Chapter 3 by Johnson and 22 by Brothen and Wambach, the areas of counseling and student personnel psychology were and continue to be largely influential in the work of the college's faculty and staff. As GC's educational mission shifted over the years, its research mission also reflects changes that have occurred both within the college locally and across the field at the national level. A unique feature of GC's curricular model is, and has always been, its multidisciplinary core curriculum that prepares students for future programs, jobs, and life work. This focus brings together a wide range of related research areas from fields such as mathematics education, composition studies, biological sciences, social sciences, arts, humanities, and literature. The interaction of professionals with expertise in their individual content areas with their colleagues working in different fields has always been key to GC's unique approach and contributions to progressive research trends in the field.

At the national level, GC is the oldest developmental, general education program in the nation. This anchors the college's work, research, and leadership in its innovative curriculum in the legacy of the progressive era of education and the work of John Dewey (Shaw, 2002). The relationship of research to the direct improvement of students' academic growth and the emphasis on its relevance to and impact on their worlds beyond the doors of the college has provided a type of pragmatic grounding for the college, from which it continues to shape challenging research questions and studies. Its ongoing focus on issues of providing access for nontraditional student populations is also an essential concept and driving force among its faculty and staff, to engage in meaningful, socially responsible research that results in illuminating the effectiveness and equity in its delivery of education and skill development. GC faculty and staff have been engaged in theory, research, and practice to enhance their programs since the inception of the college, a history that is described in other chapters of this book and is presently being documented further in the GC Archives Project. Although it is the primary scope of this chapter to address present trends in GC theory and practice, we acknowledge the foundations of the GC model and past research that has contributed to its present strengths and forms.

This past work in GC has resulted in the college's growing national reputation as a present leader in developmental education and learning assistance. While the quality of the work of the students and the college's faculty and

staff has always been solid, recently the college has gained its national reputation through a series of awards, including the Noel-Levitz Award for Retention Excellence and the John Champaign Memorial Award for Outstanding Developmental Education Program from the National Association for Developmental Education (NADE). Beyond these awards, the college's focus on research that enhances access for students continues to attract national attention through work that is widely disseminated.

GC's mission will always and primarily be responsive to the needs of students, which change over time and are widely varied from student to student. As the college continues to be responsive to economic, political, and social forces beyond the doors of its programs, the research mission of the college will remain at the national forefront in predicting trends, providing for transformations, and interpreting and mapping out future directions in higher education. This can only occur in a college such as GC, which features a multidisciplinary offering of academically rigorous courses, attracts a truly multicultural student body, and recruits a diverse faculty and staff who are committed to creating a strong learning community for both its students and its professionals.

General College's Research in Postsecondary Developmental Education

Presently the college is focusing intensively on strengthening its research mission in postsecondary developmental education as a response to the 1997 external review of the college that was conducted to examine the effectiveness of GC's programs. This included the development of a research center, the Center for Research on Developmental Education and Urban Literacy (CRDEUL), and an increase in dissemination, publication, and grants and research development for access in higher education. This also included hiring a cohort of tenure-track faculty with an emphasis in scholarship and teaching that connects individual disciplines to the broader work of student development and learning innovations for diverse students. Teacher-scholars whose work focuses on areas such as critical pedagogy, multiculturalism, cooperative learning, qualitative research, statistics, anthropology, philosophy, sociology, and legal and policy issues joined the already productive GC faculty whose expertise includes psychology, art, film, writing, literature, history, science, counseling, and mathematics. Professional staff in the college, such as counselor advocates, administrative and teaching professionals, and support services staff also contribute their expertise in enhancing GC's research, publication, teaching, services, and grants development missions to highlight important research for the wider field of higher education. GC's role in shaping future trends, transforming present curricula, and supporting

students from diverse backgrounds has continued since 1997 to focus more exclusively on making breakthroughs in the understanding of access and achievement issues.

Classroom-Based Interdisciplinary Research

GC's current core curriculum reflects its roots in providing general education to undergraduate students. This curriculum includes courses that have changed over the years to reflect both the college's mission and the changing social and economic landscape. Courses in workforce literacy have included business education, life skills development, and computer classes. The college has also provided courses to prepare students in content areas for academic transitions in areas such as math, writing, economics, sciences, and humanities. Current research trends in GC have followed a similar path, with most of the scholarly activities of the faculty, staff, and graduate students concentrating on improving learning and applying theories to enhance pedagogies for access and success. Because most of GC's courses have not historically been linked in an interdisciplinary way, much of the research has focused on scholars' applications of the most progressive research methods in their current fields to the work of providing solid general education courses to students.

Presently in 2005, the college still primarily functions with a diverse core curriculum that includes a variety of disciplinary-based subjects taught by faculty and staff with expertise in a specific content area. However, since 1997 the college's research and educational mission has focused more intensively on the work of a newer field called developmental education, which emerged in the 1970s from the work and knowledge of learning assistance professionals, community college educators, and those working to provide access for students entering 4-year institutions. Given the strong disciplinary-based expertise of most of GC's faculty and staff and the recent, decade-long focus on postsecondary developmental education, which emphasizes retention and transfer, the college has produced a rich body of theory, research, and practice that has contributed to improved curricular models and interventions that enhance social and academic access for diverse students (e.g., all students, including students of color, mainstream students, English Language Learners, first-generation college students, students with disabilities, and adults). Additionally, the priority of understanding the diverse ways that students learn, in a society that is increasingly global and multicultural, has also contributed to GC's increased work on academic literacy and sociocultural identity issues, K-16 outreach, and campus-community collaborations.

This transformation of GC's research focus has been a positive response to students themselves, whose needs as learners and citizens are at the heart of

most of the research initiatives that are completed by these scholar-teachers. More recently, work on learning communities in the fields of learning assistance and developmental education (Malnarich with Others, 2003; Tinto, 1998) is beginning to shape the GC model toward a more multidisciplinary approach to its work. Perhaps a future trend of the college will be to become more interdisciplinary (Haynes, 2002), though the college is presently defined in part by its location in the University of Minnesota, which has a historically-based model of providing disciplinary-focused courses in a variety of subject areas.

Curricular and Pedagogical Models for Creating Educational Access

The General College continues to experiment with new ways of thinking about curricular transformation and engaging in student-centered teaching. As GC faculty, staff, and graduate assistants explore new models and rethink existing programs and strategies, it is important that they conduct related research and disseminate the results broadly.

Curricular innovation. One curricular innovation that has actually been in place in the General College for many years is the Commanding English (CE) program (see Chapter 9). Until the past decade, not many articles appeared in developmental education publications about programs for English language learners, but now this population is a central focus of developmental education programs in a number of geographic areas. CE director Robin Murie and her colleagues (Murie & Thomson, 2001) were among those who brought this facet of developmental education to the attention of the profession with their chapter in the NADE monograph.

One of the most recent curricular models adopted by a significant number of GC instructors to enhance access to higher education is Universal Instructional Design (UID; Bowe, 2000; Pliner & Johnson, 2004; Silver, Bourke, & Strehorn, 1998). UID is a relatively new pedagogical model originally conceived for providing access for students with disabilities by rethinking teaching practices to create curricula and classrooms that are inclusive for all students. An architectural concept, Universal Design (Center for Universal Design, n.d.), provides the foundation for Universal Instructional Design. When planning a space, the architect takes into consideration the needs of all potential users of that space. As a result, ramps, elevators, expanded doorways, door handles (as opposed to knobs), signs, bathrooms, and other features do not have to be added or modified at additional expense after the completion of a building. Some of the same architectural features that accommodate people with disabilities also benefit many others, including senior citizens, families with young children, and delivery people.

Universal Instructional Design applies this same concept, advance plan-

ning to meet the needs of all learners, to curriculum development and extracurricular programs. In the past, students with disabilities have been stigmatized by a medical model approach (Johnson & Fox, 2003), in which these students have been perceived as “deficient” rather than merely “different.” Universal Instructional Design is an outgrowth of an interactional, social constructivist approach to disability issues. Instead of providing accommodations on a case-by-case, situation-by-situation basis, this model explores how individuals interact with the environment to construct knowledge (Aune, 2000; Johnson & Fox).

Although federal legislation assures access for postsecondary students with disabilities (Kalivoda & Higbee, 1989, 1994; Pliner & Johnson, 2004), legislation could not transform centuries-old academic practices overnight:

Although higher education became more available to historically underrepresented groups, educational practices and culture did not shift significantly to address the experiences and learning needs of the students newly enrolled. So, although legislation opened the door to diverse student populations, the absence of efforts to change the culture or the educational practices in higher education (such as the curriculum, physical layout, and teaching and testing methods) have created significant barriers to access, retention, and graduation for many students, particularly students with disabilities. (Pliner & Johnson, p. 106)

Thus, despite significant increases in the number of students with disabilities pursuing postsecondary education (Henderson, 1999), students with disabilities are more likely to find access to 2-year institutions, and less likely to transfer and be retained and ultimately graduate from 4-year institutions (Pliner & Johnson).

Through the implementation of UID in the General College, faculty and staff strive to make the University of Minnesota more accessible to all students, but particularly to students with disabilities. In the film *Uncertain Welcome* (2002), created within the General College under the auspices of a U.S. Department of Education grant, Curriculum Transformation and Disability (CTAD), students with disabilities discuss why this work is so important.

