

# A Framework for Assessing Developmental Education Programs

By Molly Goldwasser, Kimberly Martin, and Eugenia Harris

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***ABSTRACT:** This paper presents a framework for educators, administrators, and researchers to assess distinct facets of developmental education programs. The researchers review the literature on best practices in developmental education with regards to program cost, program structure, and student placement procedures. This paper also identifies seven model institutions in these areas and includes qualitative research from interviewed individuals who work at these institutions. The evaluation tool developed via this research is rooted in both the research-based best practices and qualitative research from administrators at the identified model institutions. The paper concludes with recommendations for implementation of this assessment tool.*

As tertiary education is increasingly a prerequisite for employment, more students are applying to and enrolling in college. Unfortunately, a large number of tertiary degree seekers are ill-prepared for the rigor of postsecondary coursework. In the state of Tennessee, for example, “70 percent of students entering college after high school graduation require remediation in math, according to the Tennessee board of regents” (Adams, 2014, para. 15). These students have the odds stacked against them. In Tennessee, “the three-year graduation rate for students placed in remedial math upon entering community college is 5 percent” (Adams, 2014, para. 15).

Currently, virtually every college or university has its own unique developmental education program. The quality and the outcomes of these diverse programs vary dramatically. There is not a standardized or nationally-accepted construct used to evaluate these programs. As assessment and evaluation remain key trends in higher education, it is imperative to have measures and metrics to monitor program and student progress (Gerlaugh, Thompson, Boylan, & Davis, 2007; Safran & Visher, 2010). To this end, this framework will serve as a tool for faculty and administrators who need to comply with increasing requirements to assess and report program costs, goals, and outcomes. Additionally, ongoing program evaluation can enable continuous program improvement in order to maximize outcomes for students.

Our research team conducted a review of the literature on best practices in developmental education. Next we interviewed administrators at institutions that are currently employing many of the research-based best practices. Using this data, we created a framework that colleges, universities, and external reviewers and evaluators can use to assess the quality of the cost, the structure, and the placement procedures of developmental education programs.

## Methods, Data Analysis, and Findings

Our key research questions asked (a) what are the best practices related to cost, structure, and placement procedures in developmental education, and (b) how can college personnel and educational researchers can assess these practices. To answer these questions, we began by reviewing literature in the field of developmental education to identify best practices and institutions that model these best practices (Boylan, 2002; Kulik, Kulik, & Schwab, 1983; Schwartz & Jenkins, 2007). Next, we met with Professor Angela Boatman, Vanderbilt University, a leading scholar in the field of developmental education, to review our research and to gather suggestions for practices and notable institutions that we may have missed. Through this research, we identified numerous institutions that were modeling best practices for developmental education in some way. We divided those institutions into groups based on the type of best practice they used: mainstreaming, multiple measures assessment, relevant content, placement test preparation materials, technology for cost savings, individualized instruction, and placement procedures. Then, we selected one institution to represent each group and identified an individual at that institution who could provide additional information on the developmental education program at the institution (see Appendix A for a rationale for the selection of each best practice institution). We contacted these individuals by email to request their participation in an interview—either by email or by phone for institutions that were far away or in person for institutions that were nearby—so that we could gain greater insight into the developmental education programs at their institutions. Individuals at

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all but one of the institutions selected the option of answering interview questions by email. The other interview was conducted in person. We conducted the interviews using a semistructured interview process by asking an initial set of questions, receiving the interviewee's responses, and asking additional questions based on those responses as needed (see Appendix B). Recording and transcription of the email interviews was not necessary, as the email responses provided written format; however, we did transcribe the interview that was conducted in person. Then we mined the interview data for relevant themes and salient quotes. Both the commonalities among the successful institutions and the unique attributes of these programs were used, in part, to develop the following framework.

## **Best Practices Framework for Developmental Education**

After reviewing the literature in developmental education in the areas of cost, structure, and placement procedures and analyzing interview data related to each topic, we consolidated our research into a single framework of best practices for developmental education (see Appendix C). Administrators at specific institutions as well as researchers evaluating programs at multiple colleges may use this framework as a rating mechanism to compare their current practices in developmental education to the best practices identified. The framework identifies six best practices related to cost for developmental education, nine best practices related to structure for developmental education, and five best practices related to placement procedures for developmental education. We describe each of these categories of best practices in the following paragraphs.

