

**GED® Preparation through Distance Learning
in Rural Pennsylvania**

A report by

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August 20, 2010

This project was made possible, in part, by a grant from the Center for Rural Pennsylvania, a legislative agency of the Pennsylvania General Assembly.

In-kind support for this study was provided by the Institute for the Study of Adult Literacy at The Pennsylvania State University. The authors are grateful for the recommendations, expertise, and consultation services of Destiny Long, Project Coordinator for the Bureau of Adult Basic and Literacy Education's (ABLE) Distance Learning Project. Barbara Van Horn, Co-Director of the Institute for the Study of Adult Literacy at Penn State, was instrumental in conceptualizing the study. Margaret Patterson, Director of Research at the GED® Testing Service, provided invaluable information about research on GED testing, policies, preparation, and outcomes. The following institutions and individuals graciously provided access to data: the Bureau of ABLE provided e-Data records and cost data from e-Grants; Carol Shefrin (Director, TIU 11 Community Education Services) shared Distance Learning Project student survey results and cost data; Janice Wessell (former GED Administrator, Bureau of ABLE) provided data on GED Test Centers; and Amanda Harrison-Perez (Chief, Division of Special Programs and Projects, Bureau of ABLE) provided data on GED testing fees. Lastly, the authors wish to thank the program personnel, students, and key informants who shared their knowledge of distance learning in rural Pennsylvania.

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EXECUTIVE SUMMARY

The purpose of the study was to investigate the types, usage, and effectiveness of distance learning (DL) for GED® candidates in rural Pennsylvania and to provide information policy makers and adult educators can use to enhance DL GED study options. Specifically, the study sought (1) to identify the types and usage of GED distance education in rural Pennsylvania; (2) to describe the demographic characteristics and participation patterns for rural GED students in DL and face-to-face classes; (3) to determine the effectiveness of DL in preparing rural students to pass the GED Tests; (4) to assess the cost of DL provision; (5) to examine the advantages and disadvantages of DL for GED study; and (6) to conduct a literature review and suggest policy implications.

The mixed methods study employed multiple data sources. These included statistical analyses of rural GED student records from the Bureau of Adult Basic and Literacy Education (ABLE) e-Data system and the GED Demographics survey; a telephone survey of non-ABLE DL providers (n=4); and telephone interviews with a key informant with extensive knowledge of the GED credential, and with nine DL staff members and 17 students from eight ABLE-funded programs. Other data included a list of rural GED testing sites; the ABLE-funded Distance Learning Project's student record, survey, and cost data; a 2007 survey of ABLE-funded DL agencies; a literature review of DL in adult education; and descriptions of DL and GED services in other states.

From July 1, 2004 to December 31, 2008, 4 percent (975) of rural students in ABLE-funded GED classes participated in DL, with 47 percent of their instructional hours in DL. Three-fourths of these students participated in DL and face-to-face instruction, but without the distance option, the remaining 25 percent would have had no adult education instruction. Only four non-ABLE funded organizations were identified that provide GED DL classes for rural students. Logistic regression analysis showed that DL is as effective as face-to-face classes in preparing students to pass the GED

Tests. The pass rate for rural DL students was 74.6 percent, compared to the national rate of 73 percent in 2008. The effectiveness of DL, coupled with the limited number of DL providers and students using these services, indicates great potential for the expansion of DL in rural regions.

The estimated average cost of DL provision for Pennsylvania adult learners (\$361 to \$688 per student) is comparable to other states. Students pay between \$0 (ABLE programs) and \$1300.

Print-plus-computer was the most common DL instructional format. Despite the limitations of print materials, they are widely used because programs and students lack the technological and financial resources that interactive, online instructional tools require. These results highlight the need to provide professional development and financial resources for technologically sophisticated instruction, and to ensure affordable broadband and computer access in rural areas.

Rural DL students tend to be young (65 percent are 25 and under), White (95 percent), low-income (60 percent) women (65 percent) with a 10th grade education (median). Distance learners are significantly more likely to be female and low income than face-to-face students. In addition, 22 percent of rural DL students are single parents; 35 percent are employed; and 38 percent receive cash or in-kind public assistance. A substantial minority (18 percent) of rural DL students have learning or other (e.g., physical, social) disabilities. These characteristics indicate a need for basic-level instructional resources and support services to overcome barriers to DL participation.

To take and pass the GED Tests, rural DL students need to access testing sites. In 2009 about three out of four rural Pennsylvania counties had at least one public GED testing site (n=37). The 11 counties with no public testing sites are ideal locations to add Test Centers or addendum sites.

DL offers students more options to study for the GED Tests, enhanced academic growth, convenience and flexibility, and the ability to combine GED study and work, to study independently and “at their own pace,” and to maintain confidentiality. These advantages correspond closely to

the characteristics of typical DL learners. Advantages for educational providers included increased enrollment, student retention, and performance on accountability measures, and expanded instructional offerings. The perceived disadvantages and challenges of DL were students' restricted computer and Internet access; limited awareness of DL's existence and value; insufficient DL funding; and pedagogical issues such as teacher-student communication, provision of timely help and feedback, and student struggles with isolation, time management, and difficult subject matter.