Although UID was originally envisioned as a means for enhancing access to postsecondary education for students with disabilities, its benefits as a model for social justice and multicultural education as more broadly defined cannot be overlooked (Barajas & Higbee, 2003; Hackman & Rauscher, 2004; Pliner & Johnson, 2004). If student services and classroom and extracurricular experiences are designed to take into consideration the challenges faced not only by students with disabilities, but also by students who are not native speakers of English, students who come from families who have no previous experience with higher education or cannot afford all the latest technology, students whose religious beliefs prevent them from

engaging in some activities, students who feel isolated because they are not of the “majority” race on a given campus, students who do not feel that they can comfortably share their sexual orientation with their classmates, and others who traditionally have felt excluded on college and university campuses, everyone will benefit.

The General College has made significant contributions to the literature surrounding Universal Instructional Design. GC authors (Barajas & Higbee, 2003) were among the first to suggest that UID serve as a model for multicultural higher education. They have also led the way in addressing how UID can be implemented in student services and their administration (Higbee, 2003) and in specific teaching disciplines (Higbee; Higbee, Chung, & Hsu, 2004). Unfortunately, it is easy for academic professionals to discount the material provided in professional development workshops and in-service training conducted by others (e.g., disability services personnel) whom they do not think can “really understand” the demands of their workload and the standards of their field. Only faculty, governed by the professional standards that guide their work, can determine the essential skills and knowledge that students should be able to demonstrate upon completion of their courses. Thus, it is imperative that faculty members write for publication about Universal Instructional Design in their own disciplines.

Pedagogical models. Faculty members and teaching specialists in the General College conduct research and write for publication regarding a wide range of pedagogical practices that enhance learning. For example, GC psychology faculty members Tom Brothen and Cathy Wambach, who will in fall 2005 add to their ranks Tabitha Grier and Na'im Madyun (Brothen & Wambach, 2000; Madyun, Grier, Brothen, & Wambach, 2004), have led the developmental education community in engaging in research and writing for publication regarding the use of the Personalized System of Instruction (PSI) and computer-assisted learning. Current GC faculty member Doug Robertson, former faculty member Pat Kinney, current teaching specialist Janet Stottlemeyer, and former teaching specialist Laura Kinney have been influential in conducting research related to computer-assisted instruction and other teaching practices in mathematics (Kinney & Kinney, 2002; Kinney & Robertson, 2003; Kinney, Stottlemeyer, Hatfield, & Robertson, 2004). Another significant contribution to the literature surrounding teaching developmental education mathematics courses has been the General College's emphasis on multicultural and ethnomathematics (Duranczyk, Staats, Moore, Hatch, Jensen, & Somdahl, 2004; also see Chapter 10).

The focus of the GC science faculty (Jensen & Rush, 2000; Johnson, 1993; Moore, 1991, 2002) has been pedagogical models for science that address the diverse learning styles of students taking developmental science courses,

including the use of multimedia (Moore & Miller, 1996), cooperative learning techniques (Jensen, Moore, & Hatch, 2002a, 2002b), and inquiry-based instruction (Higbee, Chung, & Hsu, 2004). Science faculty members and others have participated in learning communities and “packaged courses” (Wilcox, delMas, Stewart, Johnson, & Ghere, 1997). Randy Moore (1993, 1997) has done significant work to demonstrate how writing enhances learning in the sciences.

Faculty members David Ghere and Karen Miksch (Ghere, 2001; Miksch & Ghere, 2004) have published about their use of simulations, mock trial, and other interactive strategies in the social sciences, while Mark Pedelty (2001a, 2004) has addressed his use of playwriting, performance, and other communication strategies. Walt Jacobs, Tom Reynolds, and former GC faculty member Greg Choy (Jacobs, Reynolds, & Choy, 2004) have shared their experiences using storytelling in the classroom. As demonstrated in Chapter 18, Jacobs (1998) and fellow sociologist Heidi Barajas have brought the sociological imagination to life in the General College, as well as teaming with other faculty members to develop interdisciplinary pedagogies (Barajas, Bruch, Choy, Chung, Hsu, Jacobs, et al., 2002).

General College art faculty member Pat James (1999, 2002; James & Haselbeck, 1998) has stirred the creativity of students and developmental educators alike with her work on teaching the arts and on metaphoric thinking, as clearly demonstrated in Chapter 13. GC basic writing faculty members (Bruch, 2004; Lee, 2000; Reynolds & Bruch, 2002) also strive to create assignments that require students to think in new and different ways.

Exploring Factors Related to Achievement

Another area in which General College authors have made significant contributions to knowledge is in research related to understanding why some students are more successful than others. A number of GC faculty members have been involved in studies that have explored the relationship between class attendance, for example, and course grades or grade point averages (Chung, 2004; Moore, Jensen, Hatch, Duranczyk, Staats, & Koch, 2003; Thomas & Higbee, 2000). Jeanne Higbee (Dwinell & Higbee, 1991a; Higbee, 1989; Higbee & Dwinell, 1990a, 1992, 1996; Higbee & Thomas, 1999; Thomas & Higbee) has spent much of her professional career researching affective variables that are related to student success, including test anxiety, mathematics anxiety, self-esteem and academic self-concept, and locus of control. Higbee (Higbee & Thomas, 2002) has also conducted research related to academic honesty issues and differences both between and among faculty and students in perceptions of behaviors that constitute cheating. Both Higbee (Higbee & Dwinell 1990a, 1992; Higbee & Thomas; Thomas & Higbee) and Cathy

Wambach (1993) have explored issues related to student motivation and academic autonomy, and Tom Brothen and Wambach (2001; Wambach & Brothen, 2001) have also conducted research on conscientiousness and procrastination. This research is important in then determining interventions to assist students in overcoming barriers to achievement.

Explorations of Theory and Its Role in Transforming Practice

One important role that GC has played in the field of developmental education is recent work that has been done on exploring the role of theory or theories in the teaching and research of developmental educators and learning assistance professionals. Lundell and Collins (1999), Wambach, Brothen, and Dikel (2000), and Bruch and Collins (2000) have noted a wide variety of theories that contribute to the work of developmental educators. Sometimes the work in the field is misunderstood in its broad scope and intersection of teaching theories and practices that shape it. These GC faculty and staff have urged others to explore further the role of theory and the development of more integrated theories in the teaching, research, and practice of developmental education and higher education.

Chung (2005) has more recently contributed an important perspective on the role theory plays in the daily work of practitioners in the field—those who teach without the formal charge of research as central in their work scope. This includes a majority of the field's professionals who work in 2-year community colleges or 4-year programs that do not emphasize direct research as an outcome for assessing student learning. Practice-based theories often shape the work of college educators and contribute widely to student success. Chung proposed that more formal explorations of the kinds of theories that contribute to work in these classrooms would help highlight the nature and foundations of the field. This would, in turn, also allow practitioners to play a larger role in articulating their own contributions to the field.

Multiculturalism, Discourses, Student Voice, and Literacy Theories

Many GC faculty, staff, and graduate students have also been committed to connecting their work in GC with the research, theories, and pedagogies that have been influential in the areas of multiculturalism, diversity, and literacy practices. GC scholar-teachers in the writing, history, and social science programs have been very active in contributing their ideas about the importance of access, diversity, and multiculturalism in developing courses that support the widest range of students. For example, GC faculty and staff in the field of basic writing, a subfield of college composition studies, have been nationally prominent as leaders in incorporating liberatory, democratic perspectives in

their course design to engage students as active citizens and authors of their own ideas as writers and thinkers (e.g., Bruch, 2001; Reynolds, 2001). Also, GC's social science and history teacher-scholars have integrated their course subject matter and skill development with a constructivist, multicultural perspective (Barajas, 2002; Ghere, 2001; Jehangir, 2001; Pedelty & Jacobs, 2001), as well as further examinations and social critiques of how race and gender construct and constrict educational spaces (Barajas, 2001) for students from nonmainstream backgrounds. These scholar-teachers are also working across their disciplines to form cooperative, peer learning communities (Jehangir) that can provide students with more engaging environments from which to develop their talents, think critically, and gain workforce skills that are necessary to continue to develop skills beyond college.

Several GC faculty and staff have pointed out that the work of multiculturalism is key to the future of GC research and practice (Barajas, 2001; Bruch & Higbee, 2002). A more recent trend is to extend this work centrally within the field of developmental education (Higbee, Lundell, & Duranczyk, 2003), which already incorporates individually supportive programs and bases its work on supporting various learning styles and preferences of students. The work of the GC Multicultural Concerns Committee, a democratically and volunteer-run committee, has been instrumental since 1987 in focusing on academic, professional, and personal research activities that foreground conversations about students that recognize multiple meanings of diversity, such as race, ethnicity, social class, home language, sexual orientation, age and disability (Ghere, 2003).

This group recently formed a subcommittee to work on assessing faculty, student, and staff perceptions of multicultural issues in higher education settings. They adapted a survey from K-12 education (Banks, Cookson, Gay, Hawley, Irvine, Nieto, Schofield, & Stephan, 2001) that addressed institutional goals, curricular foundations, and culturally sensitive models for education. This resulted in the *Multicultural Awareness Project for Institutional Transformation* (MAP IT; Miksch, Higbee, Jehangir, Lundell, Bruch, Siaka, & Dotson, 2003), a set of survey tools for administrators, faculty, staff, and students in higher education. The project was piloted in GC (Higbee, Miksch, Jehangir, Lundell, Bruch, & Jiang, 2004) and is being disseminated nationally as a tool for colleges and universities to begin conversations about multiculturalism and inclusion in their own academic institutions. This work has also resulted in a variety of ongoing research publications from the group of MAP IT researchers (Bruch, Jehangir, Lundell, Higbee, & Miksch, 2005; Higbee et al.; Miksch, Bruch, Higbee, Jehangir, & Lundell, 2003).

