The Expanding Role of Developmental Education

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Editors
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THE EXPANDING ROLE OF DEVELOPMENTAL EDUCATION

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The role of developmental education in higher education in the United States of America continues to expand in an effort to help underprepared students be successful as we move with deliberate speed into the 21st century. This expansion includes tutoring programs, specific academic advising and counseling programs, learning laboratories, and comprehensive learning centers. Moreover, this expansion includes developmental courses now found in virtually all of America’s community colleges and in more than half of America's colleges and universities.

To meet the ever increasing needs for the next millennium, developmental education must expand by joining elementary and secondary education to improve teaching and learning at all levels; by forming partnerships with business and industry; by ensuring that no American be denied an opportunity for a college education because of financial aid; by increasing the number and diversity of Americans completing training and educational programs; by insisting that students be responsible for their learning and be accountable for the quality of their academic programs and the assessment of their learning; by improving the productivity, the cost effectiveness, and the accountability of developmental education; and by embracing wholeheartedly distance learning that will provide opportunities for a quality and affordable higher education for all Americans.

To all developmental educators, and their students and partners in elementary education, in secondary education, in two-year colleges, in four year colleges, and universities, in government and business and industry, and in distance learning, this MONOGRAPH is dedicated.

T. Clifford Bibb  
President, National Association for Developmental Education  
1998-1999
The National Association for Developmental Education (NADE) definition and goals statement adopted in 1995 states that developmental education “promotes the cognitive and affective growth of all postsecondary learners, at all levels of the learning continuum.” The theme for the 1999 monograph was selected to reflect the expanded mission of developmental education. Traditionally perceived as programs and services for students who are provisionally admitted to institutions of higher education or considered academically at risk, developmental education has emerged as a field that endeavors to meet the diverse academic needs of all students seeking to educate themselves beyond the high school level. The chapters of this monograph represent but a few examples of ways in which developmental education is expanding as a profession.

In a variety of forums and settings we have heard developmental educators themselves question whether developmental education is a field? a profession? a discipline? Lundell and Collins argue that developmental education publications lack the theoretical base necessary for a
“unified core of disciplines.” They encourage developmental educators to identify and challenge common assumptions in order to expand on current definitions and theories, while suggesting James Paul Gee’s theory of “Discourse” as one perspective for viewing diversity in developmental education.

The second chapter is written by John C. Griffith, recipient of the 1999 NADE Research Award for this study, which explores the effectiveness of study skills intervention in preparing Department of Defense students for an Aeromedical Apprentice course. Griffith’s project is but one example of the role developmental educators can play in providing learning support outside traditional educational settings. Longman, Atkinson, Miholic, and Simpson expand on this theme in their chapter describing an apprenticeship training program that has evolved into a technical development center. Their workplace literacy project differs from many such programs because its primary emphasis is to enhance success in a training program rather than to improve job performance, although that is, of course, the ultimate goal of training. Both of these chapters represent programs that have a proven direct cost benefit and have established a link between literacy and a productive employee, whether in private industry or government service.

The fourth chapter, by Caniglia and Duranczyk, discusses how developmental education can promote achievement by expanding its role beyond teaching specific subject matter to addressing the affective needs of students. The authors demonstrate that through autobiographical writing students learn not only about their own attitudes, but also about the source of these feelings, i.e., the factors influencing beliefs. Similarly, Myers, in chapter five, explores students’ perceptions of their literacy experiences in order to consider how student affairs professionals and developmental educators can collaborate effectively to meet student’s cognitive and affective needs. Finally, Badley, through his description of his teaching unit on Martin Luther King, Jr.’s “Letter from Birmingham Jail,” advises educators that while teaching skills and content, they also have the opportunity to instill in students a sense of responsibility, to educate students about citizenship, and to break down barriers and stereotypes.

This volume concludes with two book reviews by Maxwell, to promote and expand upon our own professional development.

We are grateful to these authors and to the NADE executive board for its continuing support.
Toward a Theory of Developmental Education: The Centrality of “Discourse”

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Abstract

This article explores implied theories of “developmental education” in a survey of representative articles from a range of disciplines. One challenge to developmental educators exists in articulating a theory of developmental education that encompasses an interdisciplinary range of institutional and individual activities. Current definitions of developmental education remain theoretically underdeveloped, and assumptions underlying many developmental education programs reflect this lack of overt theory-making. It is important to articulate theoretical foundations and to expand current definitions. This article points to the idea of “Discourse” as developed by James Paul Gee as a possible theoretical construct from which the motives and goals of developmental education can be critiqued and refined.

Postsecondary developmental education encompasses a wide range of practices in a number of disciplines. The purposes and practices of developmental education have undergone a variety of historical transformations. Indeed, the term “developmental education” itself has emerged only recently to identify educational approaches or a set of practices which deliberately...
and holistically address students' educational needs and diverse backgrounds. Shifting demographics and social imperatives have influenced these developments. Educators have identified the need and demanded recognition for programmatic models that assist students in their educational transitions, specifically those students whose backgrounds may not include experiences and discourses valued in higher education. Terms such as “remedial,” “special,” and “developmental” have consequently evolved to define both the population served and the educational paradigm through which such students enter higher education, with “developmental education” being the current term of choice.

Much of the published literature in developmental education lacks a theoretical base through which the motives and goals of seemingly disparate practices might be understood as constituting a unified core of disciplines. This is perhaps a symptom of the energetically pragmatic purposes which drive this body of research and practice. Much of the research we produce remains at an applied or assessment level, lacking a connection across the wide variety of subject areas and socio-cultural contexts that our practices seem to assume and which our disciplinary approaches seem to have in common. We propose a closer examination of the assumptions which, though unarticulated, seem to shape the research in developmental education, and we seek the creation of integrated models that are thoughtful in naming such prior assumptions. The purpose of this discussion is to identify common assumptions made by developmental educators in current published research and to challenge these assumptions constructively with the goal of expanding our definitions and theories. We propose to do so, though not out of any disdain for the committed practice of our colleagues who, like us, struggle with very pragmatic concerns at the level of practice day in and day out. Rather, we assert the need for such an enterprise for two closely related reasons:

1. Work in developmental education has matured intellectually to the point where we must be overt in theorizing our enterprise so that our research and curriculum studies can compete with each other for credibility in full view of the assumptions that are their intellectual foundation;

2. Attacks on developmental education are very easy to mount when the grounds for discussion are subject to redefinition at the whim of every legislator or academic vice-president who questions the value of our practice. That is, we need to know why we do what we do, and we need to say these things aloud.

Method

To get at an understanding of what the profession’s common assumptions and what the extent of unarticulated theories might be, we surveyed representative articles in developmental education. These articles varied in topic and purpose, including broad historical overviews, emerging definitions, and emphases on specific disciplinary areas such as math and writing. The primary source for the publications surveyed was the National Center for Developmental Education’s recent Annotated Research Bibliographies in Developmental Education, Volumes 1 and 2 (1997, 1998), which identify articles in seven content domains, including articles from
major field journals and research reports. That is, we took inclusion in the annotated bibliographies to be an indication that the piece under consideration had achieved credible status in the developmental education canon. In selecting articles and research reports for our overview, we focused on items that reported significant findings or that proposed curricular practices based on research. In each disciplinary domain, this included identifying popular debates and targeting articles that addressed these issues. The study also focused on key historical overviews, articles, and research reports exploring developmental education’s definitions or foundations.

Our methodology in this literature survey included the identification, selective review, and meta-analysis of these works. We focused on the selection of approximately 20 articles from each of the seven major research and practice categories from Volume 1 (i.e., assessment and placement, critical thinking, developmental reading, developmental writing, developmental math, minority student retention, and tutoring). To identify “representative” articles from each category, we reviewed both abstracts and articles by prominent authors (i.e., who had more than one article included in the volume) in each discipline, and we marked recurring themes or issues being discussed in the literature drawn from a thematic reading of the abstracts. Additionally, we surveyed approximately 25 more articles reflecting new categories in Volume 2, which reorganized the previous seven categories into 48 subheadings, including new areas of emphasis such as program evaluation, legislation, program management, and instructional design. Focusing on this representative sample, we then examined these articles to identify major themes, research topics, primary assumptions, and articulations of theory related to developmental education and disciplinary-based or broader educational foundations.

Our purpose in this overview was to identify and examine the underlying assumptions of published research in developmental education. It was our hypothesis that this body of research and practice lacks thoughtfully articulated theories or definitions of practices that adequately describe the range of student backgrounds and socio-cultural activities reflected in developmental educational programs. Furthermore, we speculated that a survey of representative articles and reports would reveal these gaps in our collective articulation of our theory. Research and practice in developmental education continue to evolve at an important time at the national level, and an ongoing exploration of these assumptions and definitions within and across the disciplines is key to strengthening programmatic foundations and addressing student needs.

Definitions of Developmental Education

A first finding grew from a cluster of articles with a focus on definition. The term “developmental education” is a fairly recent evolution from past terms and politics, suggesting an increasing awareness of the diversity of student educational needs and personal backgrounds served in the range of sites which form our field. Terminology is important, for in our successive attempts to name ourselves are found traces of unarticulated theory which have given rise to our practice. Primarily, this work has emphasized issues relevant to students’ transitions between
high school and college at sites such as community colleges and preparatory programs within four-year institutions.

Payne and Lyman (1996) outline the history and shifts in political climate that mark the progressive changes in terminology used to describe students thought to be underprepared for higher education. These changes are intricately linked to national economic trends and an ongoing examination of the larger role of education in American society. Developmental educators debate among themselves over the vocabulary used to describe their programs, students, and pedagogies, and recently have pointed to “an identity problem, if not an identity crisis” within these disciplines, suggesting that “developmental educators consider renaming themselves” in response to outside criticisms (Payne & Lyman, 1996, p. 13). This call for a reexamination of the foundations of developmental education marks an important moment in the history of this expanding body of research and practice. Although it may appear to be a time of crisis, it also creates an opportunity for self-reflection, constructive critique, and a further articulation of basic definitions and guiding principles.

In recent monographs, The National Association for Developmental Education (NADE) has established a working definition for “developmental education” which includes a holistic focus on cognitive and affective development of students, acknowledges a spectrum of learning styles and needs, and promotes an interdisciplinary range of approaches and student services. Higbee (1991) further examines this definition within the context of cultural pluralism, emphasizing a more positive framework for viewing students in their full complexities, not as “deficient” as past terms such as “remedial” have traditionally implied. These terms have created definitional and programmatic “myths” (p. 74) which Higbee challenges, acknowledging the barriers and stereotypes that arise amidst this confusion over terminology. These challenges and current definitions represent the most recent efforts to examine foundations and create a critical agenda for the future of developmental theory and practice. But at the same time, the recurring nature of the definitional argument actually discloses the first tacit theory: it appears that as a profession, we operate from an assumption that students or their home environments must be “fixed,” that the students served in our programs or their families or their neighborhood are in some way pathological when seen against an imagined “healthy” norm.

Tomlinson’s (1989) report also identified the complex, shifting definitions during the past century, noting definition ambiguities and challenges facing developmental educators. She traces the history of terms used to label underprepared students which primarily have emphasized models of deficiency. Again, the evolution toward the currently preferred term “developmental” shifts away from these notions of students as “lacking” as individuals or in their backgrounds, to a model which focuses on how “to bring something into being as if for the first time” (p. 7). This term has called for the shifting of discussions about these students and their programs away from deficit theory to more ability-based definitions and assumptions. Even this more broad-based definitional shift exposes a theory some might find problematic: if the goal of developmental education is “to bring something into being as if for the first time,” the tacit theory must include the notion that what is already “in being” about the student is to be devalued as unfit for the new environment.
Despite recent critical assessment of foundational terminology, however, developmental education research and practice, and its definitions, remain in a state of flux and are subject to both external and internal challenges as many pieces in the literature indicate. This may simply be the result of the wide range of local conditions and shifting demographics that influence definitions, student populations, and programmatic structures (Tomlinson, 1989), or it may indeed disclose a lack of professional consensus on key issues of theory, on key issues of how we construct intellectual frameworks for practice.

**Primary Assumptions**

Beyond the basic definitions offered in recent literature, there are many unstated assumptions informing most research studies and program models. Even as programs fall within the general scope of “developmental education,” they vary widely, and within this variation is the measure of our lack of a coherent theory, or rationalization, for what we do. Our unexamined practice and unarticulated theory—in a domain which is already marginalized in higher education research—places our enterprise further into a subordinate position. Despite a pattern of recurring calls for thoughtful self-definition, noted above, the primary body of literature in developmental education remains focused on under-theorized curricular practice and traditional disciplinary-based models for students and programs. The literature discloses several patterns or assumptions:

1. Disciplinary-specific models and definitions of developmental educational practice which emphasize practical, pedagogical issues are the norm in the research.

2. Articulated assumptions about developmental education focus on attitudinal, psychological, and affective dimensions, primarily at the level of the individual and related mostly to behavioral and skills-based issues and needs.

3. Research in developmental education primarily focuses on individual deficit and its remediation, even though the rhetorical emphasis is on serving diverse or non-traditional populations of students.

4. The bulk of articles reflecting more broadly on national and historical issues relevant to developmental education tend to focus primarily on assessment tools and paradigms, reinforcing dichotomized “insider versus outsider” categories for students in terms of barriers and educational hierarchies.

5. Few programs have articulated and presented their own models to a broader audience, specifically as they relate to relevant educational theories informing their conception and relationship to current definitions of developmental education.

Despite recent efforts to expand the definitions of developmental education, it is apparent that popular conversations that place students into simplistic, assessment-based categories prevail. The predominant orientation of these five patterns indicates a primary emphasis in the field on issues of pedagogy, and a tendency to reflect or borrow existing theoretical models, primarily from the field of psychology and assessment measures. The majority of these models
prioritize definitions and theories of students pitted against an imagined societal norm, discounting their prior knowledge, strengths, and home cultures. In our assessment of the literature, this theoretical stance appears to be adopted mostly by accident, through our cumulative lack of attention to the primary theoretical foundations and philosophies of our local practices in developmental education. We propose that these conversations will need to shift in the future toward an examination of these five assumptions as they will challenge current perceptions of our field, and as they will more thoughtfully contribute to our position as a theory-making entity within higher education. Our investigation begins with an exploration of how these patterns are mapped out specifically within the primary research canons in developmental education.

**Evidence in the Literature**

To uncover these assumptions, we reviewed our representative literature sample carefully to identify basic definitions, foundations, and stances toward research and practice in developmental education. Each domain we examined in the annotated bibliographies reveals a productive contribution to the field in terms of research publications that address practical and theoretical issues within specific disciplines. Yet as developmental education encompasses many disciplines, interdisciplinary links in information about theory and practice which cut across these areas have not been as widely produced. Individual, discipline-specific articles emphasizing pedagogical issues prevail over broad-based examinations of educational and developmental theories. It was our primary assumption that this reflects a historically constructed stance and ethos in developmental education which future conversations need to interrogate. Although this position certainly reflects our commitments to classroom practice and to our students, it is an approach that has not led to expanded theoretical conceptions that can effectively articulate our primary contributions and foundations within higher education.

To test this first assumption, we sampled the content areas and categories in the literature for evidence of how the canon currently reflects this primary pedagogical orientation. The areas of reading and writing, for example, provide a thoughtful representation of this history in developmental education research. Articles in these content areas address issues in metacognitive development (Applegate, Quinn, & Applegate, 1994; Flower, 1989; Hodge, 1993), learning theory and classroom methods (Davis, 1992; Easley, 1989), process-based instructional paradigms (Commander & Gibson, 1994; Williamson, 1988), motivation (Mealey, 1990), support services like tutoring (Hartman, 1990), and assessment-related issues such as grammar and English as a Second Language (ESL) instruction (Diaz, 1995; Doyle & Fueger, 1995; Sedgwick, 1989). Dominant theories in the fields of education and composition also inform developmental reading and writing research, including areas such as socio-cultural issues related to theories of remediation in basic reading and writing (Hull & Rose, 1989) and histories of theoretical changes in these fields (Goodman, 1984; Quinn, 1995; Williamson, 1987). Although discipline-specific theories offer the possibility of connecting more broadly toward definitions of developmental
education practice across the disciplines, the information typically remains rather pedagogically focused and disciplinary-bound within these primary content areas.

Our criticism of this research is not in its lack of ability to evolve our pedagogies and shape curricula in our local programs; rather, we see this as developmental education’s inherent strength. In fact, it is this primary attention to the diverse instructional needs of our students that marks our work as progressive in higher education. However, as we have given priority to this standpoint in the past, we have often remained myopic in these examinations as they are positioned more broadly across the disciplines. It is our challenge to the evidence of this first assumption that we need to begin the next step in a process of increasing developmental education’s visibility. We also believe this can be done through an extension of existing research, for its implications are rich, but as yet unarticulated in their connections to a theory of developmental education. For example, theories and strategies in the development of critical thinking (Chaffee, 1992; Elder & Paul, 1996) that appear in developmental education research have the potential for further application across the disciplines. Similarly, studies of minority students and multi-cultural issues (Boylan, Saxon, White, & Erwin, 1994; Knott, 1991; Miller, 1990) provide evidence of rich and untapped resources for theoretical development across the disciplines. An examination of these philosophical foundations and an application of these tenets to definitions of developmental education can create a more unified perspective of how our students learn with a focus on their multiple contexts, not just what we are teaching them in the content areas.

Even in this bibliographic categorization of these as separate content areas in the 1997 bibliographies—critical thinking, and minority student retention—a particular pedagogical and epistemological stance is reflected. These categories seem to reflect a possible point of transcendence over the traditional disciplinary divisions as they prioritize theoretical orientations and culturally relevant issues over pedagogical tactics. Yet while it is necessary to address content-based approaches within our current structures for developmental programs, it appears that our most widely useful theoretical models often remain bound within these preconceived categories. This results in a strong, ongoing assessment and sharing of practice-based issues, but it does not ultimately lead to a strengthening and building of relevant theories that can be applied across the disciplines and contribute to a better understanding of our culturally diverse student populations. The most recent bibliographic volume (National Center for Developmental Education, 1998), however, reflects a more integrated approach to its organization as it shifts from the content-based labels to a richer blend of foundational, pedagogical, and theoretical areas reflected in the research. This shift positively challenges the first assumption simply through its suggestion that a range of issues, rather than a fixed set of disciplines, is what unifies us as a body of research and practice. However, our theory and research designs need to follow similarly in this approach to work more explicitly as a theory-building entity in higher education, a move which ultimately best serves our students through our strong tradition of pedagogical critique.