The policy implications are drawn from the research findings, recommendations by study participants, and examination of the scholarly literature and DL GED services in other states. First, the state should launch an aggressive campaign to promote the GED diploma and DL in rural areas. This campaign should target young adult dropouts, include organizations that work with out-of-school youth, and strengthen legislators' support for the GED and DL. Next, the state must create the infrastructure and provide the resources students need to participate in DL, for instance, by expanding access to broadband and computers and by providing social, academic, and financial support. Third, policy makers and educators can enhance DL GED study options by: creating an accelerated course for academically qualified persons; directing GED candidates to assessments aligned with the GED Tests; expanding the types of sites that offer DL study opportunities; and widening the range of ABE-approved instructional materials; linking instruction to postsecondary transitions; and protecting rural residents from unauthorized GED credential programs. Fourth, rural adults would benefit from more opportunities to take the Official GED Practice Test, more GED testing sites, and more detailed information about testing sites. Fifth, state and federal data reporting systems should accurately reflect DL student achievement. Increased funding for GED instruction via DL and ongoing professional development are also essential.

INTRODUCTION

Compared to urban residents, rural Pennsylvanians with low educational attainment tend to have more limited access to adult education, primarily because there are fewer adult education providers, people must travel a greater distance to reach providers, and public transportation is more limited. Distance learning (DL) is a promising way to enable geographically isolated youth and adults to obtain a GED® (General Educational Development)¹ credential, which is a prerequisite for pursuing postsecondary education and obtaining stable, higher-wage employment. In DL courses, “students may complete all or part of an educational program in a geographical location apart from the institution hosting the program” (United States Distance Learning Association, 2008), typically using print, television, video, radio, the Internet, or other technologies.

According to the 2000 U.S. Census, 19 percent of rural Pennsylvanians aged 25 or older had less than a high school education (Center for Rural Pennsylvania, 2003), compared to 12.6 percent statewide in 2008 (U.S. Census Bureau, 2008c). In 2005-06, 1.5 percent (3,721) of rural Pennsylvania students dropped out of high school, with nine (19 percent) of the 48 rural counties having a dropout rate (2.0 – 2.7 percent) above the statewide average of 1.9 percent (Pennsylvania Department of Education, 2008). Rural Pennsylvania’s low levels of educational attainment reflect these trends: “Only 45 [percent] of rural adults (ages 25–64) today have more than a high school degree versus 56 [percent] in urban areas” (Keystone Research Center, 2008).

These figures, however, underestimate the number of rural residents who need a GED, as they do not include individuals under 25. According to the 2006-2008 American Community Survey, 39,352 (40 percent) of the 16- to 19-year-old Pennsylvanians who were not enrolled in school did

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not have a high school degree (U.S. Census Bureau, 2008a). Among 18- to 24-year-olds statewide, 64,261 (13.7 percent) had less than a high school education (U.S. Census Bureau, 2008b).

Nationally, 16- to 24-year-olds accounted for 39 percent of all participants in state-administered adult education programs, including adult basic education (ABE), GED, and ESL (U.S. Department of Education, 2006). In 2008, 64.3 percent of all rural and urban GED test-takers in Pennsylvania were 16 to 24 years old (16-19=37.7 percent; 20-24=26.6 percent, GED Testing Service, 2009a). However, GED® Testing Service (2009a) data reveal that adult education services are not reaching potential GED candidates, as only 1.5 percent (23,645) of the 1.6 million Pennsylvanians without a high school education took the GED Tests in 2008.

Rural high school dropouts face distinct barriers to accessing GED preparation courses, including limited public transportation, prohibitively expensive private transportation, few affordable child care options, and a limited number of adult education agencies. As such, DL holds great potential for reaching students who would otherwise be unable to enroll in a GED program or attend classes regularly (By the Numbers, 2007), including students living in remote areas, students who do not have reliable, affordable transportation, parents with young children and limited access to childcare, and those whose work schedules preclude regular class attendance (Tucho, 2000). As discussed in the findings, the cost of distance learning for students ranges from \$0 to approximately \$200 for GED courses, compared to \$600 to \$1300 for adult high school diploma courses.

To date, the use of DL for non-formal and adult basic education, both in the U.S. and internationally, has received little scholarly attention (Fleischman, 1998). The existing U.S.-based studies suggest that although the quality of DL services is highly variable, DL can be as effective and cost-efficient as face-to-face education. The U.S. Department of Education's (Means, Toyama, Murphy, Bakia, & Jones, 2009) meta-analysis of online learning, for example, found that, on

average, online students “performed better than those receiving face-to-face instruction” (p. ix) and that online instruction is effective “across different content and learner types” (p. xv), including adult students. Although the meta-analysis did not include ABE students, the findings suggest online learning holds promise for use with this population. Similarly, an evaluation of California’s DL initiative (Porter, 2004) showed that in 2001-2002 adult ESL distance learners had similar retention rates as traditional learners, were more likely to complete the course, and showed substantial learning gains. This research highlights the importance of consistent, two-way communication between teachers and learners, selection of high-quality instructional content (Fleischman, 1998), and careful consideration of policy issues such as assessment of distance learners (Hooper, 2003).

