A Link-Systems International, Inc. White Paper

Overcoming the Limitations of Developmental Education Placement Testing

The ComFit "Drill-down" Approach

August 4, 2014

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Version: 2.00

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About the Author

Barry Tarshis, the newest member of the LSI executive staff, is a professional writer, teacher, and digital learning specialist who is widely acknowledged as one of the country's leading authorities on technology-based approaches to boosting academic achievement.

A graduate of the University of Pittsburgh and a former writing instructor at Fairfield University, Mr. Tarshis is the founder and former CEO of ComFit Learning, the company that developed the latest addition to the LSI product line—The ComFit Online Learning Center. He has written or co-written more than 30 books, and has published more than 200 articles and essays in such publications as *The New York Times Book Review*, *New York*, *The New York Times Op-Ed,* and *Financial World*.

The writing-related books that Mr. Tarshis has written or co-written include *How to Be Your Own Best Editor*, *How to Write Like a Pro*, *How to Write Without Pain*, *Grammar for Smart People*, and *Word Memory Power in 30 Days* (with Peter Funk).

Among the many special events for which Mr. Tarshis has been a featured speaker are several regional TRIO conferences, the Columbia University MBA Writing Program, the Inc. 500 conference, and the Corporate Electronic Publishing Conference. His more than 100 television and radio appearances include *The Today Show*, *The CBS Morning News*, *CNBC Live*, *Monitor*, and National Public Radio.

Given the important role that assessment and placement play in defining students' college careers, researchers and policymakers should place a high priority on developing more nuanced placement methods…In particular, assessments that are more diagnostic — which delineate particular skill weaknesses and strengths — would help practitioners better understand the level of students' deficiencies (or lack thereof) while also providing clearer guides for classroom practice and instruction.

Elizabeth Zachary Rutschow and Emily Schneider

***from* Unlocking the Gate:**
What We Know About Improving Developmental Education

The Big Picture

The alarmingly low graduation rate of first-year community college students who get funneled each year into non-credit bearing developmental classes is forcing community colleges throughout the United States to take a hard, analytical look at many of the practices and policies that have long been accepted as the bedrock principles of a successful developmental education program. And one such practice that has come under increased scrutiny as of late (and has now begun to kindle considerable discussion among reform-minded developmental education specialists) involves the role that placement tests (most notably Accuplacer and COMPASS) should be playing in the overall developmental education process.

To be sure, no one is questioning the need in developmental education for a reliable and cost-effective method of determining (1) which students in any cohort of first-year students are academically unprepared for college-level courses; and (2) what remedial "prescription" is best suited to the learning needs and career goals of those students.

But the question being raised by reform-minded developmental education specialists has less to do with whether placement tests are, in fact, successfully meeting the objective they were originally created to meet. It has more to do with whether the overall developmental process would be better served if, instead of simply identifying those students who may be in need of remedial help and then assigning those students to a "one-size-fits-all" class, the process could shed more diagnostic light than it is now shedding on what specific weaknesses need to be targeted throughout of the remediation process.

Regardless of what current exams may do, the imperative of increasing graduation rates requires indicators and tools that can be used to enhance success, not just measure readiness in an abstract sense.

Pamela Burdman

***from* Where to Begin? The Evolving Role of Placement Exams for Students Starting College**

Our interest at Link-Systems International in the assessment and placement component of developmental education programs is rooted in our company's long-standing commitment to helping community colleges put research-based technology solutions to productive and cost-effective use in their efforts to increase retention and graduation rates. This interest, however, has taken on a new dimension by virtue of our recent decision to acquire the ComFit Online Learning Center, an academic support resource whose features and capabilities are highly relevant, in our view, to the efforts now underway in the rapidly growing number of community colleges that recognize the limitations of the traditional approach to assessment and placement—and are looking for reliable, cost-effective ways to overcome these limitations.

In this paper, we review recent research into the relationship between assessment and placement practices and student success rates, and we will be focusing as well on the role that the ComFit Online Writing Center can play in bringing about a greater and more productive degree of cohesion to this relationship.

Background

According to recent estimates, roughly 92% of community colleges in the U.S. rely either primarily or exclusively on placement test results to identify first-year students who, without some form of remediation, are unlikely to succeed in college-level courses. (Hughes & Scott-Clayton, Assessing Developmental Assessment in Community Colleges, 2012) The placement test of choice in all but a handful of these schools is either Accuplacer or COMPASS—and, in some cases, both.