The second assumption we uncovered is reflected in a recurring focus on attitudinal, psychological, and affective dimensions in the field that emphasize individual, behavioral, and
skills-based issues and needs. These have certainly provided one of the most informative and active frameworks through which we have challenged reductionist education models and expanded definitions. In surveying the most recent (1998) bibliographic collection, we noticed that learning assistance, advising, tutoring, and skills-based models for learning reflect our primary developmental models. These are informed by a rich history of learning development theories based on cognitive and affective processes (Boyle & Peregoy, 1990; Hylton & Hartman, 1997; Smith & Price, 1996; Spann, 1990). These models have contributed to the development of one of the unique features of developmental education programs, the use of additional educational support services, such as learning centers, which offer individualized assistance. However, as far as these skills-centered instructional modes go to address these cognitive factors, they do not expand much beyond this mode of learning enhancement to challenge this deficit-based programmatic model.

The third assumption in the literature describes how these individualistic models tend to reinforce notions of remediation even as they may purport to reject them, especially as they apply to diverse student populations. When our definitions remain focused on linear, stage-oriented developmental schemes, we develop only one aspect of a more complicated picture of students’ backgrounds and of the role institutional contexts play in these interactions. This includes a broad range of social, economic, political, and cultural backgrounds which intersect in ways that affect students’ experiences in the classroom. While our rhetoric embraces notions of diversity and recognizes that we serve non-traditional populations of students in greater numbers than most programs in higher education, our research does not similarly reflect this reality. Linear models of cognitive and affective development are often used to justify and validate assessment tools and behavioral labels, and they typically categorize students within a limited range of specific “skills sets” or linear developmental tasks. What is missing from existing frameworks is a culturally-based examination of student needs and pedagogical implications.

A broader recognition of the diverse contexts within which developmental education takes place is essential. For example, the notion of multiple contexts and communities (Phelan, Davidson, & Yu, 1998) within which students, their programs, and their teachers live and work is key in this evolving understanding of developmental education. Work, family, peers, school, languages, and other communities are interconnected in this broader picture. Such culturally-specific models for development address students holistically as they make transitions into higher education settings. These issues are especially important as we continue to discuss educational opportunities and experiences relevant to the needs of students of color and other traditionally bypassed populations such as students for whom English is a second language, low-income and first-generation college students, and students with disabilities.

Current individualistic definitions simply do not extend far enough in recognizing multiple cultural issues which are important factors in student success in higher education settings. We propose that interdisciplinary theoretical models be incorporated into definitions of developmental education. More research must be done in this area to challenge individualistic models that often separate students and their academic skills from their communities. Such
research might help developmental educators challenge deficit models of students by constructing models that can view students as fully formed individuals, and not merely as “underprepared.” Students can be seen instead as individuals who are traversing the territory of new communities while retaining and bringing their previous strengths and identities into higher education. This might also lead us to expand beyond the linear views in developmental psychological theories that unrealistically tend to scaffold and compartmentalize students’ development. This would answer Higbee’s (1996) call for an ongoing focus on the more positive, domain-oriented educational models which address intellectual development.

A fourth assumption uncovered by the survey focuses on conversations about assessment, which form the bulk of research studies in developmental education. The reality is that most educational programs are frequently defined by local contexts such as legislation, politics, test scores, and other external factors of placement. This is perhaps the reason for the emerging programmatic models and definitions in the field, yet these conversations also tend to reinforce the language of barriers and “insider versus outsider” notions even as much of the recent research in this area has attempted to challenge this trend (Darling-Hammond, 1994; Fuentes, 1993; Gabriel, 1989; Jitendra & Kameenui, 1993; Kerlin & Britz, 1994; Seybert, 1994). Whereas this assessment bind may be inescapable in many locales, it also marks an important place in our practice where the challenge to externally-limiting definitions can continue. As definitions in developmental education become less focused on a language of remediation and more on inclusive, holistic models, it is important that research in assessment also begins to challenge its traditional stance of divisiveness and barrier-making language—even when these realities continue to be binding. Although assessment tools certainly create initial placement lines and define who does or does not enter programs, developmental education does not begin or end with these preconceived boundaries.

The final assumption we uncovered in this survey focuses on the articulation of programmatic models to broader audiences—beyond the boundaries of individual disciplines, specifically as they relate to relevant educational theories informing their conception. There is a strong history of sharing classroom models and strategies within field-specific domains, but few of these are linked directly to definitions of developmental education and an explanation of relevant educational theories that inform their foundations. Programs need to be more self-reflective about current goals and theories, like La Guardia Community College (Chaffee, 1992; Simpson, 1993) has done in the past. Discussions such as these, which are oriented toward the unveiling of tacit theories underscoring local practice, provide directive starting points and useful models for other programs to investigate and share their work with a national audience. Such ongoing articulation and sharing of programmatic philosophies and educational foundations is important, especially in a field which is interdisciplinary by nature. Research centers like the National Center for Developmental Education (Spann, 1996) and national organizations like NADE also continue to provide forums for this shared information. However, this strand of our conversation needs to move beyond the sharing of pedagogical and classroom models and toward an inclusion of broad-based representations of programs, their locales, their educational philosophies, and the communities they serve. This will contribute to a richer
definition of developmental education, and it can provide ongoing, interdisciplinary frameworks linked to useful theories in education which, in turn, can lead us to expanded research in the field.

**Toward Theory: James Paul Gee and the Centrality of “Discourse”**

We argue that a healthy next step for this discussion would be consideration of a variety of theoretical directions for developmental education. As a profession, we have operated on the basis of tacit theories of deficit models and normative socialization. Such tacit theories are disclosed by examination of our practices. But the examination of practices to discern what our tacit theories might have been seems backwards, at best. A more deliberate engagement with theory as a precondition for adoption of practice is consistent with developments such as the recent public articulation of definitions of developmental education among NADE members (Higbee, 1996). In recommending a greater engagement with theory, we risk appearing to be judgmental about or dismissive towards the literature reviewed above. Nothing could be further from our intention. In calling on colleagues, and ourselves, to articulate and apply theories that might guide our practice and form a framework for further testing of our assumptions, we hope to add value to the everyday efforts that are at the heart of developmental education and access programs in higher education. We recognize, too, that examination of theory is inherently frustrating. As each theory is examined and tested, its limits become apparent and competing theories enter our field of vision. Moreover, as we embrace any one theory for the space of time it takes us to learn from it, we are inevitably in a reductionist posture toward the complex domain of developmental education. Theory is humbling, as well, in that fiscal and human resources rather than theory typically provide and define the tangible limits of our efforts. Recognizing that, however, we also remain convinced that in the absence of evolving theories of what we do, we are left without the complex bases on which compelling cases can be made for both what we do and how we propose to do it.

As a starting point in engaging theory that might better inform our practice as developmental educators, we point to James Paul Gee’s notion of “Discourse” (Gee, 1996). Building from the intersection of culture studies and sociolinguistics, Gee defines a Discourse as follows:

A Discourse is a socially accepted association among ways of using language, other symbolic expressions, and “artifacts”, of thinking, feeling, believing, valuing, and acting that can be used to identify oneself as a member of a socially meaningful group or “social network”, or to signal (that one is playing) a socially meaningful “role” (p. 131).

That is, Discourses are ways of being in the world. (Gee [1996] uses the upper case “D” to distinguish this complex meaning from “discourse” in its everyday uses tied to spoken language). A Discourse “is a way of speaking/listening and often, too, writing/reading in specific social languages, as well as acting, interacting, valuing, feeling, dressing, thinking, believing, with other people and with various objects, tools, and technologies” (Gee, 1998, p. 9). Our “primary Discourse,” most typically the one we acquire at home as children, forms our
language uses and defines for us the basic terms of human interactions. This primary Discourse makes available to us a sense of values, a set of cues from which we learn our roles and response patterns. The primary Discourse and its ways with words, ways with people, ways of carrying ourselves, ways of understanding the complex varieties of human behaviors that make up home life and neighborhood life, is powerfully formative. This primary Discourse gives us, according to Gee (1998), “our initial and often enduring sense of self” (p. 9). Moreover, the primary Discourse gives form to our culturally specific vernacular language, the language we take out into the world with us when we go off to school.

For Gee, Discourses are embroiled with ideology. Without our giving it much critical reflection, we acquire values, world views, perceptions of others, and a definition of ourselves within the deeply complex affective and cognitive domains of the family or other unit of early socialization. These include our situated language (our family or community’s version of English, for instance) and our initial perceptions of what “counts” as knowledge and its meaningful expression (like storytelling from individual experience as the unit of knowledge and its expression, as an example). These languages and perceptions are acquired within the same deep contexts as are our sense of what is right, what is wrong, how the social world is modeled or imagined, and a host of other “truths” (i.e., perceptions) through which we construct our social selves within the everyday realities we inhabit. As a result, Discourses are comprised of interpenetrating patterns of values, “knowledge,” language, beliefs, roles, and relationships.

From this vantage point, one’s life can be said to be marked by the interplay of different Discourses. Our primary, or initial, Discourse is added to or modified by the series of secondary Discourses with which we come into contact and to which we attach value as we live our lives. Gee (1998) notes emphatically that as we acquire or learn secondary Discourses, we “filter” (p. 10) them through our primary or initial Discourse. New Discourses (such as the Discourse of being a student in a school) are acquired or resisted in proportion to their perceived compatibility with the primary Discourse. Furthermore, acquiring any secondary Discourse (where “acquiring” means that its features become part of one’s enduring sense of self) requires both learning the terms of the new Discourse and recurring meaningful practice of its key features.

School is comprised of sets of Discourses—“ways of using language, other symbolic expressions... thinking, feeling, believing, valuing, and acting” (Gee, 1996, p. 131). In the United States, the Discourses of schools are marked by white middle class ways (for example, how adults are addressed, how a child is groomed, how authority is asserted or acknowledged, how limited forms of English are used, how literate knowledge is primary, and how knowledge is expressed, and so forth). In addition, school Discourses reflect and value the practices and world-views of specialized communities, such as science or law. Children in many families, of course, learn within their primary Discourse many of the features of the secondary Discourses they will encounter when they enroll in school. That is, they will have a primary Discourse that includes values, ways of expressing themselves, dispositions toward what counts as knowledge, ways of dressing and behaving, which are consistent with the specialized Discourses of school. An individual’s “enduring sense of self” (Gee, 1996, p. 9) can be said to have been constructed in
ways that dispose him or her towards the Discourse of school. For “successful” students, school becomes the place in which they acquire through both learning and meaningful practice the peculiar set of secondary Discourses that comprise school knowledge and behavior.

How successful one will be in acquiring a new Discourse depends in large part on the degree to which the new Discourse conflicts with or threatens the primary Discourse and the enduring sense of self it sponsors. From this perspective, some students who do not do well in school might be seen to have not acquired school Discourses (school values, preferred language forms, authority structures, constructions of knowledge, ways of expressing knowledge, social practices) because the new Discourse threatened or conflicted with the primary Discourse and its ways in those domains. And it is often such students who enter the programs where developmental educators work.

Gee (1998) calls such students who come to higher education without having successfully acquired school Discourses “latecomers” (p.11). However, as he has evolved the term recently to reflect a more positive connotation, he now calls them “authentic beginners” to describe “people, whether children or adults, who have come to learning sites of any sort without the sorts of early preparation, pre-alignment in terms of cultural values, and sociocultural resources that more advantaged learners at those sites have” (Gee, 1999, p. 1). For authentic beginners, who lack experiences in and familiarity with the domain of education and, in particular, higher education, the task of acquiring the new Discourses in ways that might lead to full mastery of knowledge sets and fluency in skills is complex. In fact, he notes, “People who teach latecomers [authentic beginners] require the most knowledge, sophistication, heart, and talent of any teachers I can think of” (1998, p. 20). Gee assigns to higher education an assembly of specialized Discourses, all of which would be situated as secondary Discourses against the primary Discourses of students whose families or early socializing environment has not led them to smooth acquisition of school Discourses. (In this he is consistent with developmental education legislation under the U.S. Department of Education TRIO Programs, in which special supports are targeted at “first-generation college students” on the assumption that the primary Discourses of such students will not be formed in ways which lead to ready acquisition of the secondary Discourses of school and higher education.)

A number of implications for developmental education might be derived from Gee’s Discourse theory. When we invite “underprepared” or developmental students to join us in the enterprise of higher education, we invite them into a social world where sets of certain secondary Discourses define the terms of success. Certain modes of social behavior, certain ranges of spoken and written English, certain conventions of dress and of interpersonal relations, and certain modes of inquiry, all of them interpenetrating, interact to define what is appropriate, what is valued, what counts as knowledge in this environment. These secondary Discourses are most typically outside the range of the “everyday” world inhabited by our students as an extension of their primary Discourse. The acquisition of the new secondary Discourses of higher education for such latecomer students is no simple matter. Gee (1998) articulates a number of features necessary for the success of developmental students and which will mark successful developmental programs for “latecomer” students in higher education. Each has implications for
First, Gee argues that effective efforts aimed at developmental students must have a “low affective filter” (Gee, 1998, p. 16). That is, the new Discourse of higher education must be organized and made available to latecomers in ways that will not promote conflict with their primary and other extant Discourses. He notes that central to this is treating latecomer students and their other Discourses with respect, and “allowing them to actively build on what they already know and feel as a bridge to acquisition of a new Discourse” (Gee, 1998, p. 16). When our utterances and our practice as developmental educators represent the primary and other extant Discourses of our students in a deficit model needing remediation, we have already lost the battle.

Second, latecomers will acquire the Discourse of higher education most efficiently through what Gee (1998) calls “situated practice” (p. 16). He argues that people learn by “engaging in authentic practices within the Discourse [and] finding patterns in those experiences” (p. 16). He draws on research in a number of disciplines to argue that people need “lots and lots of actual and meaningful experiences (practices) in a new Discourse” (p. 16) if they are to acquire it. Developmental education programs that posit a “quick fix” or instruction disembodied from meaningful practice (as some drill and practice programs have been characterized) offer a low probability of success, despite their attraction to legislators and administrators with pinched purses.

Third is the principle of “automaticity” (Gee, 1998, p. 17). Gee asserts the need for developmental students to acquire simultaneously both lower order and higher order skills of the Discourse of higher education in the context of meaningful practice. Through repeated practice in meaningful contexts, the learner masters lower order skills to the point of their being automatic, while the higher order skills are used and also mastered. He uses the example of reading to illustrate. To read efficiently, one relies on mastery of lower order skills (e.g., recognizing words) in order to do the important work of making inferences from the text (the higher order skill). Students will acquire the lower order skill of recognizing words at the level of automaticity only through repeated meaningful practice in actual Discourse contexts (suggesting there is something important to be learned). The principle of automaticity seems to argue for developmental programs in which the authentic-beginner student engages in meaningful practice toward important learning, and suggests, perhaps, that “skills” are acquired only in the context of meaningful engagement with the subject matter curriculum rather than in isolated preparatory skills courses.

Gee’s fourth principle is “functionality,” which he defines succinctly:

It is impossible for people to acquire any secondary Discourse unless they truly believe (not just say they believe) that they will be able (and allowed) to actually function (at least eventually) in the new Discourse and get something valued out of it. Of course, one good way to gain this belief is to experience oneself as actually functioning in and benefiting from
(at progressively more sophisticated levels) a Discourse as part and parcel of the process of acquiring it (p. 17).

Developmental programs which isolate students from “real college” and unduly postpone the experience of its benefits are at odds with the principle of functionality. Most importantly, programs which create (or which are perceived to function as creating) an overly “contingent” relation between the student and the mainstream of the institution might be counterproductive.

Students who are engaged in meaningful practice in the ways of the new Discourse of higher education through their developmental programs are, according to Gee (1998), on the right track toward acquisition of the Discourse. But the practice must be structured in ways that the student learns from experience the “right” and “wrong” ways of operating. This is his fifth characteristic, which he calls “scaffolding” (p. 17). As he outlines this principle, Gee notes that latecomer learners engaged in meaningful practice must interact with teachers or others who have mastered the Discourse, so that these “masters” can intervene in the midst of this practice to say “pay attention to this now” (p. 18) or otherwise provide explicit guidance, explanations, or perhaps modeling of the “right” ways of performing within this aspect of the Discourse. “Scaffolding” would seem to argue for developmental education practices such as supplemental instruction, basic writing workshops of small enough enrollment to make the process of intervention possible, supervised homework sessions in mathematics, and other learning situations that are sufficiently constrained to allow the learner to see the teacher as one who intervenes in the process of practice as a trusted coach with mastery cues.

Gee’s (1998) sixth principle is related to the idea of scaffolding. He articulates it as “meta-awareness of what one already knows” (p. 18). As noted several times, the acquisition of new Discourses is optimally possible when the new Discourse is not seen as threatening to or demeaning of the learner’s primary or other extant Discourses. Similarly, the acquisition of a new Discourse is easiest when the process assists the learner in coming to know better what it is that he already knows on related matters, to know better what it is one has already mastered in the primary or other extant Discourses. An obvious example of this can be found in those basic writing pedagogies in which users of African American Vernacular English (AAVE) acquire so-called “Standard English” through practice that builds on becoming aware of what they already know through their mastery of AAVE.