The expansion of the Internet and broadband has created new possibilities for innovative types of DL. However, online distance education is still relatively rare in ABE because adult learners have had limited access to or familiarity with computers and the Internet (Askov, Johnston, Petty, & Young, 2003). Indeed, the characteristics of the typical GED student (low levels of income and education) match those of the 34 percent of rural Pennsylvanians without Internet access (CRP, 2008). Despite this digital divide, some states such as Pennsylvania, California, Missouri, and Virginia (eLearnVA, 2010; Sebastian, 2007) are experimenting with online programs for GED, ABE, and ESL students.

The Pennsylvania Department of Education’s Bureau of Adult Basic and Literacy Education (hereafter, Bureau of ABLE) administers GED educational services and offers DL for adults. In fact, Pennsylvania was one of the original states to participate in Project IDEAL (Improving Distance Learning for Adult Learners), an initiative of University of Michigan and the US Department of Education, with funding from the Office of Vocational and Adult Education (OVAE). The Bureau of ABLE and its contractor, the Tuscarora Intermediate Unit #11 (hereafter, TIU), began to offer

distance learning in 2001. They have been involved in DL through Project IDEAL's evolution, and continue membership in IDEAL as an alumni state. Each year TIU has expanded the use of DL for adult education through the Distance Learning Project (DLP) by using online and print-based marketing, providing professional development to adult education agencies, and offering varied class subjects and formats (online, print-based) to meet student needs.

The only prior investigation of DL in Pennsylvania was a 2007 survey of 131 ABLE-funded adult education programs conducted by TIU (By the Numbers, 2007). According to the survey, 78 ABLE programs were providing DL across the state. Analysis of e-Data, the ABLE web-based data management system, showed that in 2006-2007, 31 of 82 DL classes were classified as GED courses. Of the 906 students enrolled in ABLE-funded DL classes in 2006-07, 65 percent (586) resided in rural counties. Also, 79 percent (713) of DL students had less than a high school diploma or equivalent, indicating that the vast majority of Pennsylvania distance learners need to obtain a GED.

Although this study provided a first glimpse of DL for Pennsylvania's adult learners, we know little about the availability and use of DL in rural areas, the characteristics of rural adult learners who use these services, which organizations other than ABLE-funded agencies provide DL, or the effectiveness of DL compared to face-to-face GED courses. As such, this study can assist policy makers in making better use of DL to reach rural adults who wish to obtain their GED diploma, and in designing policies that support adult education agencies and adult learners alike.

GOALS AND OBJECTIVES

The purpose of the study was to investigate the types, usage, and effectiveness of DL for rural Pennsylvania GED students and to provide information policy makers and adult education professionals can use to create DL options that best support rural students' preparation for the GED Tests. The first goal was to identify which types of GED distance education (i.e., delivery system and

materials) are currently available to students in rural Pennsylvania and to estimate how many students per year currently use each method. This goal focused primarily on ABLE agencies—the chief provider of DL in Pennsylvania. The objectives under Goal 1 were (1) to analyze ABLE and Distance Learning Project (DLP) data to determine how many GED students in rural areas currently use DL, how many use specific delivery systems (e.g., pure distance or blended, meaning limited face-to-face interaction), and the types of materials used (e.g., computer-based or print); and (2) to conduct a survey to compile information about non-ABLE agencies that provide GED instruction via DL for rural adults, including the types of DL they offer and the number of students using each type.

Second, the project sought to identify the demographic characteristics and patterns of program participation for rural GED students using DL and to compare these to rural students in face-to-face GED classes. The first objective was to use e-Data (the Bureau of ABLE data management system containing quantitative information about every state-funded adult education program and their students) to identify salient demographic characteristics and educational factors (e.g., age, gender, race/ethnicity, low-income status, educational attainment, assessed skill level, educational goals) and participation indicators (e.g., total hours of DL instruction, duration of enrollment, median hours per week) for rural students enrolled in ABLE programs with the goal of obtaining a GED. The second objective was to use statistical analysis to identify key similarities and differences between rural DL and face-to-face GED students with respect to these demographic characteristics, educational factors, and participation indicators.

Third, the project assessed the effectiveness of DL compared to face-to-face classes in preparing rural students to pass the GED Tests. To that end, the ABLE e-Data system and the GED database were used to meet two objectives: (1) to ascertain the number and percentage of rural DL students (July 2004 to December 2008) who have passed one or more GED sub-tests and the entire

examination, and to calculate the median number of DL instructional hours needed to pass the GED; and (2) to test the effect of participation in DL compared to face-to-face classes for rural GED students with respect to the aforementioned outcomes, comparing the effectiveness under different circumstances and situations, such as prior educational attainment, skill level, educational goals, and related factors.

The fourth goal was to assess the cost of using DL to provide GED education for rural students, specifically by using data from the DLP and from non-ABLE agencies to calculate the cost per student per year.

Fifth, the study aimed to assess the advantages and disadvantages of using DL to support rural students' completion of the GED, primarily through interviews with staff and students in ABLE-funded DL programs serving rural populations.