The fact that placement tests in general and Accuplacer and COMPASS in particular have become such an entrenched component of developmental education can be best understood in the context of four core assumptions:

1) It is reasonable to expect (more so today in today's open-admissions era than ever before) that a significant percentage of first year college students will not be academically prepared for the rigors of college level courses. (The current estimate for "unready" first year community college students now hovers at 60%.) (Vishner, 2013)

2) It is in the best interests of everyone-- students, schools, and American society as a whole-- to have in place a process that can reliably identify as early as possible those incoming students who are in need of remedial help.

3) Whatever other methods a school may elect to use in its screening and placement protocols, there needs to be at least one method that is not only standardized—that is, requires all test takers to adhere to the same testing guidelines and the same scoring system but also has a proven record of predictive validity.

4) Quite apart from its being standardized and having a reliable level of predictive validity, a placement testing instrument has to be inexpensive and logistically efficient to administer.

It should be noted that even the most vocal critics of the status quo in placement testing acknowledge that no placement testing system is perfect and that there is no practical way to prevent a certain degree of "misplacement"—that is, identifying as "unready" those students who are fully capable of achieving success in college-level work.

So there is general agreement that, whatever their shortcomings may be, Accuplacer and COMPASS satisfy all four of these criteria. Judith Clayton-Scott of Columbia University Teachers College, for example, notes in a widely quoted study published in 2012 that considering how short they are, the predictive validity of Accuplacer and COMPASS is "quite impressive." (Scott-Clayton, 2012)

But as Clayton-Scott argues in this same study and in an earlier study she worked on with her Teachers College colleague, Katharine Hughes, the barometer we use to evaluate the effectiveness of any single component of the developmental process should not only take into account how successfully that component is fulfilling the function it was originally designed to fulfill. It must also take into account the extent to which that component is contributing to the primary goal of any developmental education initiative: providing students with whatever help is needed to increase their chances of obtaining a

degree. (Hughes & Scott-Clayton, Assessing Developmental Assessment in Community Colleges: A Review of the Literature, 2010)

It is in the context of this broader view of how best to evaluate the overall utility of a specific development practice that the "if-it's-isn't-broken, don't-fix-it" argument regarding the current placement testing process begins to weaken.

In a paper published in 2012, Clive R. Belfield and Peter M. Costa concluded that the findings of a large-scale study they conducted in the New York State community college system suggest that "placement test scores are not especially good predictors of course grades in developmental courses." (Belfield & Crosta, 2012) Pamela Burdman begins the study she conducted for "Jobs for the Future" in 2010 by asserting that placement tests results "show little correlation to students' future success." (Burdman, 2012) And in a study he published in 2013 with his colleagues at the Community College Research Center, Thomas Bailey found a higher rate of academic success among students who "ignored the referral" to a developmental course and chose instead to enroll directly into college-level courses than among students who had complied with the referral. (Bailey, Smith-Jaggars, & Scott-Clayton, 2013) This finding led Bailey to conclude that, "despite its goals, remediation may be detrimental to some students."

In fairness, it should be pointed out that the overall success of the development program itself—as measured by the degree-completion rate—almost never hinges on what happens during any single component of the developmental process. All of which is another way of saying that even if it were possible to develop a screening and placement tool that had greater predictive validity and was easier to administer than Accuplacer and COMPASS, it's questionable whether these improvements would automatically translate into higher graduation rates.

So it is our view—and a view that is strongly supported by what we've learned from our own research and experience—that what needs to happen in developmental education in order to increase graduation rates is not so much a wholesale dismantling of any single practice, such as making placement testing voluntary rather than mandatory, or eliminating developmental classes entirely. It is much more a matter of thoughtfully and strategically integrating into current practices an outcome-oriented combination of ideas and resources that can bring more cohesion to the overall developmental process.

With this goal in mind, we will now discuss the multitude of ways that the newest addition to our award-winning suite of technology based solutions—the ComFit Online Learning Center—can play an important role in this integration process.

An Overview of the ComFit Online Learning Center

The ComFit Online Learning Center is a web-based academic support resource whose content and functionality are closely aligned to the goals and priorities of community colleges and other higher-ed institutions seeking new, practical, and affordable strategies to increase the graduation rate of first-year students.