From the perspective of Gee’s (1998) seventh point, for authentic-beginner learners to acquire the new or secondary Discourse of higher education, they must engage in a process of “critical framing” (p. 18) of competing Discourses. Gee notes that those who are “core members” of a Discourse tend to be “true believers” (p. 18). That is, when we are grounded in a Discourse, we are not disposed toward critiquing it. After all, as we acquire Discourses we are forming the self, or at least the social self, in new ways. This reluctance to critique a Discourse in which we are situated is thus understandable, given the complex interweaving of values, social forms, linguistic forms, beliefs, roles, etc. which comprise a Discourse in which we feel “at home.” When we attempt to acquire a new Discourse, it is important that we be able to identify conflicts between old and new Discourses—that we “frame” one within the other in order to see both
critically. In the instance of the latecomer student, such critical framing might lead to an awareness of the limits of both the old and new Discourses, and might also help the learner see the potential each Discourse has in their domains of strength.

Finally, Gee (1998) insists that authentic beginners must be involved in a process of “transformed practice” (p. 19) in regard to the Discourses they inhabit. In particular, says Gee:

It is necessary that they come to understand how Discourses work to help and harm people, to include and exclude, to support and oppose other Discourses. It is necessary that latecomers develop strategies of how to deflect the gate-keepers of Discourses when their newly won and hard fought for mastery may be challenged or begin to fail them. It is necessary that they develop the power to critique and resist the impositions of Discourses when these Discourses are used to construct people like themselves as “inferior” (often because they are latecomers [authentic beginners]). (p.19)

Gee seems to be arguing that those of us who work in developmental education need to invite our students into a very clear discussion of the ways in which higher education as a Discourse operates as an agent of social construction. In the process of helping our students to enter that specific Discourse as developmental or “remedial” students, it is critical that we assist them in coming to understand the nature of Discourses in general and the place they occupy from their location as latecomers caught between competing ways and contradictory values on their way into the strange-or strangely wonderful-construct we know as higher education.

The implications of Gee’s observations might take us in a number of directions. His theory of Discourse and synthesis of features of educational programs which lead to the acquisition of the Discourses of higher education seem to point toward developmental education programs that (a) respect through rhetoric and practice the students’ primary Discourses acquired in family and community; (b) engage students recurrently in meaningful practice in situations where real learning is the goal; (c) provide full disclosure of the terms of success through ambitious and meaningful practice marked by frequent, supported interventions by trusted “masters” who guide the learners toward patterns and ways which are “right” in the context of the new Discourse; (d) build explicitly on what students already know; and (e) disclose the essential features of higher education, its values, and the nature of its practices. At the same time, Gee’s theory of Discourse points us away from simplistic deficit models and a preoccupation with assessments that are not thoughtfully constructed and carefully explained. The theory might further provide the basis for critique of developmental programs of short duration or overly limited scope. Gee reminds us that when we invite authentic-beginner students into higher education through the portal of developmental education programs, we invite them into a complexly structured institution with arbitrary norms, into a socially and culturally constructed Discourse which may well be at odds with the “enduring self” (1998, p. 9) of the student as formed within the circle of family and community—and that to do so puts the burden of welcome and inclusion on us, the students’ instructors. Above all, the theory of Discourse engages us in an optimistic re-examination of various assumptions and principles which have formed both our
professional practice and our literature. In that spirit, we offer this essay as a start toward a discussion of theory.

References


The Effect Of Study Skills Training
On United States Air Force
Allied Health Students

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Abstract

Study skills intervention was shown to significantly increase end-of-course scores and decrease remedial instruction for 90 randomly selected students attending a three month Air Force allied health technician course. Additionally, students who received the study skills intervention graduated at a higher rate than those who did not. Study skills training in a corporate setting can enhance student learning and significantly reduce training costs.

The American public education system and national network of colleges and universities are designed to enhance the capabilities of our most valuable national resources, our people. However, many of our educational institutions assume that people know how to learn and know how to study. The teaching of study skills enhances student ability to succeed both academically and in the workforce. An illustration of the value of teaching study skills can be found in the United States military. Recruits are brought on active duty, receive formal training, and then are assigned to a duty position in their career field. Students who fail in technical
training are eliminated from active duty before they ever became a “productive member” of the Air Force at a cost of literally millions of dollars per year.

This study examined the effects of a study skills training intervention course on U.S. Air Force aeromedical apprentices with five main purposes. The first was to explore the relationship between study skills training and the number of times students required academic interventions outside of normal class time. The second purpose was to explore the relationship between study skills training and end of course averages. The third was to determine the relationship between study skills training and the amount of additional instruction, measured in time, that students required. The fourth purpose was to explore the relationship between study skills training and graduation rates. The final purpose was to recommend areas for further research.

Background

From 1995 through 1997, Dr. Joy Vroonland conducted classes that were designed to help military technical school students with their study skills. Vroonland and one assistant gave this training to approximately 3,400 students annually. All of these students were assigned to the 882nd Medical Training Group in more than 10 allied health professional courses. She believed that the teaching of her study skills course enhanced student performance, facilitating student success. However, her opinions were not substantiated by any real statistical analysis. She could not show that the effects of study skills instruction made an impact because the course was taught to all students. Put another way, Dr. Vroonland believed that the teaching of her study skills course was making a positive impact on student performance and the mission of the 882nd Medical Training Group. However, no empirical evidence could be shown on the possible positive effects of the study skills training. Moreover, the possible implementation of this study skills course throughout the Air Force depended on the results of an objective and well-designed study.

Statement of the Problem

There was a perceived problem at the School of Aerospace Medicine with regard to student disenrollments, washbacks (i.e., students repeating blocks of training), and failure rates. The school expends a great amount of resources, time, and effort to ensure student success. The average cost to train one student in the three month Aeromedical Apprentice course is $12,500.00 (Schommer, 1998). Students who fail the course of study and are eliminated from the program and, in most cases, the Air Force, cost thousands of taxpayer dollars without serving as a “productive” part of the Air Force.

Purpose of the Study

The purpose of this study was to determine the difference in academic interventions, grades attained, time spent in one-on-one instruction, and graduation rates, between students who
received study skills training prior to the start and during technical training and students who
did not receive study skills training prior to the start and during technical training.

**Hypotheses**

Study skills course intervention was hypothesized to reduce the number of academic
interventions beyond normal classroom instruction, improve higher end-of-course test scores,
reduce the time required for one-on-one instruction for student tutoring beyond normal class
room instruction, and reduce the attrition rate.

**Limitations**

The study did not consider racial or ethnic differences among students as a separate variable
because the Air Force does not consider race or ethnicity as a factor when recruiting or delivering
instruction to Air Force members. The Air Force only considers race to ensure discrimination
does not exist.

The sample of students was limited to Department of Defense students attending the School
of Aerospace Medicine, Aeromedical Apprentice Course, Brooks Air Force Base Texas, from
December 1997 to May 1998. One foreign student was excluded from this study due to
differences in culture and educational experience as compared to American students.

**Literature Review**

An extensive review of the literature was conducted, including civilian and military sources,
to fully investigate research on study skills intervention. Particularly noteworthy was McMurry’s
work *How to Study and Teaching How To Study*, a 1909 effort that formed the foundation of
many later works in the field. Walter and Siebert (1993) and Ellis and Lankowitz (1997) provided
explanations of effective study skills methods. These works formed the foundation of the study
skills model used in this experiment. Prather (1983) and Sterling (1996) conducted previous
research in military training environments that proved very helpful to the development and
execution of this project.

Many students complete high school without disciplined and systematic study habits. This
idea was highlighted in a 1984 study by Christian and Murphy demonstrating the idea that
study skills are not taught in high school. Their survey included 479 students from three widely
different high schools. In the survey 74% indicated a desire to attend college, however 70% had
not been trained in time management techniques. Additionally, 52% of the students indicated
that they did not typically listen before they began to take notes, and 52% also indicated that they
had no system for note taking during class. A surprising 44% indicated that they received no
training on how to read a text book and 82% of the students reported that they studied less than
three times per week. Christian and Murphy concluded that the majority of the students in this
survey were not adequately trained in study skills. None of the three schools had an organized
curriculum concerning the teaching of study skills even though students seemed to want training
in how to study. It cannot be assumed that students entering our university or military service medical technical schools have the appropriate level of study skills needed to succeed.

The issue of students “not knowing how to study” is not new. McMurry (1909) made a passionate argument in his book How to Study and Teaching How to Study that most people do not know how to study, causing many to fail. The focus of this research was based on the premise that students who are very much alike can have differences in performance that are directly related to their command of study skills. The grade a student gets at the end of a module or a term is not only based on intelligence but also on the ability to use a given set of study skills for differing subjects or courses (Marshak, 1984; McMurry, 1909). Study skills can be better understood by viewing a “Study Skills Model” shown in Figure 1.

Figure 1
Study Skills Model

<table>
<thead>
<tr>
<th>INPUT</th>
<th>PROCESS</th>
<th>OUTPUT</th>
<th>SELF MONITORING</th>
</tr>
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</table>
| i.e., Information on a given subject | i.e., Learning strategy  
- Memorization  
- Selection  
- Technique Transfer Tools  
- Note taking  
- Remembering  
- Organize Study Time  
- Minimizing stress  
- Test taking strategies | i.e., Grades | i.e., Changes based on student evaluation on how results matched expectations |

The model was designed during the course of this study and shows four basic steps with a feedback loop. “Self monitoring” (step four of the model) assists in answering the question, “did the results match expectations?” The student then makes any necessary changes based on the results (grade) for future study.

Differences from Previous Studies

This study on the effects of study skills training intervention on United States Air Force aeromedical apprentices represents a departure from previous studies involving the teaching of study skills to students because it involved military students in a military technical school setting. Previous studies by Smith and Dowdy (1989), Zimmerman and Pons (1986), Christen and Murphy (1984), and Valeri-Gold, Callahan, Deming, Mangram, and Errico (1997) have focused on high school or college student settings. Prather (1983) conducted a study at the U.S. Air Force Academy involving 24 students with low grade averages. These studies all assert, in one form or another, that study skills need to be taught to students to enhance their probability of success.
Sterling (1996) focused on test anxiety, asserting that test anxiety was a factor that could be modified to enhance military student success. Sterling's study was conducted in a military technical school. The major differences between this study and previous studies are that it involved a military technical school setting, focused specifically on the effects of teaching study skills using random sampling (not targeted groups), and followed student progress for at least three months.

Method

The course in this experiment was originally developed by a board certified psychologist at Sheppard Air Force Base. The researcher modified the course based on the review of literature for this study, four years of experience as an instructor and two years experience as a course supervisor. The study skills course was based on the study skills model discussed earlier and emphasized five major areas: (a) note taking; (b) remembering; (c) organizing study time; (d) minimizing stress; and (e) test taking strategies.

The class was taught in a 90-minute session prior to the start of the Aeromedical Apprentice course. Additionally, a one-hour follow-up session was given to students one month after they began technical training in the Aeromedical Apprentice course. The course and follow-up session were intended to put the students in the correct frame of mind to approach their studies in an effective fashion. The class was interactive; the students were encouraged to participate and express their feelings.

Research Design

This experiment used the posttest only control group design (Campbell & Stanley, 1963; Yount, 1990). This design used a treatment group and a control group. The treatment group received study skills training and was measured on four dependent variables. The control group was measured on the same four dependent variables, but received no study skills training.

The experimental control used in this study was random assignment and the use of the disguised experiment technique (Kirk, 1995). Subjects were randomly assigned to two groups, the treatment and control group. Randomization is one of the chief tenets of inferential statistics and is a critical way of neutralizing the possible effects of nuisance variables, greatly increasing the probability that the sample will be representative of the population as a whole and minimizing bias (Hinkle, Wiersma, & Jurs, 1994; Kirk, 1995). Kerlinger (1986) indicated that randomization is the only method that controls for all possible extraneous variables, allowing the researcher to consider the treatment and control group statistically equal.

The statistical analysis used in this experiment was regression analysis. The aptitude of all students in this experiment had already been measured by the Armed Services Vocational Aptitude Battery, (ASVAB) Test General Score, which was used as a covariate in the experiment. Use of the covariate reduced the amount of unknown error, making this design even more powerful (Yount, 1990). The directional hypotheses were tested using regression analysis at the


\[ p \leq 0.05 \] level.

**Ethical Standards**

Informed consent was obtained from the University of North Texas human subjects review board. Written approval was obtained from the Commander, School of Aerospace Medicine, Brooks Air Force Base, Texas, where the study was conducted. This report was made available to the School of Aerospace Medicine and the United States Air Force to further knowledge regarding the effects of study skills training. The study was designed to be as unobtrusive as possible with its only possible impact being improvement of student performance and improved methods for student retention.

**Independent Variables**

The main independent variable was a study skills intervention consisting of a 90-minute study skills course and a one hour follow-up session four weeks after the start of technical training. The second independent variable used in this study was student ASVAB General Test scores. These scores were designed to show student aptitude. The main purpose for using ASVAB General Test scores in this study was to show that the treatment and control groups were similar and to reduce the amount of unknown error making the design even more powerful (Yount, 1990).

**Dependent Variables**

Maring, Shea and Warner (1987) recommended that evaluating a study skills program on the basis of a single variable such as grade point average is inappropriate. Therefore, four dependent variables were chosen for this experiment. These variables were: number of academic interventions for individualized instruction, end-of-course test scores, time spent in one-on-one instruction for student individual assistance, and graduation rates. The dependent variables involving extra time devoted to students who needed help beyond normal course time, (i.e., number of academic interventions for individualized instruction and time spent in one-on-one instruction for student individual assistance) were reported through the instructors to the researcher via weekly updates during the experiment. End-of-course scores and graduation rates were reported upon course completion.

**Sample**

This study examined a random sample of 90 U.S. Air Force Aeromedical Apprentice students, representing a population of approximately 250 students. The students in the sample included seven of the nine enlisted ranks from Airman Basic to Master Sergeant. The sample included Air Force and Air Reserve Component students who were new to the Air Force as well as senior non-commissioned officers with over 15 years of prior military experience. Participants were randomly assigned into the control and treatment groups of 45 students each and observed for a three-month period.
A detailed analysis using independent sample t-tests was conducted to ensure the control and treatment groups were not different in any statistically significant way at the $p \leq 0.05$ level. Additionally, the fact that the groups were randomly selected suggests that the control and treatment groups were similar at the beginning of the experiment.

**Results**

The study skills course was given to the treatment group on the first day of training, (90 minute orientation) followed by a 60 minute session one month later. Neither the study skills course nor the follow-up session were given to the control group. The study skills course was hypothesized to: (a) decrease the amount of times additional instruction was required; (b) increase end-of-course average; (c) decrease the amount of additional time required for one-on-one instruction for student tutoring beyond normal class room instruction; and (d) increase the graduation rate.

These four hypotheses were tested in the null form to determine the effectiveness of the study skills course. Each hypothesis was tested by comparing full versus restricted regression models. The differences between the $r^2$ values of the full and restricted models were then computed to determine statistical significance at the $p \leq .05$ level. These results are shown in Table 1.

Hypotheses 1, 2 and 3 were rejected, signifying a statistically significant correlation at the $p \leq .05$ level between study skills training and the dependent variables of amount of times additional instruction was required, (negative correlation), end-of-course grade average, (positive correlation), and additional time required for one-on-one instruction for student tutoring beyond normal class room instruction, (negative correlation). Hypothesis 4 was retained at the $p \leq .05$ level.

Based on the findings of the study, the following conclusions were reached:

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>$F$ Value (Full vs. Restricted Models)</th>
<th>Critical Value</th>
<th>$p^*$</th>
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<td>$H_0_1$</td>
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<td>3.951</td>
<td>.025*</td>
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<td>3.951</td>
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<td>3.951</td>
<td>.246</td>
</tr>
</tbody>
</table>

* All hypotheses were tested at the $p < .05$ level of significance.
1. A statistically significant negative correlation existed between the independent variable of study skills training and the dependent variable of the number of times students required additional assistance outside of normal classroom instruction. Students who were trained in study skills required additional assistance on fewer occasions than students who were not trained in study skills.

2. A statistically significant positive correlation existed between the independent variable of study skills training and the dependent variable of end-of-course grade average. Students who were trained in study skills had higher end-of-course grade averages than students who were not trained in study skills.

3. A statistically significant negative correlation existed between the independent variable of study skills training and the dependent variable of the amount of time spent in one-on-one instruction for student individual assistance outside of normal class time. Students who were trained in study skills required less time spent in one-on-one instruction for student individual assistance outside of normal class time than students who were not trained in study skills.

4. Although the student attrition rate was 50% lower for the treatment group than for the control group, the difference was not statistically significant at the $p \leq .05$ level. Though a statistically significant difference did not exist between the independent variable of study skills training and the dependent variable of graduation rates in this particular study, students who were trained in study skills were more likely to graduate than students who were not trained in study skills.

5. The ASVAB General Test score was a statistically significant predictor of all of the dependent variables used in this study.

**Discussion**

The Study Skills Model presented earlier is an effective tool to use when developing and delivering a study skills course. Findings of this study were consistent with earlier works of Zimmerman and Ponds, (1986), Kirschembaum and Perri (1982), Entwisle (1960), and Prather (1983). These works indicated that study skills training can yield statistically significant positive results. This is especially true with study skills interventions that include multi-component instruction, which involves such components as note taking, reading, test taking strategies, organization of study time, and if the study skills instruction is reinforced over time.

The implementation of the study skills course used in this experiment appears to be a very effective use of time and resources. The amount of time and resources expended in providing additional instruction to poor performing students or the cost incurred when a student fails a course dictates the use of preventative methods such as the study skills course used in this experiment. Air Force health care technical schools should encourage the teaching and use of effective study skills techniques to their students to reduce remedial instruction and increase end-of-course scores and graduation rates. Continued efforts in the area of study skills training will lead to a reduction in costs for the Air Force and savings for U.S. taxpayers.
Recommendations For Further Study

1. The results of this study suggest a possible relationship between study skills training and graduation rates. In this study that relationship was not found to be statistically significant; however, a relationship may be possible in other academic settings that do not place such a large emphasis on graduation rates.

2. The results of this study suggest applicability of study skills intervention to other fields of technical training. The study skills intervention course in this experiment could provide a basis for further studies implementing study skills interventions in military and civilian medical and non-medical training settings.