The final goal was to suggest policy implications for enhancing the use of DL in rural Pennsylvania by (1) conducting a review of the literature on DL in adult basic education and (2) examining the research findings for policy recommendations.

RESEARCH METHODS

The study employed a mixed methods approach using existing quantitative data, a survey of non-ABLE DL providers, and semi-structured interviews with selected ABLE-funded DL staff and students. A mixed methods approach was most appropriate in this case because it can “provide the most informative, complete, balanced, and useful research results” (Johnson, Onwuegbuzie, & Turner, 2007, p. 129). Data sources, participants, and data collection and analysis procedures are described below.

Quantitative data sources and procedures

Creation of the Distance Learning Database

A merged database (hereafter, Distance Learning Database) was created using existing data from the Bureau of ABLE e-Data system and the GED U.S. Demographics survey. The Distance Learning Database included adults who met the following criteria: (1) participated in one or more ABLE-sponsored adult education programs from July 1, 2004 to December 31, 2008, (2) aged 15 or older², (3) lacked a high school or GED diploma, and (4) resided in rural municipalities as defined by the CRP.³ If an adult relocated from an urban to a rural municipality or vice versa during this time period, the data for that adult was excluded from the database. In addition, adults' GED scores for the same period were obtained from the GED scoring service database, which also contains data from the U.S. Demographics survey conducted by the GED Testing Program. All test takers are administered the U.S. Demographics survey, although they are not required to complete all of the questions. The GED scoring service records of ABLE participants who took the GED Tests during the study time period were matched with corresponding records in e-Data via social security number.

The database is comprised of e-Data records for GED students in rural municipalities in Pennsylvania who participated in one or more adult education programs sponsored by the Bureau of ABLE between July 1, 2004 and December 31, 2008. A GED student was defined as an adult who did not complete high school or already have a GED.

Variables in the Distance Learning Database were extracted from the three aforementioned databases. The *e-Data* variables included: county and municipality of residence, whether the adult

² For the purpose of this study "adults" and "adult learners" refer to these students aged 15 or older.

³ Rural municipalities have a population density of "less than 274 persons per square mile" or have a total population of "less than 2,500 unless more than 50 percent of the population lives in an urbanized area," as defined by the U.S. Census Bureau (Center for Rural Pennsylvania, n.d., p. 6).

is enrolled in a DL class, number of instructional hours in each class (DL or other types), whether the adult is in a GED class, pretest and posttest assessment scores, assessed skill level, dates of program entry and exit, date of birth, gender, race/ethnicity, highest grade completed upon program entry, low-income status⁴, employment status, educational goals, and whether the adult is part of a correctional program. Students receiving blended (hybrid) or pure DL services were differentiated since e-Data contains information on all classes each adult participates in. “Blended” DL adults attend DL *and* face-to-face classes, whereas “pure” DL students are only registered in DL classes. “Face-to-face” students receive no DL instruction. Most distance learners have some face-to-face hours for intake, orientation, and assessment. For the purpose of this study, “pure” DL students had completed no more than five face-to-face hours.⁵

The *GED U.S. Demographic survey* completed by GED test-takers also measures distance the adult traveled to the GED testing center, years out of school, and reasons for taking the GED test.

Quantitative data analysis

The Distance Learning Database was used to identify salient demographic and educational factors and participation indicators for rural GED students enrolled in DL programs and to assess the effectiveness of DL versus face-to-face classes in preparing students to pass the GED Tests.

Statistical analysis was used to identify key similarities and differences between rural DL and face to face GED students with respect to demographic characteristics, educational factors, and participation indicators. The Distance Learning Database was used to calculate the frequency distributions and measures of central tendency to obtain estimates of the number of rural GED students receiving DL services and of the different types of DL services (pure or blended) being

⁴ Low income adults were defined as those whose family income was no more than 70% of the federal income standard for a family of his or her size.

⁵ Five hours was chosen as the threshold because it can take learners up to five hours to complete program orientation and assessment (i.e., testing), both of which are expected to occur face-to-face.

received through ABLE-funded programs. The percentage of rural GED distance learners who used the Internet or print materials was derived from the subset of adults participating in the DLP.

Descriptive analyses of rural GED distance learners focused on learners' demographic characteristics and educational factors and the level of participation in adult education instruction. Similar analyses were conducted for adults participating in pure DL classes and those in a blended approach. Preliminary analyses assessed differences and similarities in demographic characteristics, educational factors, and participation indicators between rural GED adults participating in DL compared to those in solely face to face classes. In addition similarities and differences between "pure" and "blended" distance learners were compared. Logistic regression analysis was used to identify key similarities and differences between rural GED distance learners and face-to-face students vis-à-vis their demographic characteristics, educational factors, and participation indicators. Similar analyses were used to identify key similarities and differences between pure and blended distance learners. Logistic regression analysis was also used to determine the effectiveness of DL for passing the GED, while controlling for the extent of participation, educational factors on program entry, and demographic characteristics. A similar analysis was conducted in order to compare the relative effectiveness of the pure and blended distance learning approaches. Also included in the model were statistical interaction terms, which measure whether DL is more effective for rural GED students under specific circumstances and situations, such as prior educational attainment, skill level, educational goals, and related factors.