The specific features and capabilities of ComFit that underlie this alignment are as follows:

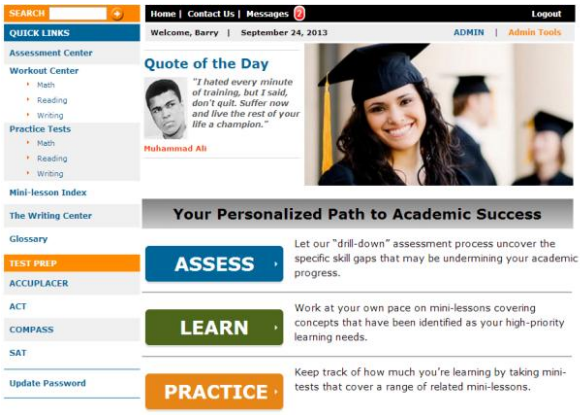

Figure 1 -- The ComFit Learning Center Web Site

- A laser-like focus on the basics of reading, writing, and mathematics
- A "drill-down" assessment process that creates an individualized improvement path for every student
- A mastery-driven learning model that does more than simply "present-and-test;" it also walks students through a multi-step process that mirrors the give-and-take of a one-on-one tutoring session
- Time-saving, instructor-friendly tools for tracking student performance, generating reports, and documenting group progress
- A collaborative approach to cost-effective implementation

The learning model that is the pedagogical basis of the ComFit Online Learning Center draws its theoretical basis from a wide range of interdisciplinary studies, but it has been influenced, in large part, by the work of two of the most prominent names in cognitive science: K. Anders Ericsson and John Sweller.

Ericsson is a Florida State University cognitive psychologist who has spent nearly 30 years studying the attributes and practices (apart from innate talent) that differentiate expert performers from their less accomplished counterparts. Sweller is a University of Adelaide educational psychologist whose theory (the Cognitive Load Theory) on how the brain processes and stores information during learning activities has been one of the major influences over the past 25 years in technology-based instructional design. (Sweller, 1994)

Listed in Table 1 are the six cognitive-related areas that form the basis of the Comfit model.

The Research Underpinnings of ComFit's Learning Model

LEARNING FACTOR	COMFIT ALIGNMENT
Motivation	Our combination of our student-centered, individualized content and easy-to-navigate functionality keeps students *actively engaged* in the learning tasks at hand. It also heightens the degree to which learners are motivated by *intrinsic* factors—an interest in the learning task itself, as opposed to external rewards.
Self-regulation and metacognition	The emphasis our model places on "step-by-step", process-driven learning, coupled with the ability of students to learn at their own pace and to track their own progress, builds self-confidence. More than simply helping students gain the knowledge and acquire the skills that underlie academic learning, our model helps student to learn how to learn.
Structured instruction	ComFit's instructional content is structured and delivered in a carefully scaffolded manner, consistent with the core elements of Cognitive Load Theory. Content likely to be unfamiliar to students is presented in bite-sized chunks and connects wherever possible to knowledge and skills that students have previously learned or mastered. Inputs unrelated to the learning task at hand are minimized.
Deliberate practice and frequent, knowledgeable feedback.	Our "fitness-center" approach to skill-building sets into place an accelerated improvement process based on the idea that the most efficient way to develop a skill is through a combination frequent, highly focused practice, and timely, knowledgeable feedback. ComFit's drill-down assessment process makes it possible for students to focus their practice sessions on those specific skill gaps that need be overcome. And because ComFit's skill-building process is process-oriented, it doesn't simply "correct." It spurs learners to reflect upon the thought process necessary to make whatever corrections are necessary.

Table 1–The Research Underpinnings of the Comfit's Learning Model

A Closer Look at ComFit's Assessment Methodology

The assessment methodology that anchors the learning model of the ComFit Online Learning Center parallels in several key respects the methodology that underlies traditional assessment instruments—but with one significant difference. In addition to measuring overall proficiency in a particular subject, ComFit's assessment process "drills-down." In other words, it identifies, to a granular degree, the specific skill gaps that are most likely undermining an individual student's ability to reach his or her academic potential.

The "drill-down" capability of ComFit's assessment process is a direct outgrowth of a pedagogical philosophy that was set into place when ComFit was first introduced nearly 15 years ago. The idea from the start has been to create an assessment process whose ultimate aim is not simply to assign a "grade" but to provide the foundation for highly targeted skill-building and long-lasting improvement. The objective has always been to ensure as much as possible that both students and instructors are aware from the start of what learning goals need to be met—and what specific skills and knowledge gaps need to be addressed in order for meet those goals.