3. Further studies regarding age and education level should be conducted prior to implementing a study skills intervention course in adult nontechnical training environments.

4. Further research should be conducted in primary and secondary school settings to determine the feasibility of providing sustained cost effective study skills training to students early in their academic careers to enhance their learning capabilities.

5. Further studies should be conducted to identify the minimum number of study skills training sessions required for effective adaptation of study skills as evidenced by little or no remedial training and high graduation rates.

6. Further research should be conducted to determine the projected cost savings of implementing a study skills intervention course throughout U.S. Air Force medical and non-medical technical training schools. This analysis could then be applied to the other three branches of the military if cost savings prove significant.

Final Note

The U. S. Air Force School of Aerospace Medicine has incorporated the study skills course described in this article into all five enlisted courses taught at the school as of September, 1998.

Additionally, the author has put forth an official Air Force suggestion regarding the implementation of the study skills course for all Air Force initial technical training courses in an effort to offer this training to over 25,000 students per year.

References


Building Long-Range Workplace Literacy Projects: The ABC Reading Apprenticeship and Task Analysis

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Abstract

In the context of jobs performed by today’s employees, workplace literacy is one genre of education in which reading, math, writing, communication, and problem-solving can be taught via an apprenticeship analysis format. This article discusses how the Associated Builders and Contractors (ABC) National Literacy Project differs from other literacy projects with specific examples cited from a training program that has evolved into a Technical Development Center (TDC) offering basic skills instruction in the context of trade areas.

Workplace literacy is a genre of adult developmental education that teaches reading, math, writing, communication, problem-solving, and other job related skills in the context of the jobs performed by the workers. One unique training program joined the Association of Builders and Contractors with a U. S. Department of Education literacy project. The Associated Builders and Contractors (ABC) is a national association of more than 18,000

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member companies in the construction industry that adheres to a philosophy that judges workers and companies on job performance. The association encourages and financially supports training programs to help their employees and sponsored workers upgrade their abilities and qualify for better, more stable, and higher-paying jobs. Training program classes at most ABC chapters run before or after work hours and provide students with traditional classroom lessons, discussions, and hands-on experiences in a craft that complements on-the-job training. A nationally standardized, competency-based curriculum in 17 craft areas is currently implemented in over 65 ABC chapters.

The Pelican Chapter of ABC in Baton Rouge, Louisiana sponsors a training program that began in 1985 with 99 students. Since then over 19,000 students have attended ABC with 13,000 completing craft programs in carpentry, electrical and instrumentation, equipment operator/rigger, insulator, millwright, pipefitter, safety, sheet metal, supervisor/management, or welding. Chapter training programs, however, have reported that many entry-level workers or students lack the basic skills needed for success in ABC classrooms and on the job.

Until recently the only ABC basic skills courses available for the Pelican Chapter were offered through correspondence study at Louisiana State University. Thus, ABC, together with the Greater Baton Rouge Chamber of Commerce and the Adult and Continuing Education Department of the East Baton Rouge Parish School Board, applied for a U.S. Department of Education Workplace Literacy grant. The grant now supports the training center’s Technical Development Center (TDC), which offers basic skills instruction in the context of trade areas as identified through a literacy task analysis of first-year course materials.

The ABCs of Construction National Workplace Literacy Project differs from most other workplace literacy projects. Other projects are centered at the worksite and have as their mission to improve workers’ job performance; the mission of the ABCs of Construction is to improve workers’ abilities to succeed in an academic craft-training program. Most projects address basic skills deficiencies in the context of actual jobs. This project focuses on basic skills relevant to future job goals and ultimate advancement to better jobs. Public schools teach reading to learn, and most workplace literacy projects concentrate on teaching reading to do, but this project emphasized reading to learn to do.

**Apprenticeship Training: Direct Instruction**

The Technical Development Center utilizes both commercial and customized materials developed especially for this project; however, the key to the success of the materials depends on the abilities of the instructors to model learning processes and provide direct, strategic instruction. Modeling or the ability to explain and demonstrate a skill by an expert teacher or craftsperson is the key to such training. Manzo and Manzo (1990) identify several conditions that contribute to the successful use of modeling. These include (a) strengthening the impression that the model is doing something masterful and desirable, (b) reducing social risks in copying the model, and (c) making the new behavior appear achievable. This form of education uses direct imitation to teach learners to perform complex motor skills.
However, learning from and using text (i.e., reading, computing, writing) differs from basic modeling in a specific way. The skills imparted in earlier apprenticeship training were those that could be seen, observed, and replicated, but internal mental processing cannot be directly observed without intervention. The use of “think alouds” externalizes the way people think to learn and solve problems and to model cognitive processes. Davey (1983) describes think alouds as mechanisms that make thinking public. They require the teacher to verbalize cognitive processes while reading, computing, or solving other problems. Berryman and Bailey (1992) cite this kind of cognitive apprenticeship as one fundamental change in the ways students are taught.

Many other successful workplace literacy projects use a form of direct instruction similar to the instructional model found in Science Research Associates programs (Engelman & Bruner, 1969), scripted lessons specifying exactly what the teacher says; deviations from the script are not allowed. In contrast, the instructional format at ABC relies on the teacher as the heart of direct instruction (Baumann, 1983), not the worksheet, kit, learning center, or workbook.

Instructional materials designed for the Technical Development Center introduce each topic in the form of an analogy within the context of construction work. For example, a workbook on reading charts begins by identifying a problem in which workers spend too much time looking for a needed pipe because of haphazard storage. Their solution is to organize all the pipe in the yard by type and size, much like a chart would be organized on paper.

The second section of each module describes a step-by-step strategy for using that particular reading skill (Engelman & Bruner, 1969). The following section describes the procedure used for reading charts in an introductory module on reading charts designed for low-level adult readers:

A chart is a way to arrange information. Charts organize information into rows and columns. A row runs from left to right. A column runs from top to bottom. Headings or labels appear at the top or left of the information. This tells you what the row or column contains (p. 113).

To use a chart, you must first decide what the chart contains.

1. Read the title of the chart. This tells you about the chart’s main ideas.

2. Look at the headings or labels. This tells you what is in the rows or columns. Once you determine how a chart is organized, you use a chart by doing the following:

3. Determine what question you want to answer.

4. Look for headings or labels that show what rows or columns contain what you need.

5. Look down a column and across a row until they meet. This should be your answer.

6. Use your knowledge of wiring and instrumentation. Does the answer seem appropriate? (p.113)

Next, the module models an example from actual training materials. For example, a chart from the millwright curriculum compares lathe cutting speeds by type of material to be cut. In modeling, the first step of the process, “Read the title of the chart. This tells you what information will be included in the chart” is followed by the answer specific to the chart. “The title of the chart is ‘Lathe Cutting Speeds.’” Modeling continues through all the steps of the
process, using the sample chart for exposition of the process of thinking. At this point, the student is required to provide a response to both literal and metacognitive questions asking to think through the strategy under discussion. Lower level questions ask, “What is the title of the chart? What are the labels or headings? How are the labels or headings related?” and so on. The second level of questions asks the students to find answers by using the chart, but continues to probe, “Is the answer to this question found on the chart? How did you know? How did you find the answer? Identify the information you used to answer the question.” This ensures that students understand the process of finding answers as well as answering the questions. Finally, if ready, the student has a chance to apply his or her knowledge by creating or reformatting a chart. For example, if the original chart was ordered by size, the student might be asked to create a chart arranged by type.

Planned obsolescence is the goal of such instruction. Through guided practice, the teacher gradually releases responsibility for learning to the learner (Pearson & Gallagher, 1983) What students formerly could do only with assistance, they begin to do independently (Gavalek, 1986).

Gordon (1985) suggests that the responsibility be shifted from the teacher to the student in five stages. He identifies four strategies required for successful learning: (a) ability to ask questions, (b) ability to answer questions, (c) ability to find evidence that supports an answer, and (d) ability to identify the line of reasoning that supports the answer. In Stage One, the modeling phase, the teacher demonstrates all four skills. In Stage Two the teacher both asks and answers the question, but asks the students to find the evidence that supports the answer and identify the line of reasoning. In Stage Three the teacher asks the question and cites the evidence. The student must answer the question and identify the line of reasoning. In Stage Four, practice and application, the teacher only asks the question. The student must answer it, find evidence to support that response, and explain the line of reasoning. In Stage Five, the last stage, the student has the responsibility for all phases of learning, from identifying questions to be answered to finding those answers and supporting them with logic and evidence.

**Why Use Direct Instruction?**

Recent learning theory suggests that thinking is an active process requiring the ability to select and use strategies for understanding. Logical as it seems, research also indicates that students are seldom told how to comprehend and understand. After Durkin (1978-79) observed more than 7000 minutes of reading instruction, she reported that less than one percent of the time was spent in telling students how to comprehend. Instead, teachers generally asked questions and assigned worksheets. Duffy and Rohler (1982) found that students were given worksheet after worksheet, apparently based on the premise that repeated exposure would result in understanding.

Direct instruction is based on the ability to teach strategically. Strategic teaching emphasizes (a) metacognition (knowing about knowing); (b) connections between known and new learning; (c) contexts in which new skills will be applied; (d) making mental processes tangible; and (e) provision with advice about how to think strategically (Paris, 1985). Brown (1982) refers to
this type of instruction as mediated learning when a supportive person connects the learner with the environment and purposefully facilitates the interaction. Thus, teaching involves more in-depth explanation, guidance, modeling or demonstration, support, guided practice, and coaching and encouragement.

A wide variety of studies indicate that students who receive the majority of instruction from the teacher, rather than trying to learn information independently or from each other, are more successful. Moreover, systematic instruction combined with guided practice and feedback provides the best results (Rosenshine & Stevens, 1984). Baumann (1984) found direct instruction consistently related to achievement. According to Baumann (1986), students learn what teachers of science, mathematics, language, spelling, and reading directly teach to them; what is not directly taught, they do not learn.

Direct instruction has proved to be effective in increasing inferencing abilities (Hansen, 1981; Hansen & Pearson, 1983), comprehension monitoring (Reis & Spekman, 1983), comprehension of narrative text (Tharp, 1982), and critical reading and thinking (Patching, Kenneenui, Carnine, Gersten, & Colvin, 1983). All of these skills appear regularly on lists that identify competencies for workplace and job success (e.g., Secretary’s Commission on Achieving Necessary Skills [SCANS], 1991; Bottoms, Presson, & Johnson, 1992). Furthermore, Rohler and Duffy (1986) compared two teachers in a pilot study of direct instruction. They found that the more effective teacher placed more emphasis on how and why a strategy is used and how to know when to select a particular strategy. Like Brown (1982), Gordon (1985), and Paris, (1985), Baumann (1983) found that research supported a procedure for learning that included (a) an introduction that explains to students what they are to learn and why it is important, (b) an example illustrating the context for the information, (c) direct instruction that describes and models, (d) teacher-directed application, and (e) independent practice.

**Conducting Workplace Literacy Task Analysis**

The applications of the ABC workplace literacy training detailed above are a product of both analyzing text contents and readability and task analysis. A functionally contextual workplace literacy task analysis examines the reading and writing tasks and subtasks performed by workers and defines the educational tasks embedded within them. It analyzes the job, not the worker.

Performance analysis examines differences between what workers do and what they should do. Findings should indicate a skill deficiency, lack of training, or other discrepancy, and then recommend a solution for resolving the differences. A task analysis breaks job performance into component steps to determine what actions-and what knowledge and decisions behind those actions-constitute the job as a whole. Indeed, saying that workers need specific skills to be successful in the training courses and proving that the need exists are distinctively different.

How does one know what a worker should do? One way to discover what a job entails is to ask supervisors or employers what they want or expect of workers. Although these overseers are
able to answer questions about performance, they often lack the insight to know or describe the specific tasks involved. Thus, a second way to determine job requirements is to ask the competent front-line workers what they do. Sometimes, however, competent workers have internalized the job so well that they find it difficult to analyze and explain how they perform their jobs. Shadowing, or following expert workers around the worksite to see and hear what they do in their jobs, provides a third way to ascertain what tasks are involved in performance of a specific job. In addition, comparison of observations of less-experienced or less able workers with their more expert peers reveals “tricks” or short-cuts that the expert workers use intuitively or as a result of assimilation.

The mission of the ABCs of Construction training program is to address the literacy skills necessary for becoming successful learners. The question to be answered was “What do workers/learners in the training center classrooms do and what should they do?” The task analysis, then, focused on the context and materials used by workers/learners in their first year apprenticeship courses. Although the training center offers programs in a variety of construction trade areas, the most popular curricula are pipefitting, electrical and instrumentation, and millwright. These were the curricular areas addressed by the task analysis.

As in the more traditional performance or task analysis, the first step was to visit the worksite, in this case, the ABC training center classrooms. Instructors were interviewed to determine what they considered to be competencies in the classroom. To assure that classroom competencies were functionally appropriate, workplace supervisors were also interviewed. In addition, managers, human resource personnel, and owners were asked to identify what additional “soft skills” (e.g., interpersonal skills and work habits) were required for workplace success and what new or upcoming regulations or technologies would impact the needs of their employees for success on the job in the future. Finally, ABC training center instructors were asked to identify successful students in advanced classes who could name the competencies that contributed to their academic and job successes.

Although each of these groups provided valuable insights into the needs and skills of successful ABC students, they were not always able to break learning tasks into their component parts. Shadowing the students aided in responding to this need. Project personnel attended and observed training program classes to (a) determine what kind of instruction was used; (b) collect classwork, test materials, and examples of other classroom materials; (c) note the kinds of questions asked by the students; (d) observe student reactions to instructors, and (e) discover the kinds of mistakes that students made on assignments. In addition, all curriculum materials—everything the students used in class and as homework assignments—were collected and analyzed.

The analysis of the materials within the craft training program gave the project enhanced credibility with employers and training center faculty. Until that point, curriculum developers and training faculty had no way to document and quantify the needs of students.
Analyzing Text Materials

Just as competent workers may have assimilated their jobs so well that they cannot express the steps involved, a competent reader may be able to comprehend what is read yet be unable to explain how understanding is derived. The analysis of text materials requires the abilities of “expert learners” to break apart the component tasks of reading.

Although text patterns vary and interact in different ways, three main types were identified in the training reading materials: sequence, cause-effect or problem-solution, and comparisons and contrasts. Depending on a reader’s purpose, other kinds of patterns might have been identified or classified differently. For example, a discussion of different kinds of drills might have been viewed as a list; however, the main idea of the list focused on similarities and differences among them. As a result, a passage of that type would be classified as comparison and contrast structure. Table 1 summarizes the kind of main ideas by craft area.

Table 1
Categories of Main Ideas by Craft Areas

<table>
<thead>
<tr>
<th>Craft Area</th>
<th>List/Sequence</th>
<th>Cause/Effect</th>
<th>Compare/Contrast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical/Instrumentation</td>
<td>58</td>
<td>133</td>
<td>397</td>
</tr>
<tr>
<td>Millwright</td>
<td>45</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>Pipefitting</td>
<td>25</td>
<td>02</td>
<td>36</td>
</tr>
</tbody>
</table>

The language of a specific workplace, and the vocabulary of the training center courses, is requisite for comprehension. The literacy task analysis examined four kinds of vocabulary: (a) general vocabulary for which meanings must be derived from context, general words that have no workplace-specific meaning; (b) specialized vocabulary and figurative language or general vocabulary terms that have specific meanings to the workplace; (c) technical vocabulary or words which have no meaning other than that of the workplace; and (d) abbreviations or symbols. Specific examples of vocabulary from electrical and instrumentation materials would be as follows: trough (general vocabulary); taps (specialized vocabulary); wireways (technical vocabulary); and m (abbreviations).

The language of the curricula varied widely. For instance, the electrical and instrumentation curriculum presented students with almost 1,000 technical words in the first year whereas first-year pipefitting students were presented with just over 200 new terms. Electrical and instrumentation students were introduced to over 600 symbols and abbreviations in contrast to fewer than 50 symbols and abbreviations in the pipefitting curriculum. In general, the electrical and instrumentation curriculum was the most difficult with the pipefitting curriculum easiest in comparison. Table 2 summarizes the analysis for vocabulary components of each curriculum.
Table 2
Count of Vocabulary Terms in Craft Areas

<table>
<thead>
<tr>
<th>CRAFT AREAS</th>
<th>GENERALIZED</th>
<th>SPECIALIZED</th>
<th>TECHNICAL</th>
<th>ABBREVIATIONS/SYMBOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elec./Instrumentation</td>
<td>1039</td>
<td>416</td>
<td>955</td>
<td>615</td>
</tr>
<tr>
<td>Millwright</td>
<td>182</td>
<td>332</td>
<td>345</td>
<td>181</td>
</tr>
<tr>
<td>Pipefitting</td>
<td>330</td>
<td>213</td>
<td>214</td>
<td>45</td>
</tr>
</tbody>
</table>

In addition to the structure and language of the materials, the analysis focused on the graphic aspects of the text-tables and diagrams. Table 3 summarizes the numbers of diagrams and tables by craft area.

Table 3
Count of Diagrams and Charts by Craft Areas

<table>
<thead>
<tr>
<th>CRAFT AREAS</th>
<th>DIAGRAMS</th>
<th>CHARTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elec./Instrumentation</td>
<td>644</td>
<td>204</td>
</tr>
<tr>
<td>Millwright</td>
<td>386</td>
<td>8</td>
</tr>
<tr>
<td>Pipefitting</td>
<td>144</td>
<td>11</td>
</tr>
</tbody>
</table>

Finally, the literacy task analysis examined the relative difficulty of the course materials using the Raygor readability formula. This formula uses a text sample of 100 words in terms of sentence length and word difficulty (number of syllables). Readability levels by craft area demonstrated the readability level of electrical and instrumentation as being college or professional level, the pipefitting level as 9.0 (i.e., ninth grade level), and the millwright level as 10.5.