In addition to GC research that examines issues of diversity and multiculturalism, a related strand of research in the college has considered the role of

“Discourses” (Gee, 1996) in the fields of developmental education and learning assistance (Lundell & Collins, 1999). Social and academic identities, and students’ ways of making meaning in their various intersecting “worlds” (Beach, Lundell, & Jung, 2002) in college, are featured in recent work of the college. College as a site of students’ navigating their multiple roles as students, family members, sisters, brothers, peers, partners, and other social identities is an important contribution of GC’s developmental education researchers in their consideration of how students can learn and develop within the spaces of higher education. Classes such as college composition in GC have based their own work on such theoretical perspectives, including a focus on the “dialogic” model for learning (Reynolds, 2001; see Chapter 11) that invites students to enter conversations about how they can change and impact their own futures and social worlds. This perspective gives agency to students as co-learners in the educational process and equalizes the space of the classroom as much as it can be possible in a traditional academic classroom.

Another area of growing research in GC is qualitative research that features the voices and standpoints of students (e.g., Beach, Lundell, & Jung, 2002; James, 2002; Pedelty, 2001a). Qualitative educational research looks at the rich details and nuances of students’ experiences and perceptions of their college programs through interviews, longitudinal studies, narrative inquiry, writing analysis, ethnography, and short-response survey data. This kind of research has gained a national focus in graduate education and professional training programs in the past 2 decades (Merriam & Associates, 2002), and this trend has produced a variety of new scholars who incorporate either qualitative research or mixed-methods models for research combining qualitative and quantitative data. GC scholars have added this type of data as a means of gathering information about student learning, and it is useful in addition to quantitative studies of GC students, such as institutional reporting measures on GPA and academic progress, in providing individually-specific information about students for whom the transition from high school to college is filled with more complexity. This type of research also can provide insights about why students experience “stigma” (Pedelty, 2001b) related to being in a program like the General College. Finding ways to learn more about this phenomenon is key to challenging public and personal stereotypes about students for whom access to higher education may traditionally have been viewed as not attainable.

Combined, these approaches to research that feature theoretical perspectives such as multiculturalism, democratic theory, and sociocultural literacy practices contribute a more socially-constructed perspective on learning to the field of developmental education, which has tended to feature more indi-

vidualistic models of learning. These models, in fact, are complementary and not contradictory, and the legacy and present status of GC research acknowledges and demonstrates that this richness in approaches is a real strength of a college that strives to address the learning needs of all students.

K-16 Research and Community Collaborations

Another area of GC research has been to increase research relationships with partners in the region, such as community and county organizations, community colleges, and secondary schools. To study transitions from high school to college, particularly for disenfranchised and underserved student populations, it is a goal of GC researchers to work across academic institutions to examine the complex continuum of issues that concern teachers, students, legislators, and administrators. Because such a variety of constituencies is invested in the success and access of students in colleges and universities, it has become a priority of some GC researchers to explore their connections to other contexts in which students participate beyond the courses and services of the GC program. Viewed in a larger social context, research with students designed and conducted in a mutual partnership can provide better information about why students attend college, how they succeed, and how they view their skill development as relevant to future jobs and worlds outside of academia.

In this spirit, there have been several recent research initiatives that reflect GC's social and academic mission within the greater Twin Cities and statewide communities of Minnesota. First, a ground-breaking initiative led by the Hennepin County African American Men Project (Hennepin County Office of Planning and Development, 2002) led to a partnership with the University of Minnesota General College to examine college admissions and achievement of African American men, ages 18 to 24, from Hennepin County, which primarily includes the Minneapolis metropolitan area and surrounding suburbs. To learn more about what happens to men from a group that represents one of the most underrepresented and underserved populations in the nation's educational system, General College researchers led a localized project at the University to investigate the issues and learn more about what African American students themselves had to say about their transitions (Taylor, Schelske, Hatfield, & Lundell, 2002). This kind of community and college partnership is critical in answering complex questions and providing a better relationship between the research mission of the university and the concerns of the public.

Outreach programs also provide a site for research and inquiry in GC. The Commanding English program for English language learners, as well as the Upward Bound program for high school students from low-income, first-

generation college, or other disadvantaged backgrounds, and students with disabilities are examples of sites that have provided places for GC's faculty and staff to develop and design research studies to learn about students' educational needs and implement curricular transformations that can improve learning (Murie & Thomson, 2001). Additionally, many faculty and staff incorporate methodologies such as service-learning into their courses and research projects (e.g., Barajas, 2002), thus providing a link with the community and engaging students in activities that continue to enhance their future skills for life and the workforce.

The college is also involved in national initiatives and has hosted "think tanks," such as the Future Directions Research Meetings for Developmental Education (Higbee & Pettman, 2003; Lundell & Higbee, 2000, 2002). An important aspect of these conversations has been the improvement and continuation of national research that includes collaborations with other developmental educators and learning assistance professionals. The focus of these meetings has been the expansion of national conversations to include a more centralized look at the role of theory, multiculturalism, and multidisciplinary models for research in the field as it applies to student learning. Most recently, an initiative of the General College's Dean David Taylor emphasized a research and service priority that examines issues of college preparation, readiness, and improvements in learning for underserved students in the Twin Cities metropolitan area. This is the Metropolitan Higher Education Consortium's Initiative on Developmental Education (Lundell, Higbee, & Hipp, in press), which is the outcome of a partnership of the University of Minnesota and the Minnesota State College and University system (MnSCU)—the two major delivery systems of higher education in the state. This also includes a goal of developing research and grants with secondary schools and community colleges, and it is stimulating projects in GC that examine high-school-to-college transitions from the perspectives of educators and students. These efforts, in the form of meetings, outreach programs, and national think tanks, are carving a future identity for GC as a site of engaged national research that invites collaborative models for theory, practice, and research in the work of making education accessible for all students.

General College Research Centers

Two research offices also exist in GC to address questions of access and student success. Assessing the effectiveness of GC's curricular models and student support programs is essential to the college's mission. It is also key to GC's mission to provide national leadership and dissemination of its theory, research, and

practices to a wide variety of other professionals who can benefit from the kinds of projects that are undertaken and supported by these offices.

First, the Office of Research and Evaluation (ORE), named officially in the late 1980s, has tracked student progress, outcomes, and paths beyond the walls of the General College throughout the college's history. ORE's mission involves gathering and analyzing data, such as students' grades in various courses, the relationship of past academic achievements to their present successes, such as traditional college test-score predictors as they relate to their college GPAs, and feedback about the effectiveness of GC's programs in students' ongoing work in other UMN academic programs. This office collects and shares a variety of reports with collaboration opportunities for faculty and staff to work with the data sets to ask and answer specific questions related to academic interventions in their own courses, such as attendance and motivation predictors for student success in college classes. ORE's primary role is to provide internal support for the college as well as information for the UMN to assess the effectiveness of GC's programs.

Second, the Center for Research on Developmental Education and Urban Literacy (CRDEUL) was founded in 1996 to address a mission of promoting and developing multidisciplinary research and professional development for the fields of developmental education, access, and urban literacy (Lundell, 2002). The Center offers in-house resources, professional consultations, mentoring, publications, dissemination, and grants development for research in postsecondary developmental education. Its annual monographs and periodic books and reports (e.g., Higbee, 2003; Duranczyk, Higbee, & Lundell, 2004; Higbee, Lundell, & Duranczyk, 2003; Miksch et al., 2003) have gained national attention within the field's professional organizations, such as the National Association for Developmental Education, the College Reading and Learning Association (CRLA), the American College Personnel Association (ACPA), and the National College Learning Center Association (NCLCA). CRDEUL has provided a conduit for regional and national collaborations to expand the definition of developmental education to be more inclusive of a variety of theoretical perspectives.

The impact of the Center's work has just begun, as it has continued to expand in response to the professionals and communities that it serves both in the Twin Cities and in the nation. It also features an Advisory Board and two GC faculty advisors, Jeanne Higbee (Senior Advisor for Research) and David Arendale (Advisor for Outreach), in addition to an editorial team and its Program Director, Dana Lundell, who are all active in contributing to research and publications. A key insight of these professionals and the work of the Center has also been to challenge other developmental education programs to consider expanding their notions of student preparation to look more broadly

at embedding skill development across content areas. This perspective is partially a unique feature of the GC program itself, but it is also a useful and progressive perspective for educators in all first-year, undergraduate courses to consider as a way to increase access for all students in their courses.

With the college's ORE and CRDEUL, GC has prioritized the highest caliber of professional research possible at the core of its mission. In a field that experiences constant external and public scrutiny, these offices ensure that the work of the field and the college is shared with professionals and that the contributions solidly address key questions that are most current and instrumental in creating sound educational programs.