**Best practices in costs related to developmental education.** First, we examined best practices related to costs for developmental education. Cost is a common area of concern for developmental education, as critics of developmental education argue that it costs tax payers twice (Saxon & Boylan, 2001): once when paying for the instruction in the public K-12 system, and again when paying for remediation, either via subsidies to public colleges and universities or via federal financial aid. Many critics also question the use of federal and state financial aid for remedial courses (Saxon & Boylan, 2001).

Unfortunately, despite the criticisms of the cost of providing developmental education, little research exists comparing the costs of such programs (Saxon & Boylan, 2001). The research that does exist contains various problems that make the data provided difficult to use for comparisons, such as differences in methodologies, lack of consistent definition of what constitutes developmental education, discrepancies in whether or not costs of additional services (tutoring, advising, testing)

are included, and variations in definitions of what constitutes academic deficiency (Saxon & Boylan, 2001). Pretlow and Washington (2011) put forth the most current projections of the cost of development education in the U.S. Although their work is limited to public institutions, the expenditures are calculated as a function of freshmen taking developmental courses, as a function of education funds committed to developmental studies, and as a function of per pupil expenditure. Through our systematic examination of the literature and our themed matrices evaluating the responses from semistructured interview protocols with best practice institutions, we identified six best practices related to costs.

### ***Keep costs of developmental education between one and three percent of total budget.***

In spite of the criticisms of the cost of developmental education, "the available research ... effectively shows that remediation is a relatively small expense in higher education, especially given the size of

### ***Cost is a common area of concern for developmental education, as critics...argue that it costs tax payers twice..***

the population that benefits from it" (Saxon & Boylan, 2001, p. 2). Only 1.2 % of the Maryland higher education budget goes to developmental education, compared with 2.25 % of the Texas higher education budget (Breneman, 1998), 3 % in Arkansas (The Institute for Higher Education Policy, 1998), and 8 % for the City Universities of New York (City of New York, Mayor's Advisory Task Force on the City University of New York, 1999). Some states, such as Arkansas (The Institute for Higher Education Policy, 1998) and New York (City of New York, Mayor's Advisory Task Force on the City University of New York, 1999) reported that these percentages were even lower when considering the cost of developmental education at four-year institutions alone.

***Keep costs of developmental education below those of college-level courses.*** The cost per full-time equivalent (FTE) student in Arkansas was lower for developmental education (\$6,709) than for all other academic programs with the exception of General Studies (\$6,163). Cost per FTE was significantly higher in programs such as Business (\$7,730) and Nursing (\$8,235) (The Institute for Higher Education Policy, 1998).

***Monitor cost per FTE and track expenses against peer and regional institutions.*** There is a wide range in cost as measured per FTE. Much of this variance can be explained by institution type and institution location. For example, in the

City Universities of New York, developmental coursework at four-year institutions costs \$6,360 per FTE compared with \$9,754 overall (City of New York, Mayor's Advisory Task Force on the City University of New York, 1999). Costs for developmental education are typically higher at four-year institutions than at community colleges (The Charles A. Dana Center, 2007).

Larry Abraham, Associate Dean of the School of Undergraduate Studies at the University of Texas at Austin, indicated that per student expenditures for developmental education are much lower at his institution than those reported previously. He said, "The average annual cost per student of our program, including administrative personnel and operation, instructional salaries, and advising, is about \$1,600 (not including employee benefits, which are borne at the institutional level)" (L. Abraham, personal communication, February 17, 2014). Due to this variance, we recommend monitoring the cost per FTE against both peer institutions and regional neighbors for the most applicable benchmarks.

***Do not operate at a loss.*** According to Saxon and Boylan (2001), there are no reports of developmental education programs that operate at a loss. For every developmental education program that has publicly reported its cost data, the revenues exceed the expenditures. However, numerous suggestions have been made for reducing the cost of developmental education. These include radical shifts in the current developmental education model such as privatizing remedial education services or passing remediation costs back to high school districts (Saxon & Boylan, 2001) as well as changes to the mechanisms for provision of developmental education within colleges and universities.

***Integrate technology to reduce costs.*** Jackson State Community College has increased both retention and mastery of competencies while reducing costs using a program called SMART Math in its remedial math courses. The computer-based program, which allows students to work at their own pace, helped the institution reduce cost per student by over 30% and improved retention rates by over 46% (Jackson State Community College, 2011). These cost savings were the result of increasing the maximum class size from 24 students to 30 students, reducing the number of sections taught by full-time faculty from 78% to 58%, and utilizing tutors at a lower cost per hour than faculty (Bassett & Frost, 2011).