The results of the literacy tasks indicated that the relative difficulty of the craft training programs at the Associated Builders and Contractors Training Center varied widely. The Electrical and Instrumentation course was, by far, more difficult than the other curricula. In terms of the reading requirements of the courses, the pipefitting curriculum appeared to be the easiest. Because the literacy task analysis provided “hard data,” the Associated Builders and Contractors personnel as well as company owners became more convinced of the need for a workplace literacy program. As a result, the program was assimilated as a regular part of the ABC curriculum on an ongoing basis at the conclusion of the grant cycle.
After the Funding Ends: Fostering Workplace Literacy Partnerships

Having an outside funding agency is much like having an outsider participate in family matters. To the business partner within the project, working with the granting agency may feel like living with in-laws. No matter how well-meaning and protective, a third party inhibits development of the autonomy partners need before they can be successful on their own. Although the end of funding may seem like the end of the program, it does not have to be.

The partnerships found in most workplace literacy programs are analogous to a marriage between partners of different cultural, social, or economic backgrounds. Within this unique genre of adult learning, business and education must successfully blend divergent interests, goals, and personal commitments. The “honeymoon period” of a year or so brings many adjustments and considerations between the partners and the families they represent. After the honeymoon is over and external funding ends, the partners either dissolve their relationship or continue it as the result of renewed commitment to the relationship.

Institutionalized continuation of a program after external funding ends is often viewed as an indicator of a successful program. As in a marriage, the best chance for longevity begins with the choice of a suitable partner from the beginning. What does an education partner seek in a potential mate for a workplace project? First, the business partner should be committed to staff training and human resource development before the project begins. Second, business partners who have already identified gaps in basic skills through some sort of needs analysis or company assessment are more likely to enter a new relationship to address those needs. Finally, as in any relationship, stability in terms of workforce size, company leadership, market share, and profit margin enables the business partner to risk commitment for the long-term.

The argument for a business to continue a workplace literacy project is often linked to the original reason for beginning the program. Employers must be convinced such a commitment results in more than community image-building; there must be a direct cost benefit. Business and education partnerships are formed originally on the premise of a direct correlation between literacy and a profit-producing worker in the workplace; therefore, education partners must demonstrate some evidence of this correlation during the funding period.

In addition, the education partner must endeavor to remain appealing enough to sustain the relationship. Thus, successes of the workers engaged in the program must continuously be marketed or promoted. Newsletters, periodic status reports, awards, competency gains, and improvement in work performance are just a few ways to let company leaders and their workers share the credit for the project outcomes.

Trust also contributes to compatibility between partners. In terms of a workplace literacy program, trust refers to mutual respect and giving each other the benefit of the doubt. The employer must believe that the education provider can deliver on promises of a better-equipped workforce. Use of business management concepts such as Total Quality Management, accountability, evaluation of outcomes, continuous process improvement, and decreased product loss by the education partner foster credibility with the business partner.
Adaptability is also desirable. An effective education partner anticipates the needs of the company and expands services appropriately. For example, if the business partner is revising employee handbooks or developing technical training manuals, the education partner can offer to analyze such materials in terms of suitability for local workers, or human resource personnel can use the list of job competencies derived from literacy task analyses when hiring or promoting workers. Finally, an ongoing workplace literacy program enables a company to react more thoroughly to changes as they occur because a vehicle for adapting to change is already in place.

Both partners must realize that neither one is perfect. One partner may fail to understand the importance of meeting programmatic needs that were not identified in the original proposal. Sometimes problems arise that are no one’s fault; however, the responsibility for resolving them rests with both partners.

Just as healthy family structures build healthy communities, the strength and success of business directly relates to the economic development and quality of life of the workers. When a workplace literacy project includes a comprehensive literacy task analysis, industry can use this analysis to convey to high schools the competencies needed by students who enter the workforce. In addition, the impact of increased basic skills is felt outside of the workplace. Workers in basic skills programs often report increased abilities to help their children with their homework. Indeed, investment in human resources pays dividends for everyone.

References


Understanding Mathematics Backwards: A Qualitative Analysis of Students’ Mathematical Beliefs Through Autobiographies

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Abstract

The purpose of this study was to reveal common themes emerging from developmental mathematics students’ autobiographies. Our methodology was based on qualitative non-observational research and narrative accounts. This research methodology allowed us to investigate the significance of single events and possible relationships between events that may appear unconnected either to each other or to the mathematical learning and performance of individuals. The data gathered from ninety-six participants’ narratives provided a lens for viewing students’ beliefs about mathematics; particular content area weaknesses; external and internal influences; attribution of success and failure; gender issues; and metacognitive skills.

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Both students and teachers can benefit from looking backwards in order to progress forward. Math autobiographies can give voice and empowerment to underprepared math students. Teachers and students can reach new understandings of what learning and education has been, and what learning and education could be.

Autobiography is emerging as a helpful qualitative research tool in a variety of educational contexts. Carter (1993) argues that teaching events are always framed within the context of a teacher’s life history. She argues for analysis that goes beyond simplistic interpretation and recommends that research focus instead on the contradictions and complexities of a teacher’s life experiences.

In both reading and mathematics, researchers have found that reflection on one’s educational autobiography is a crucial factor in an individual’s development as a student and as a teacher. Manna and Misheff (1987) investigated the relationship between a teacher’s personal experiences with reading and their attitudes toward integrating reading activities in the classroom.

The influences perceived by the students as either contributing to or impeding their reading development should remind anyone concerned with literacy that there are indeed basic practices and attitudes that form people into either “reduced” readers who feel alienated from print or “transactional” readers who feel a strong connection with it (p. 167).

In the field of mathematics education, Tobias (1991) and Shaw and Chessin (1996) advocate the use of autobiography. To these authors, personal math histories help individuals to reflect on their pasts, to set goals for the future, and to recognize both positive and negative factors that contribute to their success or failure. Math autobiographies and narratives might also be used as one of many sources of information for student assessment (National Council of Teachers of Mathematics [NCTM], 1991).

For developmental students, mathematics is often feared. These students often experience a lack of self-monitoring and self-confidence. The process of students writing a math autobiography can provide instructors with knowledge of students’ educational background and attitudes associated with students’ current achievement level. Because developmental students may be prospective elementary teachers, a discussion of their mathematical development may sensitize them to their role as math teachers. Thus, students’ positive or negative experiences could serve as reminders of conditions that helped or hindered their development.

Although researchers have recommended the use of autobiographies, few have used them as a tool for uncovering students’ beliefs. With the assumption that math autobiography is a significant tool for reflection and a source for uncovering students’ attitudes, the purpose of this study is two-fold: to analyze the conditions that affect students’ attitudes toward mathematics
and to explore trends that emerge from students’ writing that may indicate ways of altering perceptions of mathematics teaching and learning.

**Method**

This qualitative study was conducted at a multi-purpose public university in the Midwest. This university services approximately 1,500 students per year in developmental mathematics from a student population of approximately 24,000. The autobiographies presented here were collected over a two year period from students in pre-algebra classes. They were assigned during the first or second class session so that students would write spontaneously rather than from their perceptions of teacher expectations. The assignment was open-ended with the only directions being “Write what comes to your mind as you reflect on your math history. Let it be memorable experiences, rather than good or bad experiences; more feelings/thoughts about your histories rather than just factual information.”

Autobiographies were returned to students for review. Students were asked to resubmit their work if they were willing to participate in this study. The 96 autobiographies in this study were drawn from a pool of approximately 175 students. The missing autobiographies are from students who chose not to participate in the writing or in the project.

The pre-algebra course carried no credit but was required because of students’ math deficiencies as determined by a computerized placement test (ACCUPLACER) or low American College Testing (ACT) scores. Topics of the course include a review of basic arithmetic skills and geometry in a pre-algebra format. Each class contained approximately 25 students and was taught by a full-time faculty member with at least a master’s degree and three years of developmental teaching experience. The syllabi, texts, tests, and grading were uniform across all sections.

**Procedures and Emergent Research Questions**

This study utilized qualitative observational research (McKernan, 1991), and involved narrative accounts (Connelly & Clandinin, 1986; Schatzman & Strauss, 1973; Spradley, 1979). Qualitative Solutions and Research (QSR) software (1969) was used as a tool for content analysis, enabling the authors to locate information for cross-analysis of cases with ease. Using the constant comparative method ensured that characteristics of developmental students’ beliefs and the processes of transforming those beliefs emerged. “Comparing as many differences and similarities in data as possible...tends to force the analyst to generate categories, their properties and their interrelations as he (she) tries to understand his (her) data” (Glaser & Strauss, 1967, p. 55).

The authors independently read and re-read autobiographies to identify common themes and styles. The themes were compared and a comprehensive list developed. The autobiographies were given an initial impressionistic reading and coded globally for positive or negative attitude
statements. Then, jointly, the authors reread the autobiographies four additional times to answer the following research questions:

1. What are developmental students’ attitudes, beliefs, and emotions about mathematics?
2. What factors influence developmental math students’ beliefs and help formulate their attitudes toward mathematics?
3. How do students define mathematics?
4. Which metacognitive skills do or do not developmental students exhibit?
5. What implications for teaching and learning do students suggest in their writing?

Results

The students’ autobiographies generally followed a similar writing pattern: a statement of attitude about mathematics followed by a detailed account of one memorable experience (n=22) or a statement of attitude followed by a history of events that clarified the initial statement (n=74). The initial statements were categorized as negative (n=30), positive (n=13) or neutral (n=53).

It is the authors’ belief that the neutral responses may be “safe.” Clearly, a student could make a positive statement without fear in a math class, but some students may be reluctant to make a negative statement on the first or second day of class.

When I think of math there are a lot of different things I think of. Some of the things I think about are: addition, subtraction, multiplication, division, equations, fractions, algebra, and geometry. These are the things that come to mind when I think of mathematics.

A statement of this type was coded as “neutral.”

Negative statements were embedded with emotion or avoidance.

Let me begin by saying that I HATE math. This is not because of the work but because of my lack of comprehension of it. I reach a certain point where I just don’t understand it regardless of how it is explained.

Or, “I have always had trouble with math. I can’t explain why really. It could be described as anxiety, I suppose. All I know is that I avoid taking math classes unless I absolutely have to.”

These negative statements made up over 30% of the autobiographical introductions. Other emotion-packed words used were: dread, never enjoyed, boring, nothing but terrible, angry, trapped, stupid, embarrassed, insulted, useless, worst subject, frustrated, feelings of inadequacy, felt dumb, inferior, panic attack, fear, on-going-war, terrified, struggled, and nemesis.

Only 13% of the students freely offered words with positive emotions, such as challenging, enjoyed, fun, rewarding in the end, and satisfaction. The following quote typifies a positive initial response:
I believe that I have been a pretty good student in math. In high school I used to get A’s and B’s in math. I would love to go to math class. It was my favorite. I would help others when they didn’t understand it. In college, math is totally different. It is a little bit harder.

**Factors Influencing Developmental Math Students’ Beliefs**

Developmental math students attributed their success or lack of success to a variety of factors. The authors classified the factors as internal to teaching and learning within the educational system and factors external to that system. These factors were used for coding the student responses. There were a total of 214 statements of attribution from 84 autobiographies (88% of all autobiographies). Of these, 138 statements were negative (64%).

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Positive Comments</th>
<th>Negative Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>19 (4)*</td>
<td>36</td>
</tr>
<tr>
<td>Counselors</td>
<td>1 (3)</td>
<td>4</td>
</tr>
<tr>
<td>Grades</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Placement</td>
<td>1</td>
<td>9</td>
</tr>
</tbody>
</table>

* Frequency of comments about college-level internal factors

Internal factors were tallied from 54 cases (56% of all autobiographies). Table 1 lists all of the internal factors tallied, which included multiple responses from 46 individuals. There were both negative and positive comments from 21 persons (22%). As the chart indicates, there were more negative comments about teachers interfering with the learning process than any other single factor. Sixty percent of students responded that grades were a factor in achievement. Many students received “good grades” in high school courses up to and including pre-calculus, yet in college they were placed in a pre-algebra arithmetic course. These are delineated in Table 2.
Table 2
Frequency of External Factors Affecting the Math Education of Developmental Students in Elementary/Secondary Education as Identified within Math Autobiographies

<table>
<thead>
<tr>
<th>Positive Comments</th>
<th>Negative Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>n</strong></td>
<td><strong>n</strong></td>
</tr>
<tr>
<td>Family</td>
<td>5</td>
</tr>
<tr>
<td>Medical</td>
<td>0</td>
</tr>
<tr>
<td>Other Life Experiences</td>
<td>0</td>
</tr>
<tr>
<td>Tutoring</td>
<td>2</td>
</tr>
<tr>
<td>ACT</td>
<td>0</td>
</tr>
<tr>
<td>Placement Test</td>
<td>0</td>
</tr>
<tr>
<td>Affective Factors</td>
<td>0</td>
</tr>
<tr>
<td>Effort</td>
<td>7</td>
</tr>
<tr>
<td>Self-Motivated</td>
<td>8</td>
</tr>
</tbody>
</table>

External factors that had an influence on students’ beliefs, attitudes, and emotions were discussed in 52 of the autobiographies (27%). Most students attributed negative affective factors such as anxiety, fear, and panic to their poor performance. This accounted for 32% of all external factor comments. Standardized tests such as ACCUPLACER and ACT exams contributed to students’ negative feelings about their ability. Two-thirds of the family member comments revealed negative tutoring or motivational experiences.

I have just been called a peanut-brain by my husband regarding the condition of my personal checkbook. It wasn’t the first time; it probably won’t be the last. Even though I know I am not stupid the negative comment further erodes my self-esteem regarding a subject. What is worse, is that the erosion of self-confidence creeps into other aspects of my life.

It was late one night, close to ten, and my dad was trying to help me with my long division homework that was due the next day. As much as he tried to explain it to me, I just couldn’t get it. It ended in a yelling match. I felt angry, trapped, annoyed, and stupid.

**Students’ Perceptions of Mathematics**

“I use math when I am watching TV. I enter numbers of the channels I want to watch.”

“I could not deal with complex math problems such as graphs, fractions, percents, and story problems.”
Students held a variety of mathematical perceptions as embodied by these two statements. Their perceptions of mathematics were categorized according to Middleton, Webb, Romberg, and Pittlemen’s (1990) work with urban mathematics teachers. They classified perceptions into categories: (a) mathematics is a collection of skills to be used in the workspace; (b) mathematics is a language; (c) mathematics is application; (d) mathematics is a way of thinking; and (e) mathematics is a dynamic system. Although not all students gave a definition of mathematics, their perceptions are documented in Figure 1 using Middleton, Webb, Romberg, and Pittlemen’s categorizations.

Developmental students held similar beliefs of mathematics: mathematics in its application to a future career, its usefulness for everyday activities, computations, and algorithms. Three students viewed mathematics in terms of innate and inherited ability and as a way of thinking that they do not possess. As one student commented, “The math genes skipped over me.”

**Metacognition**

The autobiographies revealed that many students are often not cognizant of what they know and what they do not know about mathematics. “I went all the way through to pre-calculus and I still don’t have any idea of what went on.” A tally of external and internal ways of knowing appears in Table 3.

Grades, scores on the ACT college entrance exam, and college math placement tests told students that they needed assistance. Their math experiences were positive or neutral until they were required to take a standardized exam. “Then the infamous ACT score, ouch! So here I am, almost totally math illiterate.” Grades were a significant source of how students came to know their ability in mathematics. Twenty-seven percent of these students reported above average grades in kindergarten through high school, yet found themselves in developmental mathematics classes.

Many students, however, realized their difficulty in mathematics through internal dissonance-they could not memorize, did not have the ability to remember, and needed tutoring. Although the students recognized their lack of understanding, they could not mention what learning strategies would be effective in correcting their situations. For example, they did not mention organizational and elaboration skills.

Having reviewed their own development, students were convinced of “how important studying mathematics is,” especially when they recognized the difficult and bad memories of their past. Two students were still angry and questioning the requirement of “starting over again in dummy math.” Most often students valued mathematics as a means to achieve career or academic goals. Fourteen students’ values of mathematics were based on their need for review and their conviction that they will do well in the future. “I just need to have my mind refreshed.”
Table 3
Frequency of “How do you know you know?” Comments within Math Autobiographies

<table>
<thead>
<tr>
<th>External Assessment</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades</td>
<td>27</td>
</tr>
<tr>
<td>ACT</td>
<td>8</td>
</tr>
<tr>
<td>Placement Test</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Internal Assessment</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Didn’t make sense</td>
<td>23</td>
</tr>
<tr>
<td>Struggled</td>
<td>8</td>
</tr>
<tr>
<td>Needed Extra Help</td>
<td>11</td>
</tr>
<tr>
<td>Made Sense</td>
<td>6</td>
</tr>
<tr>
<td>Couldn’t Memorize</td>
<td>3</td>
</tr>
</tbody>
</table>

**Implications for Teaching and Learning**

Over half of the autobiographies (50) revealed definitions of good and bad mathematics teachers. Viewed as a whole, the autobiographies described as effective any teacher and any teaching method at any level of education that encouraged understanding of mathematics in a clear manner and in a caring environment. Consistently, the students praised instructors who helped them to build their confidence by spending time with them on a personal level. In the elementary grades, teachers who explained things well and made math fun enhanced the learning of mathematics. At higher levels of education, positive attitudes toward mathematics were cultivated by instructor enthusiasm; clear and multiple explanations; and caring teachers who spent much time with students.

Several instructional practices had negative effects. The most frequently mentioned (61%) were teachers who “made students feel stupid” and those who graded unfairly. Students’ statements exemplified these characteristics. Two such examples are:

I got this teacher who wouldn’t teach math. We would just sit there and you basically had to figure it out yourself. But he had this extra-credit thing called “pencil points.” This was when you would bring in #2 pencils and would get extra points based on how many you brought in. Needless to say I brought in tons of them, boosting my grade from a D to an A.