The Future of Research and Theory at GC

The overview provided in this chapter demonstrates the range, depth, and scope of recent work by the GC community. In relation to Clowes' (1992) framework sketched at the outset, it is clear that the GC community is actively researching, theorizing, and exploring almost every facet of this complex phenomenon known as developmental education, as well as broader issues surrounding access, retention, and student learning. The ORE collects, analyzes, and disseminates data on GC program structure, organization, and student outcomes. CRDEUL and other GC faculty and staff members are engaged in a multipronged approach to generating and supporting innovative research and theorizing that spans all the conceptual frameworks and more specific research strands detailed by Clowes: investigating student characteristics and the needs of different students, taking seriously affective and social factors as well as cognitive ones, identifying and measuring particular psychological traits of our students, and utilizing and furthering newer theories of student learning. Indeed, with its exploration of learning communities, UID, multicultural education, critical literacy, sociocultural factors, Discourse theory, integrating basic skill development and regular college course content, and its commitment to a truly multidisciplinary approach to teaching and student learning, GC has clearly moved beyond what Clowes set out.

The impressive range of ongoing research and theorizing by the GC community also points to an implicit assumption in Clowes' (1992) evaluation of developmental education that may need rethinking. That is, Clowes implicitly assumes that a viable and mature field of developmental education will quite naturally identify or create a single, unitary theoretical framework to guide practice and research. The alternative assumption implicit in the GC approach, however, is that a plurality of theoretical frameworks is needed in order to make real progress and to grapple successfully with the underappreciated diversity of phenomena that comprise the developmental education

enterprise. In fact, it may well be this need for a pluralistic approach that helps explain why more traditional unitary theories have not been embraced by all developmental educators, and why those looking for the emergence of such a singular theoretical framework have concluded that the theoretical state of developmental education is somehow inadequate or in disarray. But it appears to be the case that only by weaving together a number of complementary explanatory frameworks can we adequately understand diverse developmental education students and their variable needs.

Such a pluralistic, multidimensional approach does not mean that anything and everything goes, however. That is, in order to realize its potential, we believe that the GC community must take the next step and reflectively focus and coordinate its many strands of theory and research. This does not mean that a single approach must be agreed upon at the expense of others. But it does mean that core values, theoretical assumptions, shared goals, and concrete outcomes need to be articulated, discussed, and agreed upon. Focusing and coordinating the many different strands of GC research and theorizing are critical to enacting long-term change that is meaningful, transformative, and sustainable.

In this regard, multiculturalism, UID, and Discourse theory stand out as particularly important for the future of GC research and theory. This is so because each of these broader theoretical orientations can fulfill three critical functions: (a) serve as a guiding umbrella framework that embodies core shared values, goals, and outcomes; (b) help to organize and guide future research projects and theorizing; and (c) accommodate the defining aspects of GC practice, including multidisciplinary curriculum development, focus on student needs and perspectives, and the integration of affective considerations and basic skill development along with teaching regular course content. It may be that one of these approaches or a well-defined and developed hybrid of these approaches will need to be recognized and adopted as the inspiration and nexus for the next stage of GC research and theorizing.

Ultimately, though, it may be that the most important contribution GC will make to research and theory is a modest one: persistence. That is, in the current national climate of retrenchment, which has sometimes become hostile toward access and developmental education, the persistence of an egalitarian and progressive program such as GC is critical. The continuation of a program like GC is so important because both equitable access and developmental education have been afterthoughts in American higher education, and GC stands for the radical notion that nontraditional, nonmainstream students *belong* and ought to be valued as highly as other students. Therefore, if the community of GC scholars, teachers, and support staff can continue to exist in a meaningful form, then that community can continue to challenge

both hegemonic ideas about nonmainstream students and the traditional structures of higher education that have become so efficient at discouraging and excluding them. Thought of in these terms, perhaps persistence is not such a modest goal after all.

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The Criterion Model of Developmental Education in General College

Thomas Brothen and Cathrine Wambach

ABSTRACT

This chapter traces the history of the criterion model of developmental education in the General College. This model is an alternative to using standardized tests to place students in educational interventions. Since the founding of General College in 1932, the curriculum has served as an alternative to a single-test procedure in making important judgments about students. We trace the development of the standard college predictors, the history of selection at the University of Minnesota, the development of the General College curriculum, and the use of tests to measure curricular objectives. We conclude that the criterion model is firmly rooted in the rationale for establishing and maintaining the General College for over 70 years.

In this chapter, we explore the origins of the criterion model through a historical examination of prediction and placement at the University of Minnesota (UMN) and the subsequent founding of General College (GC) in 1932. This history, we believe, is instructive for developmental educators in understanding how the GC model of developmental education is based on the criterion model and how it might have generalizability to their own situations. We consider three issues in our historical assessment. First, we review the genesis of the current selection process in higher education and the concern among its creators about errors in prediction. Second, we examine the development of a curriculum designed to serve the broad range of students in their everyday lives as citizens. Finally, we review the development and use of tests that were in service to the curriculum rather than guardians of admission to it.

On several occasions, we have argued that developmental educators should adopt the criterion model of student advancement (Brothen & Wambach, 1988; Wambach & Brothen, 1990, 2000). The criterion model is based on the

argument that single administrations of reading, writing, and mathematics skills tests in typical testing-placement programs are weak predictors of student behavior and are unlikely to classify all students correctly as to their need for skills interventions. Furthermore, because a broad curriculum consisting of a variety of disciplinary courses provides many possible avenues to assess student capabilities, we argue that it can provide a much more sensitive measure of student potential while simultaneously sorting for characteristics such as motivation and need for skill development.

We have supported our argument by pointing out that no test is perfectly valid or reliable and that students can change quickly to render out-of-date the snapshot provided by a test. We have further argued that developmental education students could be conceived of as falling into one of three groups: those likely to be successful without any interventions, those needing interventions, and those unlikely in any case to be successful in a college-level curriculum. We pointed out that no test is able to make such distinctions, but that a curriculum can do so. Although we agree that developmental education must be adaptable to a wide variety of situations and students (Brothen & Wambach, 2004), we remain convinced that using a single test to place students in educational interventions is inadequate in several respects.

Testing students and then placing them in a skills course, giving them restricted curricular choices, or completely denying them access to a college-level curriculum all operate on the same basic principle. This prediction-placement model of determining students' potential for academic success is ubiquitous in higher education. Students' scores on the SAT or ACT help determine which college they may attend, and their scores on reading, writing, and math placement tests determine if they must take skills courses after matriculation. Because colleges often cannot serve everyone who applies, they use admissions tests to help allocate their resources. This use of tests is typically not within the control of developmental educators, but using the criterion model to avoid some of the problems inherent in the prediction-placement model might well be.

Developmental educators using the criterion model respond much differently to students who score low on standardized tests of reading, writing, or mathematics skills. Instead of being restricted to basic skills courses, these students participate in a coordinated educational system that recognizes that skills sometimes develop in response to demands from courses that students see as important to their future. Introductory courses that count toward students' degree goals can develop students' academic skills at the same time if these courses also demand high skill levels and provide opportunities for skill improvement. This chapter examines the historical and theoretical basis for just such a model in the General College of the University of Minnesota.

Who Should Attend College?

In several important ways, the founding of GC has its roots in the work of J. B. Johnston, Dean of the UMN's Science, Literature, and Arts College (SLA) from 1914 to 1938. Johnston was concerned that universities were not adapting to a changing society and needed reorganizing (Gray, 1958). A comparative neurologist, his interests ranged widely and when he became dean in 1914, he set about determining why only about half the students enrolling in his college ultimately got degrees at the University. He suspected that the high school grading system was not distinguishing between those able and unable to be successful in college and was concerned that the huge enrollment increases at colleges and universities during the early years of the 20th century would overwhelm their resources if too many of these new students were inappropriate for college work. His quest led to his becoming a pioneer in the selection of students for college matriculation and set the stage for the experiment in postsecondary education now known as General College.

Johnston (1930a) summarized his work and his ideas in a book that dealt with problems in education that are with us yet today. He believed in relatively fixed intellectual traits, a conception much in favor about the time of World War I. This notion pervaded his writings and apparently guided him as he did the groundwork for his ultimate theories of whom to select for higher education and how to select them. Instead of grades alone, he believed that comparative ranking of students on their performance would provide a more accurate picture of student abilities. In 1914, upon assuming the deanship, he himself traveled to high schools to record the high school grade percentile ranks (HSRs) of students who had registered in his college. He ultimately showed that those students in the bottom three deciles of HSR were unlikely to be successful in college. In 1917, desiring to improve on the predictability of HSR alone, he adapted the approach of E. L. Thorndike, who was using early IQ tests with college students to predict their grades. Johnston secured copies of the newly developed Army Alpha IQ test from R. M. Yerkes, who had accepted a position in the UMN's Department of Psychology but was then working for the U. S. Army. Johnston tried these tests with students to determine if they would predict college success.

In 1921 D. G. Paterson, a psychologist who worked on developing the army intelligence tests, became a member of the UMN Psychology Department and began the rich history of research on testing that characterized psychology in that department for several decades. He took over the testing work, "revising and perfecting the tests from year to year" (Johnston, 1930a, p. 115). Paterson's and Johnston's work ultimately led to a college aptitude test given across the state of Minnesota to all college-bound students. By the early 1920s,

Johnston had put students' HSRs and aptitude test percentile ranks together into the combined aptitude rank (CAR) and showed that it predicted college success very well. This work on a measure that has become ubiquitous in higher education was apparently the first of its kind, and although Paterson made significant contributions to this work, Johnston should probably be considered the "inventor" of the CAR. Johnston's data showed that no student below the 30th percentile rank on CAR was successful in the liberal arts college. He began a campaign to ensure that these students would not attend the University.