The *Distance Learning Project database* includes learners who participate in their DLP classes and who are in e-Data. The following variables were extracted: materials (workbook or online instruction) and Internet access (location, type) at time of intake. The unique student

identification code assigned to each adult by e-Data was used to merge data extracted from e-Data and the DLP. Additionally, DLP data were used to calculate cost per student.

Survey of non-ABLE DL providers

Instrument

A survey (Appendix A) was used to obtain data on non-ABLE agencies that provide GED classes via distance learning and that serve rural students. Some of the survey items were adapted from TIU's aforementioned survey of ABLE-funded adult education programs (By the Numbers, 2007). The non-ABLE survey included 15 fixed-choice items concerning the provision of DL, DL materials and delivery systems, the estimated number of students using each type, and the cost of DL. Three open-ended questions were used to elicit policy recommendations. Five questions solicited background information about the agency and respondent, and a final open-ended question provided the opportunity for additional comments and questions. The survey was pilot-tested with an out-of-state DL provider.

Sample

Non-ABLE providers were recruited using snowball sampling. The researchers asked the staff of the 80 ABLE agencies providing DL in rural areas to identify non-ABLE providers that offer GED classes via DL. A request for referrals was also sent to the listserv for ABLE providers. Finally, the non-ABLE providers that were identified were asked to name other DL providers.

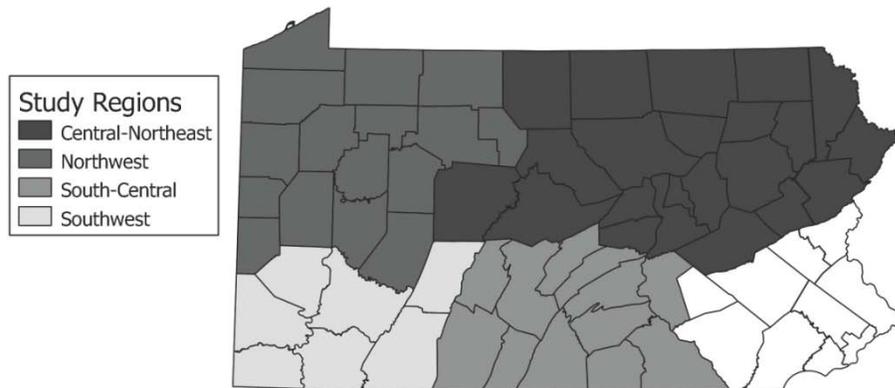
In all, these informants named 17 agencies that they believed offered DL classes for GED students in rural areas. Of these, nine were national-level, primarily private, for-profit educational programs such as My-GED.com. Although informants believed these programs served some students residing in rural Pennsylvania, the company headquarters were located out of state and

not subject to Pennsylvania legislation. These agencies were therefore excluded from the survey. Attempts to reach the companies to ask for data on DL students living in Pennsylvania were unsuccessful. In addition, two organizations did not offer GED classes via DL (one referred students to DL classes provided by another agency and the other offered face-to-face vocational training for youth). Another community-based organization offered a DL class through Ed2Go.com, but at the time of the study no one had enrolled. One agency did not serve any students in rural areas. Finally, an online high school diploma program serving a nationwide audience was located in Pennsylvania and thus eligible for the study, but, for unknown reasons, they declined to participate.

A graduate research assistant (Gungor) surveyed representatives of the remaining four agencies—all non-profits—via telephone. These agencies included a public television station, two community colleges, and a community-based organization that provides education and social services for Latinos. The latter organization offers individualized home study for students preparing for the Spanish GED Tests, which researchers considered a type of distance learning. Collectively, the non-ABLE agencies served the following counties, concentrated in the Central-Northeast, Southeast, and Northwest regions, as defined by the Bureau of ABLE (see Figure 1): Chester (n=2), Columbia, Delaware, Erie, Lackawanna, Luzerne, Northumberland, Pike, and Wayne. One agency served the whole state. One of the agencies also served a county in Delaware and a county in Maryland. The organizations had provided GED classes via DL for 3.5 to 8 years (average = 5.5).

All survey respondents were administrators or program coordinators. Each received a \$25 gift card for participating in the study. Instead of recording the survey, the research assistant typed responses in a Microsoft Word document while conducting the survey. This enabled him to capture nearly verbatim responses to open-ended questions about policy recommendations.

Figure 1: Pennsylvania Study Regions



Analysis

Descriptive statistics were calculated for fixed-choice items. Content analysis (i.e., grouping similar responses) was used to analyze the policy recommendations and additional comments.

Interviews with DL staff and students

Interview protocol

Using the study objectives as a guide, two semi-structured protocols were developed for interviews with ABLE-funded program personnel and students engaged in GED via DL. The staff protocol (Appendix B) elicited respondents' viewpoints regarding the advantages and disadvantages of DL for agencies and students, state policies pertaining to DL, the costs of DL provision, and the use of the Internet in DL. Questions for students (Appendix C) explored their previous experiences in GED and DL classes (e.g., reasons for enrolling in a DL class, advantages and challenges of DL), perceived support from program staff, program materials, and use of technology. Both protocols were pilot-tested with two DL teachers and one GED student, respectively, from Northwest rural Pennsylvania. The pilot data from the pilot interviews were included in qualitative analyses because only slight revisions were made to the protocols.