So anyway, during everyone’s math class Nikki and I were taken out into the hallway and placed there with a math “teacher.” What a teacher she was, we got our report card and there was no grade for us in the math section, so Ms _____, the “teacher” asked us, “So girls
what did you get last semester in math?” We said a “C”, so that is what she gave us for the next semester.

Ironically, seven students described “good” and “bad” teachers in the same way. Four of these students described good math teachers as explaining things in multiple ways. However, three students felt that a teacher was considered poor if they gave many solution strategies. “I never had really good math teachers. They never could explain math in a way that I could understand or they would show you many ways to do the problems instead of helping us understand the easiest one.”

Other instructional practices having negative effects on students’ learning included teachers who failed to connect with their classes, and those who were “boring”, “mean”, and “disliked their job and students.” Classroom methods that involved competition among students (reinforcing basic facts) were criticized in 12 of the autobiographies. For example, those who were poor at mental math disliked math classrooms in which students took turns at answering basic fact drills. Table 4 lists characteristics of “good” and “bad” teaching as described by students.

Table 4
Frequency of Good and Bad Math Teacher Comments within Math Autobiographies

<table>
<thead>
<tr>
<th>The “Good” Math Teacher</th>
<th>n</th>
<th>The “Bad” Math Teacher</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain things-help to do the problems</td>
<td>1</td>
<td>Unfair grading</td>
<td>7</td>
</tr>
<tr>
<td>Explain things in multiple ways</td>
<td>4</td>
<td>Made me feel stupid</td>
<td>8</td>
</tr>
<tr>
<td>Make math fun</td>
<td>5</td>
<td>Never explained how to do a problem</td>
<td>5</td>
</tr>
<tr>
<td>Are Caring</td>
<td>5</td>
<td>Yelled at students</td>
<td>3</td>
</tr>
<tr>
<td>Spend time with each student</td>
<td>2</td>
<td>Only one way to do things or too many ways</td>
<td>3</td>
</tr>
<tr>
<td>Are enthusiastic</td>
<td>2</td>
<td>Mean</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More concerned with looks</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Out to get me” because I was not an angel</td>
<td>1</td>
</tr>
</tbody>
</table>

Discussion

In revealing more about developmental students’ mathematical experiences throughout their lives, math autobiographical research has implications for developmental students, prospective teachers, and preservice and developmental faculty. The current research indicates that there is much more work to be done concerning the practice of mathematics as well as the learning of mathematics in different contexts at all ages.
Developmental Students

The characteristics of developmental math students as revealed through their math autobiographies were similar to the findings of Stage and Kloosterman (1995). Many students possessed negative math and learning histories with unusual time gaps between courses. Their writings included failure identifiers, math anxiety, negative self-talk, and math avoidance. Although histories cannot be changed, students’ reflections on their histories can help them recognize patterns that interfere with learning and success. Likewise, students’ sharing and comparing experiences is recognized as having healing, therapeutic benefits (Coben & Thumpston, 1994).

Perhaps the most important implication for students is helping them recognize attitudes and behaviors that they can change to impact future math learning experiences. These sentiments were reflected in the following student’s essay:

That is mainly the reason why I am in this class. Also, for most people in order to excel in math you need to continually learn and refresh. I took two years off, which I realize was a big mistake. I lapsed, so I suffer in the long run.

If students are involved in a supportive developmental environment that discourages negative self-talk, promotes conceptual understanding of mathematical relationships, provides learning opportunities that are germane to successful experiences, and provides a sequential development of mathematics through course advisement, then students will experience mathematical success commensurate with other academic pursuits.

Metacognition consists not only of students’ understanding of their own learning and cognitive processes, but also of their consequent regulation of those processes to increase learning and memory (Flavell & Wellman, 1977; Siegler, 1986). Among the metacognitive skills students lacked, yet appreciated, were:

1. Being aware of one’s own learning and memory capabilities, and of what learning tasks can realistically be accomplished.

2. Monitoring one’s present knowledge state. Knowing when information has been successfully learned and when it has not (Ormrod, 1992).

Consistently, developmental students spoke of their inability to “know what they knew.” Their comments were consistent with Shoenfeld’s (1992) work linking problem solving with metacognition. He found that poor problem solvers apparently have not learned metacognitive strategies or were unaware of their usefulness. Developmental students tend to be impulsive, spending little time reflecting on non-routine problems. They select a plan of attack very quickly and then stick with this initial approach, ignoring their lack of progress. Nor are poor problem solvers able to explain why they used the selected strategy or if they even believe it should work (Shoenfeld, 1992).
Prospective Teachers

For future teachers, math autobiographies offer the opportunity to break the cycle of “teaching as they were taught.” Research conducted by Petty and Hogben (1980), Mardle and Walker (1980), and Tabachnick and Zeichner (1984) confirm that teachers’ autobiographies exert a powerful influence on teaching and learning; however clarification of the particular impact of this influence is still needed.

The “apprenticeship-of-observation” (Lortie, 1975) is a process undergone by all who enter teaching. It begins the process of socialization of teachers and simultaneously introduces them to the responsibilities of teaching, fostering a bond with the profession. Lortie argues:

Unless beginning teachers undergo training, experiences which offset their individualistic and traditional styles, the occupation will be staffed by people who have little concern with building a shared technical culture. In the absence of such a culture, the diverse histories of teachers will play a cardinal role in their day-to-day activity (1975, p. 71).

Having reviewed their own histories through autobiographies, many developmental students who planned a career in teaching were convinced of “how important math truly is.” They recognized that the good and bad memories associated with math were vividly etched in their minds—like good and bad relationships. “Math to me, has never been one of my favorite pastimes. It isn’t because I have any personal vendettas toward this subject, it’s just that I have never really had the interest to learn it.”

As developmental students, who will become future teachers, review their own development, they suggest ways to help their own students become competent and confident. If there is one phrase that best reflects the students’ attitude toward the teaching of math it is: “I don’t want my students to have the same experiences as I had.” Their suggestions based upon their comments of effective and ineffective teaching include:

1. Learning is best achieved when connections to real life are evident; curriculum is not repetitious (“boring”); and students are involved through active learning.

2. Teaching is most effective when teachers exhibit enthusiasm; show respect and care for students; give clear explanations of material; and are knowledgeable of mathematics.

Recommendations for Further Study

Although the autobiographies revealed significant themes concerning developmental students’ beliefs and attitudes towards mathematics, three areas emerge for future investigation: difference between gender-related attitudes; comparison of mathematics majors’ autobiographies with developmental mathematics students’ autobiographies; and the format and structure of autobiographies.

With regard to gender-related issues, it is not clear if students’ attribution concurred with Cherkas (1992) research that showed the disparity between male and female attitudes toward success and failure in mathematics. According to their study, women attribute success to ability.
On the other hand, women attribute failure to lack of ability, and men attribute failure to not enough effort or just bad luck.

Another area of interest for educators is the comparison of beliefs and attitudes between mathematics majors and developmental students. Just as developmental students revealed external and internal factors that will assist teachers in their relationships with students, there could be inspiration from mathematics majors’ stories of success and failure. Although very few developmental students expressed the idea that mathematics is a form of mental exercise and refreshing challenge, it can only be assumed that significantly more mathematics majors hold this perspective.

Finally, this study utilized an open-ended format without constraints of format or style. What emerged was a form consisting of three phases: emotional outpouring of feelings, external and internal factors attributing to students’ feelings, and final comments in the form of resolutions of sustained efforts. It may be of interest to instructors who assign such an open-ended autobiography that there does exist such a common form and style.

Developmental math autobiographies reveal ways of altering perceptions of mathematics teaching and learning so that learners of all ages do not have the negative experiences reported by many of our participants. This research so far has indicated that there is much more work to be done. We need to uncover strategies that will enable students to make connections between informal, experiential, and enjoyable methods and more formal mathematics teaching and learning found in the classroom so that students of future generations will have more positive experiences instead of bitter anxiety.

References


Developmental Reading Educators and Student Affairs Professionals: Partners Promoting College Student Growth

Eleanor L. Myers
Kent State University Trumbull Campus

Abstract

Developmental education programs often exist in the shadow of the university, struggling to justify their existence. Findings from a qualitative research study conducted with college developmental reading students at a two-year regional campus evoke issues for discussion. The researcher/instructor gathered data in response to the following question: What are underprepared college reading students’ perceptions of their prior literacy experiences, support systems, and themselves as college literacy learners? Findings prompted the investigator to envision ways for developmental reading educators and student affairs professionals to form a partnership that would strengthen the university and meet the needs of underprepared college students.

Connection within curricular and cocurricular life is not sufficient for overcoming the dilemmas currently faced by higher education. The separation of the academic and student affairs spheres must be reconsidered. Both have an educational mission that could be better achieved by collaboration rather than by separation (Baxter Magolda, 1992).

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Debates and questions abound concerning the viability of developmental education. Pundits weigh the pros and cons of its existence and ponder its future. Discussions result in assigning blame, eliminating programs, and reducing funding. Nevertheless, students continue to enter universities with a limited array of skills necessary for academic success. For both traditional and nontraditional students developmental programs facilitate transition into the university, promoting confidence and leading to higher retention rates. However, these positive outcomes are often minimized by ignoring students’ personal stories and focusing instead on university image and economics. Only when developmental programs achieve the freedom to emerge from the shadows of the university will their positive potential be recognized. From my perspective, as a developmental reading educator and researcher, developmental reading education holds the potential for becoming a vehicle for promoting student growth within the academic community by inviting developmental educators and student affairs professionals (e.g., advisors, orientation leaders, career counselors) to pause and reconsider possible ways of utilizing collective talents and resources to meet the ever-changing needs of college students. Findings from a study conducted with my developmental reading students (Myers, 1998) and observations from subsequent classes provide the foundation for my beliefs. I will begin by explaining the study and spotlighting major findings, and conclude by discussing opportunities for university collaboration. Questions for thoughtful consideration follow each finding.

The Research Plan

As a developmental reading educator and researcher at a regional campus, I chose the case study method to investigate the underlying perceptions of underprepared college reading students. They responded to three issues: (a) perceptions of their prior literacy experiences, (b) perceptions of their support systems, and (c) perceptions of themselves as college literacy learners. Higbee and Dwinell (1997) state that “research provides invaluable information to other educators for planning and program development purposes in addition to establishing the importance of developmental education in retaining students once they are admitted” (p. 60).

All twelve members of the Reading Strategies for College Success Course (the first of two reading classes offered at our regional campus) completed the same assignments, which I specifically designed with an autobiographical focus. Two males and two females also volunteered to spend one to three hours outside of class time in individual interview sessions that were audiotaped. Witherell and Noddings (1991) explain that “narrative and dialogue can serve as a model for teaching and learning across the boundaries of disciplines, professions, and cultures...narrative structure is at the core of the formation of the self” (p. 8). The interviewees represented various types of students found in developmental classes—those with learning disabilities, Caucasian, African-American, recent graduate, and returning student. Following the interviews participants examined transcripts for accuracy as part of the member checking process.
Throughout the semester I collected numerous forms of data highlighting literacy (reading, writing, listening, and speaking) growth through the following methods and exercises: literacy introductions (Myers, 1997); literacy-centered journal prompts; student-teacher e-mail dialogue (Myers, 1995) focusing on literacy awareness; guided imagery; and family literacy genealogies. In addition, students read a biography of their choice as well as other assigned autobiographical readings, such as, Helen Keller, Frederick Douglass, and Richard Rodriguez (Bartholomae & Petrosky, 1986; Greene, 1995; Shull, 1991). The centerpiece of the Reading Strategies for College Success course, however, was the literacy history—a semester-long project, exploring individual literacy growth through past literacy memories, present uses of literacy in the college classroom, and future uses of literacy in the workplace. For the culminating projects students assembled an autobiographical portfolio (i.e., a compilation of assignments and best work) and displayed personal literacy memorabilia.

After gathering data I searched for naturally occurring categories, subcategories, and themes. To complete the triangulation process I invited two inter-rater reviewers to verify my perceptions by reviewing the data and confirming the classifications.

**Findings and Implications**

The research question naturally channeled data into three broad categories: underprepared college reading students’ perceptions of their prior literacy experiences, their support systems, and themselves as college learners. Multiple subcategories emerged from these groupings. Since conducting this research I have recognized consistent similarities between the topics addressed by the case study participants and students in other developmental reading classes. Similar autobiographically-based assignments have generated similar results. Although the findings of this qualitative study are particular to my situation, and are based on a very limited sample size, they have the potential to inspire critical thinking among developmental educators and student affairs professionals. In the following sections I will summarize a few of the major findings that caused me to affirm, question, or extend current thinking concerning developmental college readers, as well as form new questions for future research.

**Prior Literacy Experiences**

As students wrote about early literacy experiences, I pondered the wide variety of prior literacy experiences that comprised their personal literacy capital: favorite books, poems, bedtime stories, plays, visits to the library, speeches, puppet shows, and field trips. These findings are incongruent with assumptions shaped by prior research. For example, Carlsen and Sherrill (1988) investigated the reasons why readers like to read. They concluded that certain conditions shape good readers. These include:

- availability of books and magazines; family members who read aloud; adults and peers who read; sharing and discussing books; owning books; availability of libraries and librarians; social interaction; personal experience; and school programs (pp. 146-151).
Participants eagerly mentioned these very aspects of literacy growth. As developmental reading educators perhaps we focus on students’ lack of literacy experience and fail to recognize any positive areas of literacy growth.

If developmental readers cultivate an awareness of positive past literacy experiences, could they gain confidence in their abilities to succeed in college? What impact might this knowledge have on student persistence?

**Autobiographical writing.** In addition to interviews, I discovered that autobiographical writing served as an effective method for understanding students’ perceptions of literacy growth. Time constraints limit most instructors from conducting in-depth, individual conferences. Autobiographical writing substitutes as a practical tool for obtaining information from students while fostering their reading, writing, listening, and speaking skills. Kass (1995) mentions that writing autobiographically enables writers to make “explicit the formative relations one has had with the outer world, and especially with those institutions and beliefs, customs, and cultural expectations that have tacitly yet powerfully shaped one’s life” (p. 93).

Instructors should encourage students to draw upon autobiographical information to help them reach some conclusions about their literacy roots. Baxter Magolda (1998) notes that educators’ validation of students as knowers helps students view themselves as capable of knowledge construction; situating learning in their own experience begins the knowing process from a vantage point they understand; and mutually constructing meaning guides students in effectively linking their experience and existing knowledge to construct an informed view (p. 154).

What types of classroom assignments might encourage students to recall past literacy events? If students learn to construct knowledge from past experiences, could this ability to assemble information transfer to other college assignments, such as essay writing?

**Common experiences.** Even though participants represented diverse groups (male, female, Caucasian, African-American, recent graduate, returning student), I found that students disclosed many overlapping experiences, such as similar types of early literacy activities, supporters of literacy growth, and current college reading, writing, listening, and speaking experiences. King (1994) noted that researchers “are wise to recognize the potential for similarities across subgroups and to take note of appropriate points of overlap” (p. 416).

Would students, especially English as a Second Language (ESL) students, feel more “connected” to and comfortable with other classmates if they realized common literacy experiences? How can developmental educators celebrate diversity, yet focus on commonalities among students?

**Self-selection.** Students liked to self-select class readings. According to Bean and Readence (1994) self-selection leads to more positive feelings about reading. When Cope (1993) examined the reading development of 12th grade students, he concluded that “for lukewarm readers and nonreaders, assigned reading is seen as a very negative reading experience....While avid readers
view assigned reading as a motivation to read, lukewarm and nonreaders view it as the number one inhibitor to reading” (pp. 34-35).

Could the opportunity to self-select textbooks or course readings encourage students to complete assignments and take a more active role in learning? How can instructors redesigned assignments to promote self-selection in their developmental reading courses?

Support

Learning assistance. Surprisingly, all participants engaged in some type of supplemental instruction prior to college. Recommendations from teachers in elementary school, middle school, or high school led students to seek help in a variety of ways. One student attended remedial reading and speech classes to compensate for an extended absence due to surgery; another suffered a brain injury in an automobile accident and required tutorial help while recuperating. One participant went to summer school to prepare for the state proficiency exams; another needed the help of an aid to read exam questions aloud. The use of autobiographical writing and interview questions prompted students to remember and reveal these learning experiences.

How many other developmental students have needed academic assistance prior to coming to college? Could this information serve as an additional indicator for determining placement into developmental classes?

Family and friends. Students mentioned the influence of family members, particularly mothers, who were identified as disciplinarians, instructors, and motivators. Although participants perceived their mothers’ roles differently, in each case her impact was vital to literacy growth. This substantiates family literacy studies (Durkin, 1966; Taylor & Dorsey-Gaines, 1988), which affirm that a mother’s support fosters academic development. Family members and friends also contributed to literacy growth. A study conducted by Manna and Misheff (1987) strengthens these findings. My own personal observations lead me to believe that support from family and friends appears to make a vital difference between student retention and attrition.

How can we involve family members and friends in more university activities? What impact might this involvement have on student motivation?

Demanding teachers. It was interesting to hear students talk about demanding, or strict, teachers. At first they admittedly resisted the efforts of teachers who imposed guidelines and restrictions, but, as they continued to reflect, students insightfully realized that teachers expected more because they wanted their students to learn and grow. Conversely, participants quickly recognized teachers who demonstrated little motivation for their subject matter and minimal concern for student achievement.

Could the teaching style of developmental instructors make a difference in the quality of student learning? Should teaching style be an issue when hiring developmental faculty?
Self-Perceptions

**Attitude and motivation.** It seemed contradictory that some students, who appeared least likely to succeed based upon entrance test scores finished the semester with top grades. Nevertheless, participants with positive attitudinal and motivational strengths demonstrated success in the Reading Strategies for College Success course despite low scores on initial basic skills placement tests. One participant in the research group scored lowest in the class on the basic skills entrance exam; another suffered brain damage and was advised not to attend college. Because of their commitment to learn and motivation to succeed, both students earned As for the semester. These findings confirm Maxwell’s (1997) observation that underprepared college students can succeed despite hardships and disadvantages.

Could motivation and attitude be better predictors of college success than test scores? To what degree does affect influence student success?