In 2012, Tennessee began a partnership between community college faculty and high school teachers to develop an online math course for students with low ACT scores (Adams, 2014). The purpose of this course is to help students achieve college readiness prior to entering college so that they will not be required to enroll in

developmental courses at the college level. Such practices are becoming more common, with more than 21 states having some similar programs. In Tennessee, the program combines high school math standards with college-level math competencies. Students complete the coursework in high school computer labs with assistance from both high school and community college faculty. Other states, such as West Virginia, also offer similar programs in English (Adams, 2014).

**Seek grant funding to offset costs.** Although developmental education programs tend to earn a profit for their institutions, those profits are often not represented in the budgets of developmental education programs, according to Boylan (2002). He further contends that programs that are the most successful seek grant funding to supplement development of new ideas and teaching mechanisms for developmental education. The most common grant sources for developmental education are Title III, Title IV, and Title V funds from the U.S. Department of Education; however, additional funding sources, such as private endowments, the U.S. Department of Labor, and the Fund for Improvement of Post-Secondary Education, are also available for proposals related to developmental education (Boylan, 2002).

**Best practices in structure related to developmental education.** The next best practice area we examined was structure. For this area, we examined program components, such as organization, management, faculty, and support services that are not related to costs, assessment or placement, or instructional methods. After reviewing the literature related to these components, nine elements emerged as best practices.

**Stated institutional commitment and clearly defined mission statement.** Studies have frequently associated successful developmental studies programs with the presence of a stated institutional commitment to developmental education (Boylan, 2002; Center for Student Success, 2007; McCabe & Day, 1998; Schwartz & Jenkins, 2007; Sperling, 2009). In a study involving colleges in Texas, for example, Boylan and Saxon (1998) found the highest retention rates at schools that considered developmental education an institutional priority. Meanwhile, a study by the Continuous Quality Improvement Network and the American Productivity and Quality Center found that developmental education was viewed as "completely" or "extensively" important at 27 of 28 institutions surveyed (Boylan, 2002). In addition to a stated institutional commitment, a clearly defined mission statement also has been identified as a key program component (Center for Student Success, 2007; Schwartz & Jenkins, 2007; Sperling, 2009). Boylan and Saxon (1998), for example, found that students in programs with written missions, objectives, and goals had higher pass rates on a

state-mandated exam. Additionally, students in such programs had higher year-to-year retention rates than students at programs without written mission statements (Boylan & Saxon, 1998).

At Middle Tennessee State University (MTSU), one of the best practice institutions we interviewed, helping underprepared students succeed is viewed as an institutional priority. As described by Dr. Marva Lucas, chair of the University Studies Department, "Our president, a long time ago, said, and it resonated with me, 'If we admit students, we're going to serve them,' which is the ethical thing to do. If you open the door and you allow them to come in, then you serve them" (M. Lucas, personal communication, February 16, 2014). Additionally, of the institutions we interviewed about their programs' structure, two had written mission statements but the other had a communicated, but unwritten, mission.

**Centralized or highly coordinated program.** Numerous studies have linked centralization to developmental program success (Arendale,

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2010; Boylan, 2002; Boylan, Bliss, & Bonham, 1997; McCabe & Day, 1998; Roueche & Baker, 1987). Boylan (2002) describes centralization as "an organizational arrangement in which developmental courses and services are highly coordinated, housed in a single department or program, and headed by a chair or director" (p. 8). Studies have tied centralized programs to several measures of student success, including higher first-semester and cumulative GPAs; higher retention rates; higher pass rates in developmental courses; and higher course grades (Boylan, Bliss, & Bonham, 1997; McCabe & Day, 1998; Roueche & Baker, 1987).

Although Boylan (2002) found that centralization was key to program success, he also found that "a highly coordinated although decentralized developmental education organizational structure may be nearly as effective as a centralized structure" (p. 11). He identified two important features of successful decentralized programs: "a high level of integration and communication among courses and services" and "an administrator who [is] either officially or unofficially responsible for the

campus-wide coordination of developmental education activities" (p. 11). Other studies have linked developmental courses housed in their academic departments—rather than grouped into a separate developmental department—to better alignment between developmental and college-level courses and greater communication among faculty responsible for those courses as well as reduced stigma for students enrolled developmental classes (Perin, 2002a, 2002b). Of the institutions we interviewed about their programs' structure, most had centralized or mostly centralized programs that housed their courses for underprepared students. However, one institution had a decentralized program with courses housed in their respective disciplines.