Sample

To ensure equal demographic representation across Bureau of ABE regions (Central-Northeast, Northwest, South-Central, and Southwest, see Figure 1), the researchers intended to select the two programs that served the highest percentage of the region's rural DL GED students. (Rurality was determined by ZIP code using e-Data records.) The Southeast region and Philadelphia were excluded because they include only urban counties. In the Central-Northeast region only two agencies offered DL for GED students, and one of these served just two rural students. Thus, we selected only one Central Northeast agency. To compensate for this, a third agency in the South Central region (Distance Learning Project) was included. This program is unique in that it provides only DL instruction and serves the entire state rather than a specific geographic region. All other selected agencies provided a combination of blended and pure DL services via online and print-based media. In addition, when agencies filled all their online DL spots (licensing agreements with some DL companies limit the number of "seats"), they sometimes referred students whom they could not serve to the DLP. These are considered both "provider" and "referral" programs.

Researchers contacted the directors of the selected programs to identify the staff person most knowledgeable about DL classes, typically the director or program coordinator. This person was then asked to participate in an interview. Personnel from two of the selected agencies declined to participate because the program lost its funding or a staff person due to the 2009-2010 state budget crisis. In those instances, the agency serving the next highest percentage of the region's rural DL GED students was selected. In all, the following agencies participated in the study: one from Central-Northeast, two each from Southwest and Northwest, and three from South-Central. In addition, a staff member from an agency in the Northwest participated in a pilot interview, which is

included in the analysis. Telephone interviews with staff (six women and three men) were conducted by a graduate research assistant (Drayton) and lasted 70 minutes on average.

The staff from these agencies were asked to provide a list of all students who met the following criteria: (1) is at least 18 years old (interviews with minors would have required parental consent); (2) is studying for the GED; (3) has participated in the DL GED program during the current program year (July 1, 2008 to June 30, 2009 or July 1, 2009 to June 30, 2010); (4) lives in a rural ZIP code; and (5) has completed at least 50 hours total, including DL and face-to-face instruction, during the program year. (The minimum number of instructional hours was later reduced to 12 because some agencies had no students with 50 hours.) The staff person was provided with rural ZIP codes in their region (derived from e-Data), which s/he then used to determine which students were rural. After completing the staff interview, one of the agencies was unable to identify students because its funding was cut. Two Distance Learning Project students with the same rural ZIP codes as those served by the agency were selected instead.

Two students from each program were selected using a random number generator. If agencies provided a list of five or fewer students that matched the selection criteria, the students with the most hours were contacted first, since they had more extensive knowledge of the program than newer students. Selected students received a letter from Penn State researchers indicating they would receive a call about joining the study. Due to the low response rate from these calls, the sampling strategy was adjusted as follows: (1) researchers asked participating agencies to identify additional students who met the criteria; (2) if only one student from a given ABLE program could be interviewed, the researchers selected Distance Learning Project (DLP) students who lived in same rural areas covered by the ABLE program; (3) a DLP staff person notified those students via phone or e-mail that a researcher would contact them about the study.

In all, letters were sent to 50 students and 43 were contacted by phone. Of these, 16 agreed to be interviewed. Interviews averaged 35 minutes and were conducted by research assistants Drayton and Gungor. Including the pilot participant, the report includes data from interviews with 13 (76 percent) female and four (23 percent) male students. These DL students had completed between 8 and 12 years of schooling (average = 9.8), slightly below the statewide average of 10th grade for rural DL students in ABLE programs. A student who was homeschooled had completed 12 grades, but enrolled in a DL GED class because in Pennsylvania homeschooled students cannot graduate “unless you enroll in a diploma program or graduate from GED classes.”

Analysis

All interviews were audio-recorded with permission and transcribed verbatim by a professional. Each interviewee received a \$20 gift card for participating in the study. The interviews were coded for analysis (Patton, 1990) in NVivo to identify findings pertaining to the research goals and objectives. First, the interview questions were used to group the data into categories such as the perceived advantages and disadvantages of DL, reasons students take DL, the impact of state policies on the service provision, among others. Additional categories were then created to capture relevant insights not reflected in the interview questions, such as the importance of materials for struggling students and print versus online DL formats. Finally, the categories were refined further, for example, by revising the codes assigned to interview excerpts, by merging overlapping categories, and by comparing the categories to the research goals and objectives.

Key informant interview

A key informant interview was conducted with a person whom other study participants suggested was very knowledgeable about GED instruction, DL, and adult education in rural areas,

both in Pennsylvania and nationally. The interview protocol for ABLE staff members was modified to focus on key policy issues and recommendations. The informant offered a wealth of information and identified several people and agencies related to the aims of the study.⁶ Furthermore, he shared his views on the relationship between DL GED instruction and preparedness for the GED Tests, for instance, the importance of gauging readiness by taking the Official GED Practice Test. The transcript from the audio-recorded interview was analyzed by identifying policy implications such as launching a promotional GED campaign. The key informant also received a \$20 gift card.