So it is that once a student has completed any of the assessments or practice tests available on ComFit, the feedback includes not only a proficiency tally, but a comprehensive list of mini-lessons keyed to the concepts covered in questions that have been incorrectly answered**.**

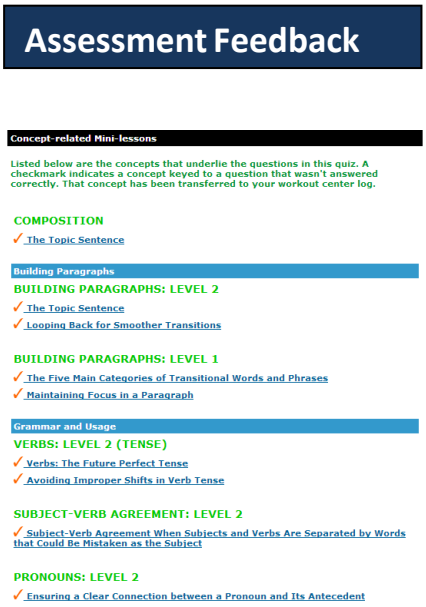

Figure 2 – Assessment Feedback

The primary reason that ComFit can deliver this degree of diagnostic detail has to do with the protocol used to create the multiple-choice questions for each assessment.

To begin with, the multiple-choice questions in a typical ComFit assessment are constructed in a way that reveals the *specific* skill gap that may have prevented a student answering the question correctly. Equally important, though, is the fact that *incorrect* answer choices in each assessment are constructed with the same degree of care, albeit with a different goal. What happens in these incorrect answer choices is that the specific concept being measured in the question is being applied properly, but the answer choices containing errors are related to a *different* concept.

The result: a typical question in a ComFit assessment uncovers not just one but two skill gaps that need to be addressed during the remediation process.

How the drill-down process helps instructors

The fact that ComFit's "drill-down" capabilities provide students with a detailed picture of their learning needs provides obvious benefits to students. But this feature of ComFit is of great value to instructors as well.

Here's why. Once a group of students has completed an assessment, instructors can quickly access a report (it's called the Group Learning Needs Report) that yields two important pieces of information: (1) the number of students in any group who need help with a specific concept; and (2) the names of those students.

Armed with this information, instructors are better prepared than would otherwise be the case to tailor lesson plans that take into account the learning needs of the group. In addition, this information makes opens up an opportunity to offer small-group tutoring to students with similar needs, thereby enabling schools to provide tutoring to more students but without having to increase staffing levels.

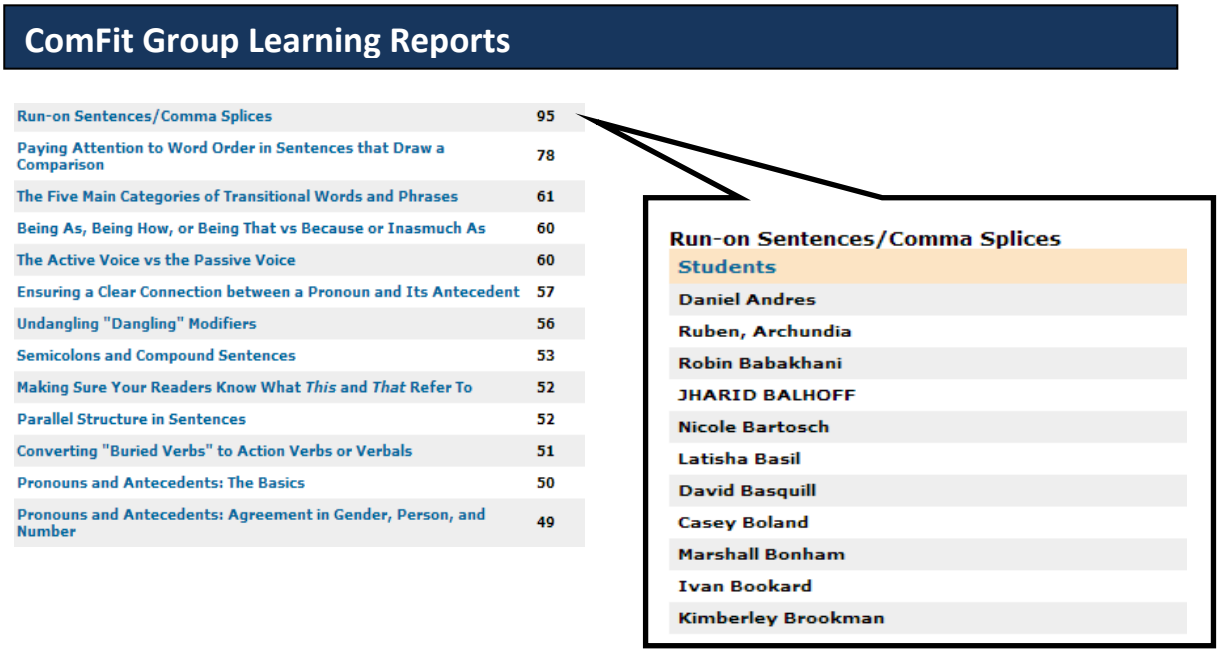

Figure 3 -- ComFit Group Learning Report – All Learning Objectives

Figure 4 – ComFit Group Learning Report -- Individual Learning Objective Student Breakout