Classification of Students and Traditional Conceptions of Education

The UMN is a land-grant institution, as defined by the U. S. Congress in 1862, which gave to the states federal lands for the establishment of colleges offering programs in agriculture, engineering, and home economics as well as in the traditional academic subjects to better the lives of their citizens (Moen, 1983). Johnston (1930a) worried that this justified admitting any high school graduate to the university, even though many who came were not suited for university study. He needed a way to convince people that higher education should not be universally applied and that open admissions was not a good policy. Undoubtedly drawing upon his discipline of comparative neurology, Johnston classified individuals into six classes respective to their educational prospects. Johnston's first two classes were mentally challenged and either not suited for any formal education (i.e., profoundly retarded) or suited only for rudimentary education (i.e., educably mentally retarded). The third class consisted of people with ordinary intelligence who were able to gain only the skills taught in primary education. The fourth class of individuals was able to finish high school, and a subgroup of them possessed characteristics indicating possible success in college. This subgroup was apparently deficient in the traditional indicators of college success such as preparatory courses explicitly required by some colleges, but was noticeably different from other fourth-class individuals in ways that suggested possible success. For example, Johnston pointed out that one avenue for college admission across the country in the 1920s was a procedure whereby high school principals certified such students as acceptable. However, this proved to be unworkable due to the intense pressure on principals from some parents. It was clear to him that higher education needed a more reliable and defensible procedure to allocate admission to these borderline individuals.

Johnston (1930a) deemed his top two classes suited for college, although the fifth class he termed "learners rather than scholars," reserving the top class for those with "unusual intellectual endowments" (p. 29). He allowed that these top two classes would likely be successful in life without college, but that

a college education fit them best and that society should recognize this and reserve college admission for them. Although Johnston believed that the CAR would make the discriminations necessary to select the right students for college matriculation, it is significant that he also believed there was college potential undiscovered by conventional measures in the fourth class of individuals. This fact makes Johnston's theories more complex than they might seem at first.

Considering Johnston's positions on access to education, developmental educators today might be tempted to write him off as an elitist. However, he also took positions that made it more accurate to describe him as a meritocratist. He was very concerned that students from lower income families were underrepresented at the University because they could not afford it and advocated strongly that ways be found to help them fund a college education. Johnston (1930a) viewed ability as basically a stable trait and believed that the "object of modern universal education is to enable each child to enter that occupation for which his native endowments best fit" (p. 87). However, he was also cognizant that adolescents develop at different rates and espoused a major tenet of developmental education by advocating that they should not only be classified, but also reclassified as they develop and show their accomplishments.

Johnston (1930a) reflected the zeitgeist of an era in which many believed that talent was largely inborn, but he left open the possibility that classifications could be wrong. He wanted higher education to be done less by chance and to be more prescriptive, not admitting inappropriate students, serving those of the highest ability, and providing what he called general education for those of moderate ability. But he was justifiably skeptical about the validity of the means available to identify this moderate ability group as likely to be successful in baccalaureate study. He wrote that it would not be completely possible, "until we have had them under instruction for a considerable time" (p. 229). This recognition of the possibility of prediction error and his suggestion for a general education alternative both presage the GC criterion model.

Johnston did not wait for educational theories to be worked out but rather did several things to implement his ideas. He enlisted the help of Paterson to establish a comprehensive advising system in SLA and believed it would help students make good decisions about their future education. This system became a model for the GC advising and counseling program (see Chapter 4). He worked to get high schools to compute HSRs, have college-bound students take the college aptitude test, and provide that information to them so that they could make intelligent choices about attempting university study. He implemented an experiment that gave "non-degree candidate" admission to students with low CARs and showed that virtually none of them proved

successful (Johnston & Williamson, 1934). He also developed a developmental writing course called “sub-freshman composition” for students with poor writing skills (Avery & Williamson, 1938). Finally, he wrote a pamphlet giving students information about their chances of success based on more than a decade of research (Johnston, 1930b). By 1930 he felt confident that things were moving in the right direction, pointing out that fewer low CAR students were coming to the University, that “the problem of the inferior student” was on the way to solution, and that the college could move on to creating a better environment for the superior student (Johnston, 1930a, p. 236).

L. D. Coffman and the Principle of Access

Lotus Delta Coffman served as president of the UMN from 1920 to 1938 and was probably the individual most responsible for founding the General College (Moen, 1983). Without his leadership, it simply would not have happened. Our purpose here is not to recount that entire history, but to show how Coffman’s original ideas and their apparent change over a few years set the stage for both founding the college and allowing it to adapt in its early years. In a fiery, populist speech he gave in 1928, Coffman (1934) revealed about himself what Moen found so important to the founding of General College.

Coffman (1934) began by stating that public educational institutions “were founded on the assumption that society’s welfare is best promoted by providing as nearly free and equal educational opportunities and privileges as possible” (p. 39). Speaking of attempts to select students for college admission, he said that the “student of few talents shall not be denied his opportunity while the student of many talents is given his” (p. 41). In a comment laced with the sarcasm he reserved for those he believed were championing privilege over democracy, he characterized attempts to select students:

Among other things these authors have set up a new conception of social justice. They argue that fewer students should be admitted and more should be eliminated, because the mediocre students are trespassing upon the time and rights of a high-minded faculty who are giving generously and with high altruistic motives of their energy and ability for the advancement of society; because mediocre students are depriving the brilliant students of the opportunity for maximum achievement; and because the mediocre students are defrauding their parents, friends, and society in general of the greater returns and rewards which would accrue if society invested only in the gifted. (p. 53)

It is clear from Coffman’s (1934) perspective that the president might not have been quite in agreement with what his SLA dean was up to. In fact, Gray (1958) pointed out that the two were often at odds about such matters. Nevertheless, in March of 1930 Coffman wrote the foreword to Johnston’s (1930b) pamphlet, *Who Should Go To College?* His brief paragraph stated that the

pamphlet will help students make an important decision about college and that they are entitled to all the information the University has on the matter. His rather lukewarm last sentence, however, does suggest Coffman may not have been totally convinced by Johnston's arguments: "It is believed that a careful reading of this pamphlet will help prospective students to make this decision more intelligently than otherwise" (p. i). Furthermore, Coffman was reinforcing the principle that a broad range of students had choices in their educational futures at the UMN and that it was important to provide adequate information for them to make these choices.

A speech Coffman (1934) gave just a month after the publication of Johnston's (1930b) pamphlet suggested that he was adapting to Johnston's approach. Saying the university "must change to conform with the spirit of the times" (p. 134), he pointed out that the university had taken the "forward" step of selecting "students competent to do university work" (p. 134), allowing in his inimitable way that it had been possible for unqualified students to graduate from high school and thus be eligible for a state university because high school teachers might desire "to cultivate the spirit of Christianity among college teachers; having suffered so many years themselves, they seek that companionship in humility by making it necessary for college teachers to suffer with them" (p. 137).

Coffman's (1934) speech was important to the establishment of GC in several ways. In it, Coffman recognized selection as desirable and pointed out that student quality was improving because the information that selection procedures gave to students and their parents helped them make more realistic choices. But he was not comfortable with an invariable system of selection, reminding his audience of the "great American principle—the right to try. . . that industry sometimes succeeds even when high intelligence is wanting" (p. 139). This assertion that students change and other qualities matter is a critique of the validity of selection procedures and became a foundation of the GC mission. Coffman also presaged the new college's curricular mission by pointing out that the University was reorganizing in response to the realization that students "who are sharpened to a point must have broad bases if the broader interests of human welfare are to be considered" (p. 143). Coffman held firm to his belief that the University should be open to all. The early staff of the college pointed to this often by citing his writings in GC bulletins for many years afterward.

An Experiment in General Education

President Coffman appointed the Committee on University Reorganization, commonly referred to as the "Committee of Seven," to suggest how the UMN

should respond to a growing national concern that higher education was not relevant to the challenges of the Depression and did not give students the education they needed (Gray, 1951; MacLean, 1962). The committee he appointed recommended expanding counseling and testing, established the University Committee on Educational Research, formulated a plan for the University College where students could design their own baccalaureate degree programs, and created a new college to experiment with higher education curricula. Coffman envisioned the new GC as a solution to several problems, the most important being a potential solution to the national educational problem of disorganized and decreasingly useful curricula.

Coffman believed that the increased specialization of higher education made it difficult for students to receive a liberal education and that this trend was accelerating (Gray, 1951). As former dean of the College of Education, he was particularly concerned about how the University was educating its students. His primary goal was to remake college education, and he believed that establishing an experimental unit could be a first step towards that. The Committee of Seven recommended, and Coffman secured Board of Regents approval for, establishing the General College—for the first year called the University Junior College—and accepting students for fall 1932. By this time, the idea of creating the new college had attained wide acceptance even from the SLA dean. Apparently reconciling his differences with Coffman about admitting students not clearly predicted to succeed, Johnston (1932) wrote to Graduate School Dean Guy Stanton Ford suggesting for the new unit a basic structure that ultimately was implemented largely as he suggested.

For director of the college, Coffman and Dean Ford, who was serving as acting president while Coffman was consulting in Australia, selected Malcolm MacLean (1894–1977), at that time vice-director of the Milwaukee Center of the University of Wisconsin (Ford, 1932). MacLean had experience with the Minnesota Point of View in counseling, serving as a counselor in Johnston's and Paterson's faculty counseling program from 1924 to 1929 while he completed his doctoral work in English at the UMN (MacLean, 1949). MacLean began work in February 1932 with one secretary and later that spring, a graduate assistant (Fred Hovde, later to become president of Purdue University), to prepare for an incoming class of approximately 500 students that next fall in a building that had just been vacated by the School of Dentistry (MacLean, 1977).