**Collaboration among faculty, along with support services personnel, and instructors.** Researchers have associated frequent communication and collaboration among developmental faculty with successful programs (Boylan, 2002; Center for Student Success, 2007; Schwartz & Jenkins, 2007; Sperling, 2009). Effective practices identified within the literature include sharing syllabi and instructional strategies; discussing problems, solutions, and experiences; and coordinating course content (Boylan, 2002; Center for Student Success, 2007; Schwartz & Jenkins, 2007). Studies have also suggested that collaboration between developmental and nondevelopmental faculty could aid program success (Center for Student Success, 2007; Schwartz & Jenkins, 2007). Describing the best practice programs in his study, Boylan (2002) said, "Rather than being isolated from the institutional mainstream, the programs and their staff were actively involved in consulting, collaborating, and problem solving with other departments and academic units" (p. 16). Researchers have also identified collaboration between support services personnel and developmental instructors as important (Center for Student Success, 2007; McCabe & Day, 1998; Sperling, 2009). According to Arendale (2010), "Collaborating helps learning assistance programs that have sometimes operated at the margins of the college to become more nested in the campus learning environment. In addition, collaboration creates powerful allies for support, resources, and team building to increase desired student outcomes" (p. 95).

**Alignment between and among developmental and nondevelopmental courses.** Several studies identify alignment between and among remedial and subsequent college-level courses as crucial to student, and, in turn, program, success (Arendale, 2010; Center for Student Success, 2007; McCabe & Day, 1998; Sperling, 2009). According to Boylan (2002), "Failure to ensure that there is a match between the exit requirements of developmental education and the entry requirements for the college curriculum is one of the biggest

mistakes a developmental program can make” (p. 89). Boylan and Saxon (1998) found that programs that ensured alignment between exit and entry requirements had higher retention rates than programs that did not ensure such alignment. In addition to vertical alignment between sequential courses in a single department, it is also important to consider horizontal alignment—across departments but between courses often taken concurrently—for possible links between developmental courses and nondevelopmental courses.

**Ongoing, systematic program evaluation.** Utilizing ongoing and systematic evaluation is among the most recommended practices in the literature (Arendale, 2010; Boylan, 2002; Boylan & Saxon, 1998; Center for Student Success, 2007; McCabe & Day, 1998; Schwartz & Jenkins, 2007; Sperling, 2009). As Arendale (2010) explains, “Best practices become ineffectual without sustained and comprehensive evaluation” (p. 101). Boylan, Bliss, and Bonham (1997) found that systematic evaluation was positively associated with higher retention and pass rates in developmental courses at both two-year and four-year institutions. Boylan (2002) defined “systematic evaluation” as evaluation that is “done at regular intervals,” “part of a systematic plan,” “both formative and summative,” “use[s] a variety of measures,” and “is shared with a variety of audiences” (pp. 39-40). Such evaluation is a key requirement for programs seeking certification

from the National Association for Developmental Education (NADE).

**Adjunct faculty integrated within the program and college community.** Developmental programs that use adjunct instructors have been found to be the most successful when adjuncts are well integrated within the program as well as the overall college community (McCabe & Day, 1998; Schwartz & Jenkins, 2007; Sperling, 2009). Boylan (2002) reports that adjuncts at the best practice programs in his study were regarded as valued resources, included in departmental meetings, and encouraged to take part as “full members” of the program: “The most effective programs provided adjunct faculty with the same opportunities as full-time faculty” (p. 56).

**Professional development and other training offered to faculty.** Studies also recommend providing professional development opportunities and other training to both full-time and adjunct

faculty (Arendale, 2010; Boylan, 2002; Center for Student Success, 2007; Schwartz & Jenkins, 2007; Sperling, 2009). At the best practice institutions in Boylan’s (2002) study, for example, adjunct faculty were provided orientation programs and manuals and were also mentored by full-time faculty. According to Boylan (2002), “professional development...insures [that] those who work with developmental students are aware of the best of current research, theory, and practice,” which, in turn, “increases the likelihood that those who work with developmental students utilize the best available theories, models, and techniques in teaching courses and providing services” (p. 46). Research has linked professional development to positive program outcomes. Boylan and Saxon (1998), for example, found that students in programs that emphasized professional development had higher pass rates on a state competency exam. Boylan, Bliss, and Bonham (1997), meanwhile, found that students in tutoring programs that incorporated tutor training had higher first-term and cumulative GPAs, retention rates, and higher pass rates in developmental English courses.