Putting ComFit to Work in Alternate Approaches to Developmental Ed

There has been a significant increase over the past several years in the number of higher-ed institutions that are either launching or planning to launch remediation initiatives specifically designed to supplement, change the structure of, or, in some cases, replace traditional standalone developmental courses. These initiatives include—but are not limited to—pre-enrollment developmental bridge programs; mandated tutoring sessions for students enrolled in developmental courses; co-curricular options (i.e., students can take a higher-level credit bearing course at the same time they're taking the non-credit bearing prerequisite) ; and modular, workshop alternatives (known generally as the Emporium Model) to semester-long courses.

The protocols in these and similar initiatives differ widely, but they all share a common goal: to increase the percentage of "unprepared" first-year students who ultimately go on to earn a degree. And they share as well a common need for technology-based assessment, skill-building, and learning management resources especially when it comes to assessment and individualized skill building. The capabilities of ComFit are uniquely compatible with those needs. ComFit's drill-down assessment process, for example, significantly reduces the time and effort it would normally take the instructors and tutors involved in any these initiatives to determine what specific skills and knowledge gaps are undermining each student's chances for academic success. ComFit's process-oriented learning model reduces the learning curve for students who have poor overall study skills. And because ComFit's content encompasses all three of the core academic subjects—reading, writing, and mathematics—there is no need for students to switch from one platform to the next when they are working in computer labs. Instructors and administrators enjoy the same convenience when it comes to tracking student progress and generating reports.

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About Link-Systems International, Inc.

LSI Mission Statement

Link-Systems International is the leader in providing integrated technology and service solutions to educators in order to improve the quality of education and training, ensure student success and retention, and provide affordable education to students, workers, and their families.

Our Company

Link-Systems International, Incorporated (LSI) is a privately held technology services and content development company that has been dedicated to student success and student retention in K-12 education, higher education, and workforce development education since 1995.

Our core technologies include a very flexible online tutoring/teaching platform, an online grade book, an online algorithm engine with metadata and workflow capabilities, and an online business intelligence/data mining technology designed to provide real-time alerts regarding student/school/teacher performance, attendance, and other metrics.

Our core services include content development, consulting, and online tutoring through our NetTutor® brand.

Our customers include K-12 publishers, higher education publishers, virtual high schools, higher education institutions, technology companies, and joint programs dedicated to providing online educational content to members of organized labor and their families.

We are located in Tampa, Florida, a few miles from the University of South Florida. Along with the Moffitt Cancer Center—one of the premier medical research institutions in the United States—USF has excellent engineering, computer science, and mathematics programs, providing LSI many of its employees.

Launched in 1995, LSI has created several unique and powerful technologies that facilitate the sharing of content over the Internet. We specialize in mathematics, technical, and scientific content—the most critical types of online content with respect to student success, and the most difficult to share online.

Today, LSI is recognized by a variety of publishers and educational institutions not only for its high-quality work and dedication to meeting commitments, but also for its unique ability to develop digital strategies that are custom-tailored to the needs of its customers.

Our partners and customers have come to value and trust LSI because we are the only company that offers a complete suite of interoperable solutions that address the entire life cycle of the

student, with an overt focus on the bottom line: student success and student retention. That student life cycle includes:

* Online Assessment and Placement
* Content Authoring
* Content Recovery, Content Management, and Metadata Management
* Online Teaching, Collaborating, and Tutoring
* Online Homework and Testing
* Online Grade Book Technologies
* Online Real-Time Performance Monitoring and Intervention

Through a relationship with LSI, educators acquire the ability to construct a complete, holistic approach to student success and student retention.

Corporate Executive Team

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About Academic Research at LSI

LSI would like to invite you to join us in our ongoing research into the effectiveness of online educational methods in real-world settings. We can:

- help you launch your own original inquiry into aspects of online teaching and learning;
- locate partners or technical assistance for your study; and
- share with you the results of recent research into Web-supported education.

Contact our Academic Research Department for details.

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