Coffman's ideas about the problems of higher education and the solution to them are appropriately fitted into the rubric of general education (Gray, 1934). But just what this was to mean in practice was open to wide interpretation. Koch (1980) described general education as a movement that stretched back to 1800 but had never attained an agreed-upon definition. The founders

of GC attempted to create one and put it in practice. As Malcolm MacLean (1977), wrote, “I found there were many conflicting theories about what general education was and should become. I accepted in full Coffman’s own” (p. 38). MacLean went on to write that his task was to find ways to meet Coffman’s concern that college education was getting too specialized while also preserving access to the University. It was clear that the overall task was to do this for people that today we call “developmental education students.” MacLean reported that Coffman asked him “to find out what such people are like, where their talents lie, and to give them the kinds of education they needed and wanted” (p. 38). MacLean took that charge literally, as has the college staff for 7 decades since.

MacLean was a tireless advocate for the college and its mission to provide “education for living” (Wilson, n.d.). He accepted dozens of speaking and consulting engagements around the country from educational institutions during his tenure as director from 1932 to 1940. He and his staff also secured outside funding for educational experimentation from the General Education Board of the Rockefeller Foundation, the Carnegie Foundation, the American Council on Education, and the Federal Works Projects Administration. MacLean (1938) also presented his ideas for reshaping American education in the invited Inglis Lecture at Harvard University in 1938. The college was clearly a national leader in the general education movement.

However, nearly 2 decades after the founding of GC, the college’s dean would conclude that there still was no agreed upon definition of general education (Morse, 1951). More pointedly, the Harvard report on general education (*The Committee on the Objectives of a General Education in a Free Society*, 1945) had specifically rejected the GC definition. The committee identified GC’s courses as “functional” and stated that “a merely functional approach to teaching is inadequate” (p. 176). Koch (1980) asserted that the Harvard Report basically settled the issue as to what general education was to be, and it was not to be courses that gave students practical information they could use in their everyday lives. The committee decided that at the college level it should mean a broad sampling of disciplinary coursework—what we think of today as liberal or general education requirements. At the high school level it would include the practical information they referred to as education for living. The GC version of general education became a minority view while most of higher education accepted the liberal education meaning that is common today. The liberal education meaning, in the GC conceptualization, was too broad and did not solve the problem the college was founded to address. Instead, a broad general education curriculum remained the centerpiece of the GC model. While the counseling and advising system was important to help students adapt, they had to adapt to the curriculum.

What instructors did in their classrooms to give students knowledge they could use in their lives trumped everything.

The General College Curriculum

The Harvard committee notwithstanding, the GC curriculum was openly and proudly functional. MacLean described it that way in works he published for national audiences early in his career in the college and for the rest of his life (MacLean, 1934a, 1934b, 1949, 1951, 1962, 1977; McCune, 1951). His was a fiery reaction to what Morse and Cooper (1951) termed the rationalistic method of armchair theorizing about how curriculum development should proceed. The college curriculum was, in contrast, a result of what Morse and Cooper referred to as the empirical method of curricular development. In Chapter 4 we show how the college counseling methods were an implementation of the Minnesota Point of View in counseling. The same tradition of an empirical approach was central to both counseling and curriculum.

A dominant figure in Minnesota psychology embodied the empirical approach to a broad range of issues from 1921 until his retirement in 1961. D. G. Paterson's hard-nosed empiricism earned the UMN Department of Psychology the reputation as the center of "Dustbowl Empiricism" in the 1930s (Gray, 1958). MacLean's 5-year service in the faculty counselor program Paterson started in 1924 helped him learn how important gathering information about students was in running a successful educational program and gave him experience on how to obtain information about students and how to use it effectively (MacLean, 1949; 1977). Paterson's influence on psychology at Minnesota extended in many directions and set the stage for numerous advances in applied psychology including the classic, empirically-derived Minnesota Multiphasic Personality Inventory and the growth of the student personnel and vocational guidance fields. His influence also led to the establishment of the GC model.

President Coffman, through his graduate school dean Guy Stanton Ford, gave MacLean the task to develop a new curriculum and teach it with a bare-bones Depression-era budget. MacLean accomplished this at first by utilizing borrowed faculty from around the University. He recruited the best teachers in varied departments, and if there were none to spare, department heads or deans did the job. As an indication of how prominent in the UMN these people were, 16 University facilities carried their names in later years. Figure 1 lists the individuals, their relationship to GC in its first decade, and the facilities.

The first step in the process of building an empirically-derived curriculum was necessarily rationalistic. MacLean (1951) gathered expert opinions from deans, faculty, and students and "spun courses out of common sense blended

Individual	Position at University	Primary contribution to GC	Facility
John Ackerman	Professor of Aeronautical Eng.	Taught GC technology course	Ackerman Hall (Mpls. East Bank)
William Anderson	Chair of Political Science	Advisory Comm. on GC Curriculum	Anderson Hall (Mpls. West Bank)
Theodore Blegen	Professor of History	Taught GC Minnesota history course	Blegen Hall (Mpls. West Bank)
Ruth Boynton	Director of Health Service	GC Advisory Comm.; wrote items for GC Adolescent study	Boynton Health Service (Mpls. East Bank)
Walter C. Coffey	Dean of Agriculture (later, President)	Taught GC basic wealth course	Coffey Hall (St. Paul)
Lotus D. Coffman	President	Driving force behind founding of GC	Coffman Student Union (Mpls. East Bank)
Guy Stanton Ford	Dean of Graduate School (later, President)	Responsible for early staffing of GC	Ford Hall (Mpls. East Bank)
Harriet and Vetta Goldstein	Professors in Home Economics	Taught GC euthenics courses	Goldstein Gallery (St. Paul)
Elias P. Lyon	Dean of Medical School	Taught GC biology course	Lyon Laboratories (now demolished)
Wylle B. McNeal	Dean of Home Economics	GC Advisory Comm.; wrote items for Adult study	McNeal Hall (St. Paul)
William V. Middlebrook	University Comptroller	Established U Film Service, housed in GC	Middlebrook Hall (Mpls. East Bank)
J. Anna Norris	Director of Women's Phys Ed.	Consultant on GC curriculum	Norris Gymnasium (Mpls. East Bank)
Walter H. Peters	Professor of Agriculture	Taught GC basic wealth courses	Peters Hall (St. Paul)
Carlyle M. Scott	Professor of Music	Taught GC music courses	Scott Hall (Mpls. East Bank)
John T. Tate	Professor of Physics; Dean of Liberal Arts	GC Advisory Comm.	Tate Laboratory of Physics (Mpls. East Bank)
E. G. Williamson	Professor of Psychology	GC Counseling program	Williamson Hall (Mpls. East Bank)

Figure 1. Distinguished contributors to the early history of General College who were later recognized by University of Minnesota facility names.

with imagination” (p. 34). Prospective instructors were asked to build courses that were broad, not narrow as their disciplinary courses might be, and to focus on developing knowledge useful to a citizen in a modern democracy (Spafford, 1943). The first term in fall of 1932 found 47 such courses in the new *General College Bulletin*. These courses differed from the standard university freshman curriculum in that they were focused on practical matters that students were likely to encounter in life. Most were three-quarter sequences. For example, Basic Wealth consisted of one quarter each of the economic utilization of natural resources, plant life, and animal life. Human Biology was divided into basic human biology, anatomy and physiology, and personal and community health. Appreciation of the Fine Arts consisted of one quarter of motion pictures and the theater, one on the graphic arts, and one on music. Human Development and Personal Adjustment consisted of adolescent development, early childhood development, and the problems encountered by adults in raising children.

In addition to delivering a general education curriculum, student development became a paramount concern in the college. The bulletin listed a “How to Study” course first and encouraged students to take it to improve their chances of success. The GC writing program functioned in a laboratory setting and focused on grammar and reading development as well as writing. The writing lab also served to help students write papers for their other courses. In addition, faculty and advisors watched for students with communications problems and referred them to a speech clinic to work on listening and speaking effectively. Director MacLean and the head of the University Testing Bureau, E. G. Williamson, also taught a course in vocations to help students think realistically about their vocational options. In all these cases, the intent was to integrate academic skill and personal development with the courses’ educational goals.

Over the next 2 decades, the curriculum changed often, and the faculty added and deleted courses based on research on student needs and performance. Generally speaking, after adding 24 new courses in the second year, the General College followed President Coffman’s direction to avoid proliferation of courses, and the curriculum maintained a fairly constant size. The biggest changes were the three-quarter sequences coalescing or dividing into separate courses and occupational courses being added as the college adopted occupational programs after World War II. This changed greatly when the University administration allowed the college to develop a baccalaureate program (BP). This story is told elsewhere (Hansen, 1980; Hansen, Moen, & Brothen, 1983), but two aspects are relevant to this chapter. By 1983 to 1985 at the height of the BP, the *General College Bulletin* listed 418 courses including 180 junior- and senior-level courses developed primarily for baccalaureate students and 238 introductory and occupationally-oriented courses ranging from human serv-

ices to legal assisting that served a student body of about 3,000 with a broad array of career interests. This curricular explosion occurred to accommodate students whose needs were not being met by the University and illustrates how the curriculum has always been responsive to student needs and not disciplines. However, a primary teaching faculty of 50 created and maintained this huge curriculum and was spread too thinly to do justice to all the college was charged with doing. The University administration's ultimate reaction to this untenable situation was to eliminate all degrees and certificates in the college in 1986. This action led directly to the current GC structure and mission. Wambach and Brothen (2002) described the significant changes that took place as the college was set on the mission that other chapters in this volume describe in detail. Our concern here is how the development of a general education curriculum through its history affects the college today.