**Reflection.** I realized that written comments on students’ work made a difference in their thinking. Probing questions encouraged students to metacognitively reconsider their behavior, their literacy experiences, and their academic choices. Responding to my questions through journal entries and e-mail forced students to make connections between their past literacy experiences and present status as college literacy learners. Likewise, their replies challenged me to continue the conversation by writing comments and questions designed to promote reflective thinking. As we established a dialogue I realized that we enjoyed “listening” to each other, learning from each other, and pushing each other to new levels of thinking.

What positive or negative messages do we send to students when we respond to their writing? How can reflective probes encourage college student development?

**Learning style.** All participants instinctively recognized personal learning styles. For example, some students preferred listening to stories, taking oral exams, and discussing books. Others enjoyed seeing plays, watching movies, and looking at pictures. Participants also liked to go on field trips, use the computer, and interact within groups. Once students become aware of their sensory strengths, they can use these modalities in other learning situations (Higbee, Ginter, & Taylor, 1991) and ultimately take control of their learning. “Knowledge of learning style allows instructors to more effectively convey information and also helps reduce the level of frustration encountered by some students” (Higbee, Ginter, & Taylor, 1991).

How can instructors determine each student’s learning style? In what ways can this information be channeled into positive academic growth experiences for students?

**Making Connections**

The aforementioned research findings appear fairly consistent with each group of developmental reading students I instruct at the regional campus. Which, if any, of these findings are relevant to each reader’s particular situation? How can we begin to use some of these concepts to encourage meaningful dialogue between student affairs professionals and
Prior Literacy Experiences

Developmental reading educators must continue to expand students’ background knowledge by exposing them to a wide variety of reading, writing, listening, and speaking activities. Building schemata enables more effective comprehension (Anderson & Pearson, 1984). Student affairs might complement this effort by sponsoring a variety of cultural events on campus. These presentations, showcasing music, art, and ethnicity, for example, provide opportunities for developmental educators to link university activities with classroom projects through research assignments, outside reading, and class discussions. All of these endeavors might promote literacy growth and increase background knowledge.

How can developmental reading educators link campus activities with course curriculum? In what ways would participation in these activities enhance literacy growth?

Autobiographical writing. Because students enjoy writing about themselves, autobiographical writing serves as an effective tool for encouraging literacy growth. According to Baxter Magolda (1998), instructors should help students develop “the capacity for self-authorship—the ability to collect, interpret and analyze information and reflect on one’s own beliefs in order to form judgments” (p. 143). In my opinion developmental educators are in a unique position to encourage students to critically examine their literacy development, to make connections between past and present academic performance, and to use this information to set career goals. Learning about students through autobiographical writing strengthens staff and faculty understanding of student needs and allows the university to institute appropriate programs on individual campuses. Rendon (1992) affirmed the importance of each student’s background in the following statement:

Institutions must consider past experience, language, and culture as strengths to be respected and woven into the fabric of knowledge production and dissemination, not as deficits that must be devalued, silenced, and overcome. We need to validate students’ capacities for intellectual development at the beginning, not at the end of their academic careers (p. 62).

If advisors and counselors knew more information about students’ backgrounds their social and academic histories, they could counsel students more effectively by helping them develop realistic goals, by questioning past literacy practices and performance, and by advising them to select appropriate courses. Career counselors might suggest that students read career-related autobiographical books. This practice would not only support literacy, but also enhance knowledge about a prospective career choice.

How can advisors learn more about the students they counsel? What methods might counselors use to help students set realistic goals?
Common experiences. Because each class seems to exhibit an ever-changing cultural and academic profile, developmental educators should demonstrate sensitivity to the special needs (e.g., physical, mental, and academic) of each student, provide suggestions for appropriate help (i.e., tutoring, counseling, etc.), and acknowledge both diverse and common literacy experiences. Weaving multi-cultural readings (Kirklighter, 1994) and perspective-taking (Anderson & Pearson, 1984) exercises into classroom activities accents literacy commonalities and differences. Rendon states that

An ideal classroom is one in which the teacher allows students to write about their culture and experiences, where the learning climate encourages creativity and freedom of expression, where teachers help students see the connection between what is taught and what is experienced in real life (p. 62).

The university should actively support students by staffing learning centers with trained tutors (Maxwell, 1997) who demonstrate respect for cultural differences, yet realize that learning is a universal experience regardless of culture. Cultural awareness programs (Kuh, Schuh, Whitt, & Associates, 1991) should not only highlight distinctive features of each society, but also accent the collective experiences of humankind.

What types of university-sponsored events would attract members of all cultures? How can instructors help students appreciate and respect their diversities and commonalities?

Self-selection. Participants in a study conducted by Manna and Misheff (1987) suggested that “teachers of reading should become aware of their students’ personal interests and preferences so that reading materials can be chosen to complement them” (p. 166). Self-selection not only piques interest and expands background knowledge, but also provides a tool for promoting literacy development through reading, writing, listening, and speaking opportunities. My students enjoyed choosing authentic, self-selected readings that reflected their personal and unique interests. However, guidelines and parameters, based upon the course curriculum, were imposed. For example, in this study I limited book selection to a biography or an autobiography to maintain the autobiographical focus of the course, and I also specified a length requirement.

The university might involve students by allowing them to choose and design activities that enhance classroom learning, such as planning themed library displays, sponsoring authors for book signings, and suggesting topics for discussion in orientation classes. Baxter Magolda (1998) suggested that “students are a major resource in accomplishing the goals of higher education, and their meaningful participation in institutional life would help them to achieve the goal of self-authorship” (p. 155).

What are some ways that students can become more involved in decision-making at the university? How can we encourage students to actively participate in university-sponsored activities?
Support

**Learning assistance.** Some students feel embarrassed to admit that prior to college they needed academic assistance and are reluctant to seek help at the university. However, students who write about their past literacy experiences may reveal information concerning learning difficulties that might be helpful to the instructor. Consequently, instructors can use this knowledge to advise students about campus support services. Early intervention may prevent future difficulties. The university should continue to support students in a variety of ways: establish learning centers; inform instructors about students who require academic assistance; limit class size to 20 students; and create summer bridge activities, including “tutoring, counseling, advising, skills programs, and regular academic courses” (Maxwell, 1997, p.32).

What innovative forms of student support might be added to current campus programs? Does the mission statement of the university aspire to establish support for all students?

**Family and friends.** Developmental instructors can encourage students to improve their own literacy growth by encouraging them to nurture literacy in others. For example, students might help siblings or their own children with homework assignments; work together in study groups; read to elderly family members or help them write letters; correspond with other developmental reading students via e-mail; or volunteer as literacy tutors. To complement these activities higher education administrators might implement the following ideas: on-site day care centers that incorporate “literacy breaks” for parents and children; reading programs for developmental reading students and their children; and graduate courses focusing on family literacy. In the classroom developmental educators can foster peer support by encouraging collaborative learning (Maxwell, 1997; Myers, 1996; Roueche & Roueche, 1994). In addition, Taub (1997) invites student affairs professionals to create ways to involve parents in the college experience. This invitation should extend to children, spouses, and other family members, especially at regional campuses and community colleges, where family members may be more accessible. Jones and Watson (1990) indicate that social support at the college level can be provided by administrators, advisors, and counselors, all of whom must understand the needs of students before they can effectively promote persistence and retention.

What activities or programs might enable students to “market” the university to friends and relatives? To what extent would persistence and retention be affected by university-sponsored, family-inclusive activities?

**Demanding teachers.** If students seem to appreciate limitations and guidelines imposed by teachers, perhaps developmental educators should establish high expectations in their syllabi and by their demeanor. Teaching strategies should be purposeful. Roueche and Roueche (1994) agree that

instruction should build new knowledge on old; should be meaningful to the learner...; and should be facilitated by limited rote memorization, including more ‘whole-to-part’ organization of learning units, and utilizing more practical applications (p. 173).
Likewise, student affairs professionals should encourage teaching and learning by supporting programs, such as supplemental instruction, paired courses, and peer tutoring (Higbee, 1998; Maxwell, 1997), and evaluate the effectiveness of each program on a regular basis (Roueche & Roueche, 1994).

What programs work or don’t work on our campuses? What are the best ways to measure the effectiveness of these programs?

**Self-perceptions**

**Attitude and motivation.** Developmental instructors should not assume that classroom performance directly parallels college placement scores. Questionnaires, such as The Developmental Inventory of Sources of Stress (Higbee & Dwinell, 1992a), may be valuable tools in determining attitudes and goals. Administrators might consider adding an attitude inventory to basic skills testing for incoming freshmen. Such a survey could not only provide another predictor of college success and retention, but also assist advisors during counseling sessions. In addition to leading the students themselves to a deeper level of self-awareness, results could also be useful to instructors trying to create productive study groups. Finally, attitudinal and motivational issues would be appropriate topics in reading and orientation courses.

What resources are available for assessing affect? How can results from attitude inventories inform each student affairs professional?

**Reflection.** By using student development vectors, as outlined by Chickering and Reisser (1993) and the Student Developmental Task and Lifestyle Inventory (Winston, Miller, & Prince, 1983), which is based upon these vectors, developmental reading educators have the opportunity to generate effective prompts and probes that have the potential to promote intellectual and interpersonal competence, establish identity, and develop integrity and purpose. By asking probing questions counselors can influence students to reflect on their career choices and to reconsider the consequences of taking specific classes, combinations of classes, or an overload of credits. Advisors ought to be aware that over-confident students may set unrealistic goals (Roueche & Roueche, 1994) and should direct students toward occupations based upon each individual’s strengths, interests, and capabilities. Higher education administrators could encourage awareness of student development theories in the following ways: offer workshops and seminars for developmental education instructors; advocate membership in professional organizations; fund conference attendance; and increase library holdings to include subscriptions to professional publications associated with developmental education.

Given that many developmental educators work part time, what campus programs are in place to acquaint part-time instructors with student development theories? Is financial assistance available for part-time instructors who wish to participate in continuing education?

**Learning style.** Developmental educators might help students identify learning strengths by using self-analysis surveys, such as the Canfield Learning Styles Inventory (Canfield & Knight, 1989) and the Perceptual Learning Style Inventory (James & Galbraith, 1985). Career counselors
could use the results of such surveys to guide career planning (Higbee, Ginter, & Taylor, 1991); orientation leaders might link learning style theories to classroom performance; universities could incorporate self-awareness courses in their curriculum (Higbee & Dwinell, 1992b); and tutors may practice learning style theory with their students. Advisors, who realize students’ learning preferences, could suggest classes that are best suited to complement each individual’s learning style, “such as a choice between music, art, or drama...or the choice between chemistry, physics, and astronomy” (Higbee, Ginter, & Taylor, 1991, p. 8).

How might developmental educators and student affairs professionals incorporate learning style theories into campus programs? Are developmental educators and student affairs professionals aware of their own learning styles?

**Summary**

Experiences as a researcher and instructor have made me more cognizant of the ways that students perceive their prior literacy experiences, literacy supporters, and themselves as college learners. Although students possess unique personalities and differing backgrounds, they also share common learning experiences. Clearly, numerous possibilities exist for enhancing student growth through the partnership of developmental educators and student affairs professionals. The challenge for all of us is to listen to our own students and to combine our talents and resources for the purpose of nurturing student growth. According to Kuh, Schuh, Whitt, and Associates (1991):

> Institutions that value students and take them and their learning seriously encourage involvement. Learning occurs most effectively when students are challenged to reach high, but reasonable educational goals in an environment in which students are understood and appreciated and which makes manageable the risks inherent in meeting such challenges. High expectations should be established for students, faculty and others; achievements should be acknowledged, and students, faculty, administrators, and others who contribute to a high quality campus life should be rewarded (p. 359).

By recognizing practices that invite developmental reading instructors and student affairs professionals to build bridges, developmental education can be redefined as a program that not only fosters student development, but as a program that also energizes the university.

**References**


Argument and King’s “Letter from Birmingham Jail”: A Teaching Module for Developmental Writers

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Abstract

A teaching unit featuring Dr. Martin Luther King’s “Letter from Birmingham Jail” can assist students in developing critical thinking and writing skills as well as instilling a sense of responsibility and citizenship.

In an introduction to argument course in 1976 at the University of Louisville, I first started teaching Dr. Martin Luther King’s “Letter from Birmingham Jail” (1963), which was anthologized in the required text of readings, Joseph Comprone’s Form and Substance (1976). King’s “Letter” subsequently became the centerpiece in a unit on argument and critical thinking that I have taught to freshmen and sophomores many times at other universities, including Tennessee State University in Nashville. King’s importance for the students and the community of this historically Black university is easily understood. The importance of his “Letter” within the context of the predominantly White Middle Tennessee State University, where I have taught developmental students since 1985, may be less obvious but more complex and far reaching in its implications.

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In 1985, the State of Tennessee required courses for students who had scored 18 or below on the American College Test (ACT) or were non-traditional students whose performance on the Academic Achievement Program Pretest (AAPP) indicated a need for remediation for lack of skills in writing. In the context of Developmental Studies Composition (DSE 080), a unit featuring King’s “Letter” provided minority students with opportunities to discuss their experiences and provided majority students with appreciation for King as a liberator of all peoples in the South and the North. It provided developmental students from all backgrounds with a significant historical context for learning critical reading and thinking skills, and it offered persuasive writing techniques worthy of emulation.

Each time I teach King’s “Letter,” I find greater depth in his text and greater appreciation for his persuasive technique—in particular, his use of various levels of language to support the argument while including various audiences, or “voice merging” (Miller, 1992). Students, usually familiar only with the speaker, the sound-bite King of “I have a dream,” discover the intelligence, passion, and humanity of King the writer. I supplement their encounter with an episode from the Public Broadcasting Service documentary series Eyes on the Prize, “No Easy Walk 1961-1963” (Blackside, 1986), which covers contemporary events in Birmingham and features interviews with participants on both sides many years later. Prior to class discussion of King’s “Letter,” I provide a two-day mini-module on argument and persuasion using an overhead projector or Microsoft PowerPoint to provide definitions of terms and examples of fallacies.

After surveying my methodology, explaining the sequencing of the mini-module, and covering applications to King’s text, I will discuss the implications of this unit for developmental writers and for all students.

**Persuasion: Five Methods: A Mini-Module**

In the fourth week of Developmental Writing (DSE 080), I introduce students to five methods of persuasion that they must use to write two drafts of a 12 to 20 sentence paragraph. Up to this point, students have been writing paragraphs of personal expression or description, emphasizing mode types (example, comparison or contrast, and description) and the necessity of concrete and specific details for support. Prior to the mini-module on persuasion, I have a “play” session (described below) to encourage students to examine critically various texts and statements, including those of advertisers, politicians and other authority figures, other students, and themselves. For the persuasive paragraph, I again emphasize the importance of details for support. I then outline the five methods of proof: providing facts, providing examples, referring to authorities, predicting consequences, and anticipating criticism.

The “play” session covers various types of claims of truth. Using PowerPoint, I flash a statement up on the master classroom screen and ask students to think about whether they agree that the statement is true and, if so, how they can convince a skeptic that it is true.
The first statement is “The earth is round.” Students vote by raising their hands; most agree, although some do not want to commit because they suspect the activity is a trap. I then relate an anecdote about my Louisville neighbor Charley, who refused to believe that the earth is round because the Bible says that the angels will come to the four corners of the Earth. I also remind them that there is a Flat Earth Society in England. Their problem is to convince Charley, whose role I play, with some kind of evidence that the Earth is round.

The class’s first response is to refer to pictures taken from space that show the Earth to be fairly round. I answer as Charley answered me: “They can fake pictures.” (On television, he had seen the film Capricorn One [Lazarus, 1978], which faked a Mars landing in a studio.) I then try to force students to reach for empirical evidence of viewing the curvature of the Earth at a seashore or the arrival or departure of a ship over the horizon. They can put Charley on a ship, airplane, or space shuttle to convince him through evidence of the senses. I also mention that the Earth is not strictly round but more pear-shaped, with bulges in the middle where centrifugal forces on the molten lava 300 miles beneath the students’ feet forces an extension outward at the equator. At that point, finally, I define the preceding as a “fact” or a statement of what is or evidence that has been collected, open, and recoverable for all interested.

Again, I caution about the fakery of “facts” that are manufactured or misused statistics (Huff, 1954). Using PowerPoint, I provide examples of what factual statements are: statements of what is and can be recovered, observed, or researched by others. The most obvious factual statements, I note, are empirical statements such as “Ellen is in class today and is wearing jeans and a blue sweater.” If the police were to come on Friday investigating the robbery of the local quick stop and ask if she were in class, we can say ‘yes’ and describe what she wore because we saw her in the third row. I also give examples of how the idea of “facts” can be distorted—for example, in the advertisement claiming that four out of five doctors recommend a certain painkiller.

Next, to distinguish fact from opinion, I use the PowerPoint screen to flash the claim: “Green is the most beautiful color in the spectrum.” I then point out the beauty of greens in the classroom from the green cover of our textbook to shirts, folders, and the screen that projects that assertion in green. After providing “evidence” to support the claim, I ask students to vote whether the statement is true or not. When some respond by saying that the claim is opinion, I provide further “evidence” or examples of beautiful green objects—dollar bills. Finally, I admit that the statement about the color green is my opinion and that some people think all statements about art or poetry are simply opinions but that I am not one of them. I claim that standards exist and statements about art are not simply matters of opinion. I assert that my poetry is definitely inferior to John Donne’s, and the differences can be seen in contrasting the two—which leads to the next true statement.