RESULTS

Goal 1: Types and usage of GED distance education in rural Pennsylvania

The CRP and DLP databases were used to determine how many GED students in rural areas currently use DL through ABLE-funded programs, how many use specific delivery systems (pure distance or blended), and the types of materials used. Findings pertaining to DL services by non-ABLE agencies were drawn from the survey data. Two objectives were added to those originally proposed: (1) the staff and student interviews were used to identify the *types of programmatic support* provided to DL students; and (2) DL students' *access to the Internet* was derived from student interviews and five years of student survey data from the Distance Learning Project.

Use of DL

Between July 1, 2004 and December 31, 2008, 24,143 rural GED students participated in Bureau of ABLE programs. Of these, 975 students participated in DL classes. These 975 students are

⁶ Researchers contacted one person at the GED Testing Service, who provided useful references and information about GED preparation and testing, especially in other states with large rural populations. Researchers did not interview the other individuals because (a) they were located out of state and thus not familiar with adult education in Pennsylvania; (b) based on the key informant's description, they appeared to have more knowledge of GED instruction than of distance learning, and (c) the research budget precluded additional interviews.

hereafter referred to as “DL students.” During a given program year, between 153 and 324 rural GED students participated in DL instruction: 153 in 2004-2005; 189 in 2005-2006; 324 in 2006-2007; and 289 in 2007-2008. The 2008-2009 figures were not computed since the Distance Learning Database does not contain data for the second half of the program year.

The median total hours of instruction for DL students was 49, with 15 hours being spent in DL as opposed to face-to-face activities. On average, 47 percent of DL students’ instructional hours were through distance learning. Table 1 presents the descriptive statistics for these results.

Table 1. Participation in Distance Learning and Face-to-Face Instruction (Hours of Participation) for Rural Distance Learners: July 1, 2004 to December 31, 2008

Type of Distance Learner	n	Median # of Hours	Mean # of Hours	Standard Deviation	Minimum # of Hours	Maximum # of Hours
All distance learners						
Total DL hours	975	15	28	40.8	<1	512
Total face-to-face hours	975	22	52	83.7	0	1,086
Total hours	975	49	80	94.7	<1	1,111
Percent of hours in DL	975	42%	47%	33.6	<1%	100%
Blended distance learners						
Total DL hours	736	15	27	37.5	<1	512
Total face-to-face hours	736	38	68	90.4	6	1,086
Total hours	736	65	96	100.7	8	1,111
Percent of hours in DL	736	29%	34%	24.8	<1%	96%
Pure distance learners						
Total DL hours	239	15	32	49.6	<1	472
Total face-to-face hours	239	0	1	2.0	0	5
Total hours	239	16	33	49.6	<1	472
Percent of hours in DL	239	100%	90%	17.6	17%	100%

Pure or blended DL

One-quarter (24.5 percent) of the 975 DL learners were pure DL students, meaning they spent five hours or less in face-to-face classes. The remaining students were blended (or hybrid) DL learners who spent more than five hours in face-to-face instruction. Typically, both pure and blended DL students participated in 15 hours of distance learning, based on the median. On the other hand, blended learners participated in an average of 38 face-to-face hours of instruction and pure DL learners did not participate in any face-to-face instruction, on average (median). These results indicate that pure DL learners did not substitute DL instruction for face-to-face instruction (see Table 1). At the same time, 38 percent of pure DL learners did participate in some face-to-face instruction. In fact, there were nine (4 percent) pure DL learners who participated in fewer DL than face-to-face hours. This helps explain why some pure DL students had as little as 17% of their total instructional hours in distance learning (see Table 1).

To summarize the relevant results: 975 (4 percent) rural GED learners were distance learners from July 1, 2004 to December 31, 2008. Among these distance learners, one-quarter were considered pure distance learners and 75 percent were considered blended distance learners.

Instructional formats and types of materials used

Data for this section were drawn from a 2007 survey of ABLE-funded DL providers in Pennsylvania, interviews with nine ABLE-funded DL program staff and a survey of four non-ABLE programs conducted for this study, and the ABLE-funded DLP. Altogether, the data indicate that print-plus-computer is the most common instructional format, although video is also used. *GED Connection* and *Skills Tutor* are the most frequently used commercial curricula.

The survey of ABLE-funded DL providers (n=126, *By the Numbers*, 2007) indicated that print-plus-computer was the most common instructional format, followed by print-based only and

computer-based only. The most frequently used curricula were *GED Connection* (81 percent), *Skills Tutor* (68 percent), *Workplace Essential Skills* (65 percent), and *pre-GED Connection* (48 percent). Worksheets and workbooks (89 percent), online resources (81 percent), books (50 percent), and videos (31 percent) were the most common supplemental materials. These data are not limited to rural programs and students, but there is no reason to believe that rural programs would use different DL curricula.