Origins of the Criterion Model in GC

Koch (1980) described two approaches in American education that help us understand the general education for living curriculum developed for the college in 1932 and carried forward for nearly three quarters of a century. She distinguished between the Jeffersonian model of education that aims to identify and nurture talent and the Jacksonian model that aims to bring up the population average. The traditional, selective higher education model, by this distinction, selects good students and educates the best of them to become leaders in society. Johnston's (1930a) highest class of potential scholars typifies the clientele for this approach. The founders of GC, by contrast, recognized that they were getting average people as students and were concerned with improving their ability to be good citizens. The first clientele of the college was, and continued to be for several decades, students below the 30th and later 40th percentile on CAR. Given the concern with fixed traits at that time, the staff was interested in students' intellectual abilities and administered IQ tests on a regular basis. For example, Williams (1943) reported that GC students had an average IQ score of 107. Interestingly, unpublished classroom research (T. Brothen, personal communication, January 20, 2005) also revealed an estimated mean IQ of 107 for GC students in the early 1980s and 110 in 2004. To create a curriculum for these students, the founders set out in a systematic, empirical manner to understand students, determine their needs, develop a curriculum for them, and evaluate their progress.

General Education for Living

In Chapter 4 we describe how the college was founded on the Minnesota Point of View and how its focus was on the student. We will briefly recap

some of that history here to show how it affected the college's approach to curriculum and still influences it today. As described above, the GC staff attracted foundation support to do the research necessary to develop and evaluate the curriculum. A series of articles and books reported this work.

The two initial large studies (Pace, 1941; Williams, 1943) aimed to determine what the students were like and what their needs were. MacLean (1949) advocated early and persistently that educational institutions should know as much as possible about the students they serve. As MacLean (1934b) stated, "Our focus is upon students individually and upon their needs, interests, and desires, present and future, rather than upon any traditional or preconceived notion of what we think may be good for them" (p. 241). Pace reported an extensive survey of 951 students who had matriculated at the University a decade earlier. This study aimed to determine whether the students' experiences had been useful to them. Williams reported an intensive study of 100 representative GC students conducted to understand them better on both academic and personal levels so that the staff might "better shape our courses from year to year" (MacLean, 1934b, p. 317).

Curriculum development in GC proceeded as a recursive process with courses developed, revised, or discarded given the staff's experience with how they were benefiting students. Spafford (1943) reported the extensive process of curriculum development during the college's early years. She described the basic approach as establishing "experimental courses in order to explore certain areas of student need, and to attempt by trial and error to find desirable, workable classroom methods for meeting these needs" (p. 310). Eckert (1943) examined the academic progress of GC students and reported a broad array of outcomes, including the fact that the approximately 12% ultimate baccalaureate graduation rate was an "unusually good salvage job" because of the students' inherent lack of interest in and ability to do extended university work (p. 88). This type of intensive study continued into the 1950s. Borow and Morse (1954) reported that the fundamental curriculum and aims of the college remained basically unchanged until then with the exception of added occupational courses, but that the increasing need to recognize a transfer mission was changing the college. However, the central principle, that student characteristics and needs must be understood and programs designed to serve them, has remained constant through all periods of change.

The Comprehensive Examination

The founders of GC not only were concerned with creating a new general education approach, they were also concerned with measuring the effectiveness of their curriculum. This led them to another national issue—testing. Haggerty (1934) pointed out that the use of tests to certify student achieve-

ment was proliferating around the country. He also anticipated today's concerns about what is now called high-stakes testing when he pointed out "too little concern about improving the quality of examinations has appeared among the apostles who clamor for their increased use" (p. 2). As dean of the College of Education, Haggerty optimistically predicted that the new GC with a new curriculum and a committed staff could be "a rich field for educational investigation" (p. 4) and that its work with examinations would inform other educational institutions.

MacLean (1934c) described courses in the new GC curriculum as "experimental and empirical, kept consciously malleable so that [they] may be changed to suit the need, interests, and drives of students" (p. 7; italics in original). Highlighting the comprehensive exam as well as the counseling focus of the college, MacLean wrote that student needs can be discovered by "adequate and revealing examinations on the one hand, and individual counseling and conferences on the other" (p. 7). He contrasted the new curriculum as different from traditional college courses that he described as "each an academic principality surrounded by high walls and moats and guarded by drawbridges to keep out the unwanted—to be explored only by the few who pass the barriers or manage a stealthy entrance through a postern gate" (p. 7). Reflecting this sentiment, the college for many years had no prerequisites for entry to its courses. These sentiments survive today in the GC criterion model that allows all students immediate entry into courses that count toward baccalaureate degrees.

The GC comprehensive examination was an ever-changing product of an extensive research and development project that began in the first year of GC (University Committee On Educational Research [UCER], 1934, 1937) and continued for 2 decades (Morse, Borow, & Williams, 1951). After 1950, the comprehensive examination continued in use, but its basic structure did not change except for the items, which were updated by faculty on a regular basis (A. Johnson, personal communication, April 5, 2004). The college abandoned the exam in the early 1980s when other tests and procedures replaced an aging test that had not had the work done that was necessary to keep it valid for new generations of students. First, nationally created tests replaced its entrance function in suggesting student placement in reading and writing courses (Brothen, Romano, Robertson, & Garfield, 1981). Second, the math faculty revised the math portion of the examination and used it as a stand-alone test to suggest appropriate math courses to students and their advisors (D. Robertson, personal communication, April 6, 2004). Finally, completion of 90 quarter credits replaced the comprehensive examination's function in determining whether students had met the requirement for the Associate in Arts degree. However, the tradition that single administrations of any test are

never viewed as the only or final determinant of what students would be allowed to do continued to be central to the GC model.

Because the courses in the original GC curriculum were new, broad, and taught in large sections, the founders decided the comprehensive examination was necessary to determine whether students were meeting the overall curricular goals. The examination allowed the staff to deemphasize grades, especially fail grades, and take a developmental approach from the very start. As MacLean put it, "at no time before the student attains a passing grade is he regarded as a failure; he is merely on his way up" (UCER, 1937, pp. 13–14). This philosophy guided the comprehensive exam and has served as a major pillar of GC for over 70 years.

MacLean (1934b) described succinctly the construction of the comprehensive exam in the first year of the college:

How, then, are these examinations constructed? Dean Haggerty, of the College of Education and Chairman of the Committee on Educational Research, acts with me as adviser. Four professors, members of the Committee, serve as examination counselors. They place in each [course] a research assistant who attends all class meetings, takes notes on them, and reads and notes all assigned and recommended reading. The research assistant then analyzes and separates all materials gathered into vocabulary essential to understanding the field, vital facts and information items, laws and principles stated. He then sets aside for the examination counselors all materials which may properly be included in examinations other than the one for which he is responsible. For example, if the lecturer in human biology comments on the cost of the common cold to American business, or the cost of free clinics, veterans' hospitals, public-health nursing, these go for inclusion in the economics examination. If he talks on the swing toward government supervision of medical care, questions are formulated from his remarks for the government test. If he describes a new surgical or diagnostic instrument, the description is carried over into the physical-science and technology examination. If he speaks of the mental reactions and behavior of patients, the material is referred to the assistants in charge of the psychology examinations. All the materials from the blanketing courses just described are thus distributed. Everywhere, at all times, there is watchfulness for interlocking elements, and thus is the concept of vital unity built up.

The research assistant having passed on his interlocking elements and having received those of the other assistants sets out to construct his examinations. He gives quizzes sometimes as often as once each week. These are marked on a percentile basis. Item analyses are made, and the validity and efficiency of each question tested; the poor questions are discarded; the good are retained for probable inclusion in the comprehensive test . . . (pp. 316–317)

MacLean then enumerated the nine separate exams in euthenics (i.e., home life and personal development), psychology, English, history and govern-

ment, current affairs, fine arts appreciation, physical sciences, biological sciences, and economics, from which students chose five to satisfy their Associate in Arts graduation requirement. He also described their form: vocabulary, facts and information, laws and principles, application questions using class material, and student attitudes toward the subject matter.

MacLean (1934c) went on to describe the comprehensive examinations' objectives in clearly developmental terms. The first objective was to counter the notion that education was about piling up courses and credits and then forgetting the material as soon as possible. The comprehensives were to stimulate regular study and learning because they covered so much material that students could not cram for them. Second, the comprehensives were to be guideposts in a process of learning that told students how much progress they had made and how much was yet to be made. MacLean wrote, "the comprehensive approach gives the slow-paced student a true sense of gradual achievement instead of a feeling of futility and failure" (p. 9). Third, they had a student development function in that "Under the benevolent pressure of comprehensive examinations, fear of examinations likewise tends to diminish" (p. 9). Fourth, as a standard apart from individual courses, they countered the stereotype "that the best way to 'get by' a course is to study not so much the subject as the instructor, to learn to feed him what he wants, play up to his prejudices and enthusiasms" (p. 9). Finally, because the comprehensive examination measured student attitudes towards subject matter, they revealed, "the questionings, the foci of interest, and the hitherto untapped mental and emotional needs of students" (p. 10).