**Comprehensive support services provided.** Offering comprehensive learning support services such as academic advising and personal counseling is often cited as an essential practice for developmental programs (Arendale, 2010; Boylan,

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2002; Center for Student Success, 2007; McCabe & Day, 1998; Schwartz & Jenkins, 2007; Sperling, 2009). Such services have also been found to have a positive influence on student outcomes. Kulik et al. (1983) found that the presence of comprehensive support services was associated with higher rates of student persistence and higher GPAs. Additionally, Boylan and Saxon (1998) reported that the more comprehensive the services provided, the more likely underprepared students in Texas were to pass a state-mandated exam. According to Boylan (2002), support services must be not only comprehensive but also coordinated. Among the services he recommended are skills assessment, learning assistance centers (LACs), tutoring, individualized instruction, study skills courses, and advising.

**Students offered accelerated options for completing developmental coursework.** One of the practices gaining prominence more recently in the literature is offering students accelerated options for completing developmental coursework. According to the Community College Research Center (CCRC; 2013), "Mounting evidence suggests ... that accelerated developmental models—such as shortening developmental sequences and mainstreaming upper level developmental students into college-level courses with mandatory supports—lead to improved outcomes for these students" (p. 11). The CCRC studied the Community College of Baltimore County's Accelerated Learning Program (ALP), which mainstreams students into college-level writing courses and enrolls them in a mandatory support course. Their study found that ALP students were more likely to complete the first and second college-level writing courses than similar students who took the traditional upper-level developmental writing course. A separate CCRC study of the Community College of Denver's FastStart program, which compresses multiple developmental courses into 1 semester, found that math students were more likely than similar students in traditional course sequences to successfully complete the highest developmental math class and subsequent required college-level math courses (Edgecombe, Jaggars, Baker, & Bailey, 2013).

Several of the best practice institutions we interviewed employed accelerated models of stand-alone remediation and developmental education programs. MTSU, for example, no longer offers traditional developmental courses. Instead, since Fall 2006, the university has mainstreamed underprepared students into "prescribed courses," which are special sections of college-level courses that include additional content and academic supports.

Assuming successful completion of the courses, underprepared students can satisfy their general education math requirement in as little as 1 semester and as much as 2 semesters and their

English writing requirement in 2 semesters. There is also a prescribed reading course for students whose test scores are below a certain level and a study skills course for students enrolled in two or more prescribed courses. According to MTSU's Lucas, students who take the prescribed college algebra course are passing at a higher rate than students who are enrolled in the traditional college algebra course after completing the highest developmental math course previously offered. For English, survey respondent Lucas said, students in the highest prescribed writing course are passing at a higher rate than are students in the corresponding traditional writing course (M. Lucas, personal communication, February 16, 2014).

**Best practices in placement related to developmental education.** Thirdly, we examined best practices related to placement in developmental courses. This is a common area of concern with developmental education, as incorrect initial placement can impact student learning outcomes and retention (Brothen & Wambach, 2004). Although

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*Students often take the placement exams without a full understanding of the purpose or significance of the assessments.*

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the majority of the research regarding placement procedures is rooted in community college literature, four-year and research institutions have implemented many of the research-recommended practices with success (Brothen & Wambach, 2004). The inconsistent definitions of readiness for college-level work across institutions are an issue for placement policies (Safran & Visher, 2010). As a result, each institution needs to examine its own policies and procedures to best fit the organizational culture and resources available at that specific institution.

Systematic examination of the literature and our themed matrices evaluating the responses from the semistructured interview protocols was used to examine best practices related to placement. Five best practices emerged from this process.

**Use of multiple measures to determine placement.** Students should be given uniform, weighted, multiple measures to include in their overall placement portfolio, including both subject test scores and noncognitive questions to determine student placement (Colorado Community College System, 2013; Safran & Visher, 2010). Particularly at private colleges, the use of subjective measures in addition to standardized exams positively impacts students' readiness for advancement and exit from

remedial education (Colorado Community College System, 2013; Safran & Visher, 2010). Esau Tovar, Assessment Center Faculty Leader at Santa Monica College, notes that the nonplacement test score items in their students' placement portfolio—such as GPAs, references, ACT subscores if not used as placement test—can adjust their students' net placement score by as much as 9% (E. Tovar, personal communication, February 11, 2014).