The third statement is “Harry S. Truman was one of the top ten best U.S. presidents.” I ask for a show of hands of who agrees or not, making everyone vote whether or not he or she has sufficient information to make a decision. Then, using the Socratic method of questioning, I ask the students, “How can we judge presidents?” Students usually answer by saying that we can evaluate how effectively they did their jobs. I ask questions to limit the subject to the President’s
job, leading to categories of domestic policy (the economy, extension of liberties) and foreign policy (protection of the nation or allies in time of war). I then provide examples of presidents who were not remembered because they did not face external or internal crises: Millard Fillmore, William Howard Taft, Warren G. Harding, and Calvin Coolidge. For contrast, I mention Washington, Lincoln, Wilson, Theodore Roosevelt, and Harry Truman. I add that when Truman took over the presidency upon the death of Franklin D. Roosevelt in the spring of 1945, he made decisions in a few months that altered the world forever. These decisions include the atomic weapons dropped on Hiroshima and Nagasaki on August 6 and 9, 1945, and the decision not to drop them on Tokyo and Kyoto, which would have been like dropping atomic weapons on New York and Boston. He also negotiated with the Soviets, which led to the domination of Eastern Europe for 50 years, a circumstance changing only in their lifetimes. He desegregated the United States Army about seven or eight years before Brown v. Board of Education (1954) prohibited segregated public education. (I ask the class the date for the Supreme Court decision and get guesses from the 1950s or 1960s or just shaking of heads.) I then explain that the statement about Harry Truman is a combination of opinion and facts, a judgment, and that the members of the American Historical Association annually vote on the presidents’ rankings and Truman has recently been in the top ten.

I also include statements of aesthetic truths: “The heart is like a wheel; if you bend it, you can’t mend it.” I ask the class to acknowledge the truth that music and lyrics have truth value for our personal experience but are not rational statements and cannot always be convincing if others’ experiences are not similar. Students recognize that this is a comparison, like the paragraph they have written earlier in the semester.

Last, I project the statement, “Whatsoever a man soweth, so shall he reap.” I first ask what it means. Usually, I get the phrase, “Whatever goes down, comes round.” I literalize the saying by describing how the ancients scattered seed: what you plant today is what you will harvest. Then I catalog much of the world’s wisdom that is in parabolic truth: Confucian literature, the sayings of Gautama Buddha, Socrates’ stories, and the parables of Jesus of Nazareth. I explain that the truths of persuasive papers are not the same as aesthetic or parabolic truths and that the truths of argument will be of most importance to the class.

At the beginning of the semester, I introduced the idea of generalization in my discussion of what a topic sentence is. Students know vaguely what an example is because they have written a paragraph using specific examples, but I now introduce the idea of an atypical example, or using a single example to leap to a generalization. I usually throw out the following hypothetical: “Yesterday, I saw one of my students from my 11:00 am class driving a new 1999 Lexus and one from my 2:00 p.m. class driving a new BMW. Clearly freshmen at this university have too much money to spend on automobiles.” I assert that I have provided examples to support my argument. Then I ask for hands of those in the class driving new cars, and my examples are exposed as atypical. I conclude by referring to the university fact sheet for typical examples of students-age, sex, race, and origin (for example, the percentage of males and females on our campus is 44% males and 56% females).
When I introduce the concept of referring to authorities to support or convince, I begin with the ideas of expertise in a particular field, years of study, absence of monetary motivation, and unbiased opinion. I use myself as a spurious authority in an initial illustration. I begin pontificating about the lack of importance of algebra in the work-a-day world and conclude by stating my title, “Doctor.” Then, I ask if I am a legitimate authority on college mathematics. I admit my lack of expertise and suggest some skepticism, but then go on to claim expertise in English composition and in seventeenth century English poetry because I have studied these for years. Finally, I project students into the future when they will have to write research papers and find that the experts in a field disagree, and they will have to decide which authorities to use and why. I also give them negative examples by describing the research that was done by Ph.D.s and physicians for the American Tobacco Institute who falsely claimed there was no causal relationship between smoking and cancer. Other examples are the bogus doctors who do research for the candy industry that shows that sweets do not cause tooth decay, and finally there is the famous athlete as nutrition authority whom everyone wants to emulate by eating the same cereal and drinking the same sports drink. I conclude this section with a problem application. I ask who would be a legitimate authority to support the argument for a new stop light at an entrance to the campus where students cross without a signal. Students usually suggest the university president or campus police; some give the responsibility to the city police, mayor, department of transportation officials, or director of public safety.

The discussion of predicting consequences begins in the absurd and with the error of exaggeration. I describe myself as a candidate for mayor of our city and begin an impromptu speech to persuade them to vote for me. I then predict, “If you don’t vote for me for mayor, by the end of the year you will see drugs taking over our schools with junior high kids mainlining heroin.” The absurdity of the claim cannot be missed. I then explain how politicians use this tactic consistently and subtly. When George Bush came to our campus as candidate for President in 1988, he claimed that if we voted for the Democrats, they would “disarm” America in the face of the Soviet Union threat. The “If . . . then” prediction in this context provides the subtlety and reality to the exaggerated predictions earlier. For a positive example of predicting consequences, I use a truism: “If you don’t study for the exam in history, you will probably fail.”

The fifth method of persuasion is to anticipate criticism. I explain how this defensive strategy is fundamental to our games of checkers, chess, football (for instance, I ask, “Is the defense in a man-to-man or zone?”), and other competitions including the ultimate conflict of war. (“It is imperative to estimate one’s strengths and weaknesses and seek to understand the adversary’s intentions on one’s own possible weaknesses,” I add.) I go on to describe how this form of critical thinking is fundamental to liberal education, and I add the Native American admonition, “to walk a mile in someone else’s moccasins.” I use a topic suggested by John Langan (Langan, 1997) to illustrate this method: “Husbands whose wives work outside the home should share equally with the housework.” I then ask students to counter that argument by asking, “What would a man say who did not accept this?” Answers range from “It’s woman’s work” and “Men work harder at their jobs” to “Men do other chores around the home and do not have to do housework.” My nontraditional women students provide most of the counter arguments for
these claims: “Women do not make all the dirt, so everybody should help clean,” “Most of us do the same types of jobs in business or industry, and in the future most of us will be in service industries or working at a computer or managing people,” and “Men do cut the lawn for four months a couple of hours every two weeks and do change the oil and plugs in the cars once a year, but the housework demands daily hours of cooking, cleaning, and caring for children; therefore, it should be shared equally.”

**Written Applications**

When the methods have been explained, I insist as part of the writing assignment that students use three of the five methods in their paragraphs and label the use in the left column of their reading draft they turn in to me for grading. The topics are taken from John Langan’s (1997) *The Primis Langan Series, “Paragraph Development: Arguing a Position.”* I then mark the paragraphs for revision and assign a holistic grade of one to six, with four and above passing. Students then revise the writing, underlining their changes in spelling, grammar, and organization.

My week of readings and discussion of the organization of the essay begins as I emphasize the critical aspects of the thesis as a generalization and the importance of continued paragraph organization and support. Students are required to practice the writing process with readings, prewriting techniques, drafting, proofing and correcting, and turning in drafts and final copy for marking, with revision draft, both kept in the student’s portfolio. After an example essay that emphasizes support, a comparison and contrast essay, and a personal narrative essay, I then prepare students to read King’s “Letter from Birmingham Jail” and write a persuasive essay.

**Historical, Social, and Literary Applications: King’s “Letter”**

With the fourth edition of Susan Fawcett and Alvin Sandberg’s *Evergreen with Readings: A Guide to Writing* (1992) providing supplementary materials, I again explain to my students the five methods of persuading someone to think the way they do or to act. I now return to the methods that I had introduced in the mini-module for the paragraph. I begin with similar material but use King’s “Letter” to provide specific methods of facts, examples, authorities, predicting consequences, and answering critics.

Using PowerPoint, I select passages from the “Letter” to show how King uses many facts to support his argument that the demonstrations in Birmingham are timely and necessary. Near the beginning of the “Letter,” he provides a history of the facts of the case: the postponed demonstrations because of the mayoral election, the unfulfilled promises of obnoxious racial signs not being removed, and the bombings and violence of the City of Birmingham. Other facts that he uses include an analysis of the Black community divided into radical haters of White people who advocate violence to the “do-nothings” who have economic interests in the way things are or those who have given up any hope for change. Dr. King then argues that he stands between these two groups and refuses the use of violence and hatred but also refuses to not
move events for change through non-violent demonstrations. Facts, or statements of what is, move King’s argument and provide support.

Students’ intellectual development progresses through three stages: acceptance of truth from their instructors to a belief that all people’s statements are true because there is a democracy of truth, and, finally, to a sophisticated critical analysis of their own opinions and the opinions and evidence of others (Perry, 1968/1999). I attempt to lead students to a sophisticated questioning of authority by using myself as a bad example. The authority is someone who can be trusted to provide unbiased opinions, is an expert in that area of knowledge, and has studied that area of knowledge for several years. I remind students that earlier in the semester I had claimed expertise that I did not have simply on the basis of having a doctoral degree. Further, I mention the bogus authorities of hired researchers or sports or entertainment figures who attempt to convince us to buy a product because they have gained public popularity or notoriety.

Contrary to these reintroduced false authorities, I explain how King uses various kinds of authorities to support his argument. Specifically, when he is answering the opposition as to how he can break laws, King cites Augustine (generally accepted as a Church Father), Thomas Aquinas (considered by many the Doctor of the Roman Catholic Church), Martin Buber (noted Jewish theologian of the twentieth century), and Paul Tillich (a noted Protestant theologian of the twentieth century). Thus, King has used authorities that are accepted by many factions of the audience, the clergymen who published a letter criticizing King’s actions in the Birmingham paper. His authorities are “experts” credible and relevant to his audience.

My students’ first writing for a grade, after the initial diagnostic essay, is an example paragraph because of my belief in the centrality of evidence, details, or support. Then, when they have shown they understand what an example is, I introduce the ideas of relevance and typicality. In other words, the examples that they use in their papers must relate to the topic under discussion and cannot be atypical. I repeat the fallacious example to support my topic sentence introduced previously: “Freshmen at our university have far too much money to spend on automobiles.” This repetition of an atypical example leads into our discussion of how examples are used honestly and fairly in the “Letter.”

In the most emotionally packed section of the “Letter,” Dr. King uses examples from his own experience to convince his brother clergymen that segregation is sin. He describes how he can not answer his own children when they ask about why they are not allowed to go to a White-only amusement park or why White people treat Colored people so meanly. He uses his own experience of sleeping in cars because of segregated motels. Noting the failure of most White Americans to give most of their Black brothers and sisters respectful titles such as Mr., Miss, or Mrs., and the fact that most African Americans are caught in an “air tight cage of poverty” (King, 1963), he moves from his own example to indicate how typical his experience is for other African Americans.

Dr. King’s “Letter” illustrates the method of predicting consequences by his statement that if we follow the Old Testament rule of reciprocal violence of “an eye for an eye,” then we will all end up blind, for violence begets violence. Our contemporary world has several examples of
reciprocal revenge violence: recent events in Bosnia, Northern Ireland, and the Middle East make clear that King’s prediction is not an exaggeration.

In several instances in the “Letter,” King answers the opposition or anticipates critics. Notably he quotes the ministers’ own description of his Birmingham campaign as “unwise and untimely.” He then proceeds to explain in detail how he and his followers have wisely chosen non-violent peaceful demonstrations, making references to Thoreau’s (1849) “On Civil Disobedience” and the teachings of Mahatma Gandhi. At one point King quotes from a letter of a White Christian urging him to wait longer for civil justice because it took Christianity 2000 years to get that far. But King answers this critic with a description of the fallacy of time: many believe time heals, but King argues that time is neutral, and all people must use time constructively.

This teaching of critical thinking moves students from acceptance of truths delivered by a possessor of truth and past the point where students believe that all statements exist in a democracy of truth. This process takes them to a sophisticated critical view where logic, judgment, and uncertainty exist. Another effect is to cultivate students’ heightened historical awareness where the interplay of time between the 1960s, 1970s, and their own sense of the present becomes graphically clear. This approach also provides a corrective to neglected ethnic and civil rights studies. With developmental students encountering the sophisticated text of King’s “Letter,” their critical reading is pushed into practice. They become involved in questioning the text, and they are brought to see King’s responses to various audiences.

As a corollary to critical reading, critical thinking is exercised through the insistence on self-awareness and evaluation of students’ own evidence and methods. King’s eloquence and the courage of those involved in the civil rights movement break down stereotypes of King and other civil rights leaders and the ordinary people and promote respect for and acceptance of diversity.

Finally, the discussions of civil rights conflicts of the past and discussions of contemporary issues of race and violence open a “safe house” (Canagarajah, 1997) where students can discuss these emotionally disturbing issues that are in their lives. The writing prompts, both analytical and personal, provide students with opportunities to respond knowledgeably and deliberately to these issues. The argument paper requires students to use sources (i.e., evidence) to support their viewpoints. In general, this approach to writing through critical reading and thinking provides an opportunity to teach students to distinguish fact and opinion, one of our goals in developmental education in Tennessee.

Additionally, this unit has led some students to do further research on King and related subjects. After searching the internet, one student discovered and referred me to Stanford University’s Martin Luther King Papers Project at the following address <http://www.stanford.edu/group/King/>. This combination of critical reading and writing helps to provide students with an introduction to general studies and liberal studies in which integrated understanding, oral and written communication, critical analysis, and writing are emphasized. King’s analysis of the evils of segregation and racial division can point to continuing racial and ethnic divisions including our contemporary events such as the burning of
churches, bombings of abortion clinics and embassies, and hate groups from Neo-Nazis and skinheads to fanatical religious militias. In this manner I remind students of their responsibility for engagement in the contemporary world and insist that as citizens of a democracy they take up the burden of vigilance against ignorance and injustice. In teaching King’s “Letter from Birmingham Jail,” I hope to break down some of the provincialism into which we are all born.

References


BOOK REVIEW

Martha Maxwell
MM Associates

Teacher and professional development for school reform


This book presents case studies based on the philosophy and strategies of the National Writing Project, a program to improve the teaching of writing that was started by James Gray at the University of California-Berkeley in the 1970s, where it was called the California Writing Project. The editors have compiled stories written and reflected on by teachers about their teaching experiences and their students. These stories provide a fertile ground for suggesting ways that schools can be improved.

When teachers have an opportunity to look at and record their classroom practice, and reflect on their writing, they develop insights that can be shared with others. These vignettes produced by teachers writing and reflecting are helpful for preservice teachers and useful in teacher training, as well as inservice training for practicing teachers. They can also aid administrators, parents, and university educators in understanding the teaching and learning process.

The cases involve a wide range of situations, including the caring teacher who allows herself to be drawn into and can not extricate herself from the problems of obsessive students. Another
teacher finds writing and reflecting is a good antidote for the burnout a writing teacher frequently suffers. In addition to coping with boring writing classes, she is rewarded because it helps her polish her professional writing skills.

Some of the studies involve a committed teacher who cannot get help from other teachers for a special child, where the indifference of other teachers seems to be systematic and unchangeable. Others deal with the realities of what happens in the classroom and the naive beliefs of beginning teachers, especially when personal philosophies conflict with those of others. The nurturing teacher finds she may not get professional recognition.

This study represents an excellent inservice training project for developmental writing instructors who in writing and reflecting on their teaching experiences can not only improve their classroom teaching skills, but develop and test assumptions and suggest better administrative policies and orientation programs for new teachers. For those looking for a qualitative research project for their doctoral degree, this study would be an excellent one to replicate using college developmental education teachers.
BOOK REVIEW

Martha Maxwell
MM Associates

Psychology, Education, Gods, and Humanity

If you have occasionally taught a class of passive, unmotivated students who plan to do as little as possible in your course, and the few who are willing to talk are critically hostile, you will appreciate this book. Professor Simon describes the strategies he used in teaching a community college course in evolutionary psychology to disinterested students, most of whom did not want to be there and had never heard of Darwin. His students included those who expected to be told what to memorize or had been given notes on the topics that were important to learn so they would not have to study.

Simon gave up lecturing, stopped trying to be the authority, tried to help the students discuss and discover what responsibilities they have as learners or as he says, to teach psychology as a human science rather than a natural science by integrating narrative psychology and dynamic interpersonal psychotherapy as a means of teaching and demonstrating the core curriculum. He tells about dealing with the angry and hostile students as well as the quiet and those unwilling to become involved. For example, after overhearing two girls describe his course as a crock of %$#!*, he subsequently talked with them about how he felt about their judgment.
He also tells about how he untied the tongue-tied so they could express their negative school experiences, freeing them from viewing teaching as a one-way street. As he gained their confidence, they contributed to the class by writing and discussing narratives about their own problems and prejudices.

Simon illustrates the success of his approach with fragments of student narratives that demonstrate the exciting outcomes of teaching psychology in a humanistic fashion. Surely, you will find some ideas in this book that you can use.
Developmental Education: Preparing Successful College Students

Jeanne L. Higbee & Patricia L. Dwinell, Editors

Monograph 24, National Resource Center for The Freshman Year Experience and Students in Transition

This monograph portrays the many facets of developmental education—past, present, and future. Chapters address the need for equity and diversity in higher education and the important function that developmental education plays in providing educational opportunity. Leaders in the field discuss the integration of skill development with content courses as well as the effectiveness of specific strategies such as Supplemental Instruction, strategic learning, and personal management training. The monograph reflects how the field of developmental education has continued to expand its mission to serve many students at virtually every type of institution.

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The NADE Monograph Committee is seeking submissions for its next monograph, *2001: A Developmental Odyssey*. All submissions must be postmarked by May 15, 2000. Submissions will be reviewed on a rolling basis (i.e., as they are received). Early submissions are welcome. Submissions must comply with the *Publication Manual of the American Psychological Association* (4th ed.) and the "Guidelines for Authors" published on the following page. All authors are required to sign a nonduplication agreement. Send five copies of the manuscript, including title page and abstract on separate pages, and three stamped self-addressed envelope and three address labels to:

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To be considered for publication, manuscripts must comply with the following guidelines:

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2. The subject must be relevant to the monograph theme.

3. Manuscripts must not be duplications of previously published works or articles under consideration for publication elsewhere.

4. Manuscripts and reference style must be in accordance with the Publication Manual of the American Psychological Association, 4th edition. Submissions that do not comply with APA style will be returned to the author(s).

5. All authors must be members of the National Association for Developmental Education (NADE).

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