The exam development process created a great number of examination forms. Eurich and Johnson (1937) reported that in the first 3 years of the college, the staff created 398 different examinations consisting of 22,000 different items—a database of separate test questions that grew to 50,000 within a couple of years. The tests changed as the curriculum developed, with items combined with others to form new examinations or rearranged in different ways to reflect a changing curriculum.

The basic structure of the GC comprehensive examination has its origins in the work of D. G. Paterson. As we noted previously, he took over development of the college aptitude tests in 1921 for Dean Johnston. He continued to work on test development throughout his career and had a great influence on testing at the UMN, including GC. Paterson's influence on the comprehensive examination is apparent in the way in which the test was created. Paterson opposed essay tests and championed complex or applied multiple-choice items (UCER, 1934). He pioneered this type of test development while developing introductory psychology examinations for the UMN Psychology Department. The procedure involved writing items, trying them on quizzes

and examinations, doing item analyses, and writing them on note cards to develop a database to draw from for future examinations (Paterson, 1929). Interestingly, in this article reporting his foundational work on test development, he noted that Cornelia Williams, the future head of counseling in GC, was his undergraduate project assistant. He continued to use this technique through the 1950s in his teaching and research (J. J. Jenkins, personal communication, February 29, 2004). A similar empirical process also characterized development of the famous Minnesota Multiphasic Personality Inventory (Butcher, 2000; Hathaway & McKinley, 1940) and likely was influenced by Paterson's work. His was the technique used to create the comprehensive exams and to interpret their meaning for each student (Paterson, 1949; Williams, 1943). MacLean (1934c) characterized the use of Paterson's style of items for the comprehensive as a settled issue. He wrote, "It seems clear that the battle between essay and objective type examinations is over, and the field is held by the latter" (p. 13).

Early issues of the *General College Bulletin* reveal that in the first years of the college, the comprehensive certified that students had completed the requirements for the Associate in Arts degree. The college experimented with grading procedures—going from a "fail" (later "withheld"), "pass," and "honors" grading system based on percentile ranks achieved in each class, to reporting traditional A through F course grades along with percentile ranks, to traditional grades and a year-end percentile rank based on all students' performance, and finally to the standard college grading system used today. During this experimentation, the comprehensive served as a stable measure of student achievement. In the late 1930s it began use as an indication of whether students had met the standard for transferring to a baccalaureate program at the University. As grades were then only honors, pass, or withheld, the college worked out conversions for percentile ranks to GPA to help other colleges to make transfer acceptance decisions. For example, MacLean (1936) reported that the 42nd percentile was designated equivalent to a C grade. For several years after the college began giving traditional grades, students could waive individual course grades and have them determined by their scores on the comprehensive exam. Parenthetically, MacLean (1951) characterized the move toward giving traditional A–F grades in the late 1930s as the result of a battle the college lost because of the transfer issue—clearly a principle given up to ultimately benefit students who needed traditional qualifications to satisfy the educational traditionalists who were deciding on their transfer to baccalaureate programs.

The 1937–1938 *General College Bulletin* stated that students had to have passed three different comprehensive exams with scores above the 50th percentile to transfer. In the 1940s the comprehensive exam began use as a diag-

nostic test with students taking it at entry to guide course choice and at the end of their coursework to qualify for the Associate in Arts degree. In the late 1940s a major research and development effort created a single, 700-item comprehensive exam (Morse, Borow, & Williams, 1951) that students took at entry to guide course selection, at the end of the first year for evaluation purposes, and then when they were ready to apply for their degree. By the 1960s a score on the exam that was above the 75th percentile of entrance test scores qualified students for the Associate in Arts degree. The college bulletin encouraged students to take the comprehensive one quarter before planning to graduate so that if they scored low in an area they could take a course to remediate the deficiency.

The comprehensive examination had little to do with course placement in its original conception. Its primary purpose was to certify completion of the curriculum and the first use of it in pre- and posttesting was to measure students' improvement in their knowledge. The primary concern was always a developmental one—that students begin at different places and that the best outcome is one in which a student learns much from a course rather than coming into it with prior knowledge and getting course credit for learning little. As MacLean (1934c) writing about early experimentation in a physics course put it:

A pre-comprehensive, administered on the first day of the first quarter of the [physics] course, reveals the fact that student A knows only 3 of the 250 items in the test. On a comparable form, given at the end of the quarter, A knows 122 items. He has made, for him, rapid progress in mastery of new and unfamiliar vocabulary, scientific facts of physics, concepts, laws, and principles and is able, in some measure, to apply these to new situations and problems. And yet, if we follow the standard grading system, he is given a grade of failure because he does not respond correctly to 125 of the given test items. Four more would have done it. This is patently absurd. Moreover, its effect upon A is vicious. He is stung by the mark of failure. He feels inferior. His growing desire to progress in physics, to learn more, to forge on into the field which is beginning to attract him, is clipped off, left sore and blunted. This strikes us as educationally inexcusable. (p. 12)

In the late 1940s the comprehensive began more explicit use as an advising tool modeled after Paterson's (1949) methods of vocational counseling. It gave students guidance on their strengths and weaknesses and helped them select courses to remediate deficiencies so they could pass the degree comprehensive or to transfer to a baccalaureate program. In the early 1980s this advising function became more intrusive as the number and variety of reading and writing skills courses in GC had increased greatly. However, research at that time showed convincingly that the comprehensive's successor tests did

not place students accurately, and this approach was abandoned (Wambach & Brothen, 2002). Clearly, the comprehensive examination served throughout its history primarily as an indication of whether students achieved the objectives of the college curriculum, not as a placement device. It guided faculty thinking about curriculum and whether their courses were helping students advance in their general education.

Conclusion

Our thesis in this chapter is that the criterion model of developmental education is firmly rooted in the history of GC. We support this thesis in two ways. The first concerns the UMN's approach to selection and Johnston's (1930a, 1930b) work that led to development of the CAR. That statistic depends a great deal on single-test predictions, and we argue that single tests can easily misclassify students. Johnston's primary advisor on testing acknowledged the potential for testing error in judging students as inappropriate for regular college work but justified the risk as long as provision was made for "giving the 'poor college risks' a type of educational program better adapted to their lesser talents" (Paterson, 1937, p. xiii). The history of classification by tests at the UMN is tied to providing reasonable alternatives to those both correctly and incorrectly classified.

The UMN founded GC to provide an alternative educational experience for students correctly identified as not appropriate for baccalaureate work as well as for those who either later improved their academic potential for baccalaureate work or had been misclassified by the selection process. We stress that our argument against placement tests is not anti testing (Brothen & Wambach, 2003). The college would not exist without a selection procedure that categorizes students and sends some of them to us so we may determine how to serve them appropriately. Providing education that would be useful to correctly-classified students was the college's original general education mission while developing or "salvaging" academic potential was the original developmental one. At the same time, the curriculum had to be useful to those students who were misclassified by the traditional predictors and needed only to demonstrate they had high academic potential. Stavig (2004) pointed to an example of this type of student, Norman Borlaug, winner of the Nobel Peace Prize in 1970 for his work developing new strains of wheat that greatly improved world food production. He was assigned to GC as a freshman in 1933 because he lacked prerequisite courses for regular admission. He quickly demonstrated his potential, transferred, and eventually earned his Ph.D. from Minnesota in 1942. To this day, he has positive recollections of his placement in GC.

The second way in which the criterion model is embedded tightly in the history of GC is the tradition of providing a curriculum that is relevant to

students. Because the curriculum delivered “education for living,” it was about students’ journeys through life rather than an endpoint defined by credits attained. This is fundamentally developmental and allows for starts and stops and changes that are difficult to capture with a single test or even a past history of educational attainment. For example, throughout the college’s history it is a common finding that college aptitude tests predict our students’ degree attainment least well, HSR predicts next best, and that first-term grade performance in the curriculum predicts best (Eckert, 1943; Wambach & Brothen, 2000). The college’s developmental approach recognizes that students change for a variety of reasons from physical maturation to increased social consciousness and that the curriculum is the best way to evaluate their potential for academic success (Wambach, Brothen, & Dikel, 2000; Williamson & Darley, 1937).

Throughout its early years, GC served as a national model for curricular development in general education and spurred numerous curricular reforms (McCune, 1951; Wilson, n.d.). The GC curricular model did not go unnoticed when the state of Minnesota was considering converting its junior colleges to community colleges in the 1950s. Educational leaders at the time worried that the first 2 years of a traditional liberal arts curriculum then offered in the junior colleges might not be appropriate for a much broader body of students. Keller, Lokken, and Meyer (1958) pointed out that GC had a history of working with students at the lower CAR ranges and recommended that the junior colleges in Minnesota revise their curriculum based on the GC model. The model still has great utility, as the chapters in this book demonstrate.

In summary, testing has always been a large part of the GC model but has never been the single, high-stakes test approach that is so widespread today. The comprehensive exam focused on the curriculum and had developmental objectives. Many other achievement and aptitude tests provided a picture of students early in the college history (Williams, 1943). However, the primary purpose of testing has always been to describe students, to mark their achievement, and to determine how the curriculum could serve them better, not to screen them out. This is the basis of the criterion model in GC. It has served us well for over 7 decades while also serving as a model emulated elsewhere.

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