**Creation and dissemination of placement exam prep materials.** Another common issue with placement in developmental courses is that students often take the placement exams without a full understanding of the purpose or significance of the assessments (Safran & Visher, 2010). Each college should develop materials that emphasize the importance of the placement exams and recommend that students prepare for the placement exams prior to their completion (Colorado Community College System, 2013). Tovar provides insight about advising students to prepare for placement exams at his institution:

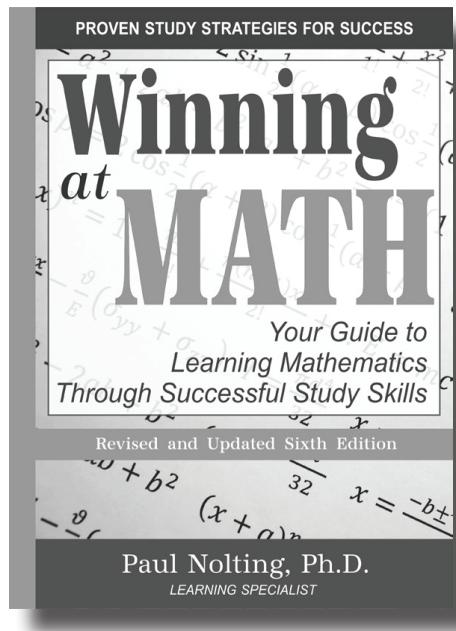
This has been our focus for the past three years. We continue to expand resources available through our Prep2Test program ([www.smc.edu/prep2test](http://www.smc.edu/prep2test)), as well as through individual webpages describing the content and format of each of our placement tests. On each of these pages we provide links to prep resources or sample tests developed internally.

The use of specific test preparation curricula to augment student placement scores is not unique to Santa Monica College. Harper College in Chicago sends students YouTube videos about the significance of the placement exams to watch prior to their completion of the assessment (A. Boatman, personal communication, January 11, 2014). The Community College of Denver sends each student a workbook with practice test questions and testing strategies in advance of administering placement assessments (A. Boatman, personal communication, January 11, 2014).

**Mandatory assessment for placement.**

Although Florida's community college system, among others, is currently field-testing students' self-placement in developmental courses, most research suggests that assessment placement recommendations should be mandatory, especially at four-year institutions (Boylan, Bliss & Bonham, 1997; Gerlaugh et al., 2007). Karen Yerby, Associate Director of Student Development Services at the North Carolina Community College System, notes students in the NC Community College System are required to take placement exams unless their multiple-measure portfolio indicates the student does not need to enroll in developmental coursework (K. Yerman, personal communication, February 19, 2014). At Santa Monica College, all first-time

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students enrolling in more than six academic units during their first semester are required to complete both an English/ESL and a mathematics assessment test prior to enrollment (E. Tovar, personal communication, February 11, 2014).

**Alignment of placement assessments and curricula.** Placement exam questions on the required assessments should match competencies identified in developmental coursework (Colorado Community College System, 2013). Unfortunately, placement assessments often fail to align with course content. The NC Community College System contracted with College Board to develop placement and diagnostic tests that are designed to assess the competencies taught in the developmental modules and courses (K. Yerman, personal communication, February 19, 2014). At Santa Monica College, discipline faculty conducted placement test content reviews and determined that the placement tests adequately assess entry and exit skills for courses in which the students are placed, both college-level and developmental (E. Tovar, personal communication, February 11, 2014).

**Offering corequisite and supplemental learning opportunities.** Another best practice in developmental education placement is to offer a corequisite learning support class for students who are close to the placement score threshold and

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### *Placement assessments often fail to align with course content.*

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would like to enroll in the next course (Colorado Community College System, 2013). In Summer 2013, Santa Monica piloted a Summer Jams program to expedite students' course trajectory. Even though few students decided to retest at the end of the summer acceleration/corequisite learning program, the college looks to expand the program this summer and in the summer of 2015 and will further emphasize the opportunity to retest (E. Tovar, personal communication, February 11, 2014). The University of Texas-Austin employs a two-pronged approach. Says survey respondent Larry Abraham, Associate Dean of the School of Undergraduate Studies:

Students are placed into developmental courses according to state mandated rules. Students who do not achieve the minimum state-determined score on the SAT, ACT, or high school exit exams must take the Texas TSI Assessment (a standardized assessment of math, reading, and writing designed to determine college readiness). Students who

do not meet the state-determined minimum score on the assessment are then either placed into the developmental course in the appropriate area (UT only has one level of developmental course work for each subject area; we do not have multiple levels of developmental coursework), or are placed into an accelerated remediation plan, which includes enrollment in an entry-level credit bearing course and a 1.5 hour/week supplemental class that supports their efforts in the credit bearing course. The latter option is mandated by state rules and is only available for "bubble" students who are higher performing students in need of developmental courses. The state of Texas designates this supplemental help, conducted by an instructor of record, as a Non-course Competency Based Option, or NCBO. (L. Abraham, personal communication, February 19, 2014).

The local colleges in the NC Community College System are allowed to retest according to local college policy. Many colleges require students to complete study/prep materials before they can retest to place into a higher course (K. Yerman, personal communication, February 19, 2014).

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## Discussion

Each of the 20 best practices delineated previously represents one row within each phase in the proposed framework (see Appendix C). The columns of the evaluation rubric represent a 5-point Likert scale, ranging from “no evidence of this practice” to “consistent and exemplary evidence of this practice.”

College personnel who use this framework to evaluate these facets of their institution’s developmental education programs should reassess their policies and practices on a regular basis to ensure consistency and ongoing program improvement. If multiple evaluators within an institution use this tool, we recommend frequent and upfront communication between the evaluators to ensure inter-rater reliability when using this instrument.

One limitation of this instrument is it only provides a framework for three facets of developmental education programs determined from a survey of seven institutions of various types. Further research is needed to expand this framework to include additional best practices.

## Implications for Practice

Practitioners can modify the best practices outlined in the framework for various institution types. The proposed instrument described in this article is malleable to be more specifically aligned to the needs of a two-year institution or a four-year institution, a research institution or a liberal arts college, a public or a private institution, or any other salient institutional characteristics.

Faculty and staff can also use data collected from application of this framework to verify the efficacy of their current developmental education models. This data can be compared to programs at peer institutions using this standard instrument. Practitioners can share their findings with administrators as evidence of the need for continued support and/or modification of programs.

Practitioners can use this framework as a model to develop additional phases (in addition to cost, structure and placement) to further build their assessment of developmental education programs. Faculty and staff who utilize this framework, in addition to the supplemental models, can share this instrument with career and academic advisors to provide holistic advising and to facilitate persistence and retention.

## Conclusion

Assessment of student learning outcomes and ongoing program evaluation are key practices in higher education. To ensure adequate preparation for governmental and regulatory requirements that request this information—and to ensure

institutions are providing students the best education possible—it is imperative to use measures and metrics to monitor institutional and student progress. The framework presented can serve as a tool for faculty and administrators who are asked to comply with increasing requirements to assess and report program costs, goals, and outcomes. Finally, administrators and legislators should note that best practices go beyond simply minimizing costs and focusing on the bottom line. Implementation and assessment of best practices can lead to a higher return on educational investment for students and institutions.

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#### Appendix A Best Practice Institutions

Institution/Individual Contacted	Reason Selected
Middle Tennessee State University/ Marva Lucas, Linda Clark	The University adopted an approach that mainstreams underprepared students into special sections of college-level courses that include additional content and academic supports, thus reducing time to completion of general education requirements.
Jackson State Community College /Betty Frost, Bobby Smith	The College has been noted for its success in reducing costs associated with developmental education and simultaneously increasing retention of developmental students using a computer-based approach.
North Carolina State Board of Community Colleges /Karen Yerby	The Board recently adopted a multiple measures approach to placement for developmental courses.
University of Texas at Austin / Larry Abraham	The New Mathways initiative has received national attention for its approach to providing relevant, challenging, field-specific mathematics content, including developmental math.
Arizona State University/ Scott Surgent, Fabio Milner	The Knewton mathematics program was featured in an article in <i>Scientific American</i> for its individualized approach to teaching developmental and non-developmental math.
The Community College of Denver /Nancy Story	The College has implemented an Accuplacer program, including workshops, test prep, and testing, to ensure students are appropriately placed in developmental or non-developmental courses.
Santa Monica College/ Esau Tovar	The College has won awards for its test preparation materials for placement testing.



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