The ABLE-funded program personnel (n=9) interviewed for this study reported using a combination of print-based, computer-based, and video formats. Print-based materials (workbooks, worksheets, books, supplemental materials) were the most frequently mentioned. These included *GED Connection* (n=6), *pre-GED Connection* (n=2), *Madison Heights and Lifelines* (n=2), *GED Illinois* (n=1), and *KET DL programs and books* (n=1). The most common computer-based curriculum was *Skills Tutor* (n=5); one person each reported using Webinars (online conferencing), PBS online (an online supplement to *GED Connection*, *Pre-GED Connection*, and *Workplace Essential Skills* workbooks), typing software, and podcasts (minimal usage). Six programs also used videos, in some cases as part of a DL curricular package such as *Madison Heights and Lifelines*.

Although print-based materials were commonly used in ABLE-funded programs, staff members identified several limitations. (Cost limitations are discussed under Goal 4.) First, the use of print materials delays students' receipt of materials and the program's receipt of assignments. Moreover, students cannot receive quick feedback on their work, which may impede their learning:

Those packets, I can send them out on a Monday. They might get them on a Thursday. They work on them for two weeks and they send them back to us. We grade it and then we send it back to them, but again, that does not meet the need of that immediate feedback....So personally, I found that the packets are not successful.

Third, compared to online materials, some personnel found print- and video-based materials to be less interactive and less conducive to helping students understand the content and solve problems:

With online students there [are] more opportunities for them to be able to do more interactive types of activities and have a lot of different types of ways to learn the concepts, where[as] the print-based students, it is more “I read off of a piece of paper and I write in the answers to my questions and I can watch a video.” And both of them certainly have access to a teacher to help define concepts and things like that. But if a student is struggling with fractions online, what I have done is...gone into a live kind of classroom setting where it has a white board that he or she can just go on. And I can write, like, “ $\frac{1}{4} + \frac{1}{4} = \underline{\quad}$ ” and show them how—on a whiteboard that we are both looking at the same time—to solve that problem. And then that student can also write on the whiteboard so that I can see what they are doing. With the print-based student we can’t create that same thing. So what we end up doing is just talking or the phone and trying to explain it. So...I had a student last week that was trying to find the [volume] of a square pyramid....So even just trying to explain what a square pyramid was and the shape and how to draw that was really difficult because she was print-based. And so I did not have the ability to draw something online that she could see right away....In some ways it [print-based instruction] limits the amount of resources or delivery methods [more] than the online [instruction] does.

According to the survey of non-ABLE DL providers (n=4), three agencies used online courses (utilizing tools such as e-mail, chat rooms, discussion boards, streaming video, and instructional software) as a delivery system; one of these agencies also used workbooks in face-to-face instruction. The fourth organization used only print-based courses. The Internet was the most common DL instructional format, followed by print and video:

- Internet-based materials: always or nearly always (n=3)
- print-based materials: always or nearly always (n=1); rarely or never (n=3)
- video-based courses: always or nearly always (n=1); rarely or never (n=3)
- print plus computer-based: rarely or never (n=4)
- collaborative online network: rarely or never (n=4)

Similarly, agencies used four types of instructional materials for DL GED students: online resources (n=3), books (n=2), worksheets and workbooks (n=1), and DVDs (n=1). Three agencies used only one type of materials, whereas the other agency used all four types.

Non-ABLE agencies used one to three types of published curricula. As with ABLE-funded agencies, the most common was *GED Connection* (n=3). *Skills Tutor* (the second most common curriculum in ABLE programs) was used in two non-ABLE organizations, and the *GED Video Partners* workbook and *El GED en Español (The GED in Spanish)* were each used by one organization.

DL services provided by non-ABLE agencies

The findings indicate that aside from state-funded programs, there are few other known providers of DL for rural GED students in Pennsylvania. Key informants identified nine online GED programs that reach a national audience. Although rural Pennsylvanians likely use these GED preparation services, analysis of these companies was beyond the scope of this study. The following data, therefore, pertain to the four non-ABLE agencies that completed the survey.

One agency, a public TV station, provided GED classes only via DL. (Researchers have since learned that these classes are no longer offered due to loss of funding.) The other three agencies provided DL for learners who cannot participate in face-to-face instruction and, in one case, to prevent interruptions in instruction, or "stop-outs." The TV station offered a web-based GED preparation program. A community college also provides online GED courses, and students enrolled in the other community college attend two class sessions, take a pre-test, and take a post-test six weeks later. The fourth agency offers a home study option for students preparing for the Spanish GED Tests. Most of these students are agricultural workers. In all four agencies "none or very few" of the students participate in blended distance instruction.

During the agencies' last complete fiscal year, they served between 19 and 39 GED students via DL (average = 31) and between eight and 24 students per agency obtained their GED diploma (average = 14). In three organizations, rural students comprised approximately 16 percent, 50 percent, and 90 percent of all DL GED students. The remaining agency did not have data on rurality.

Student Internet access

Survey data on Internet access maintained by the DLP were available for 80 rural DL students from the 2005-2006 program year through May, 2010. Over one-half (55 percent) of these survey respondents used print materials to participate in the DLP, whereas the remainder (45 percent) used the Internet. Table 2 presents the percentage of respondents who had access to the Internet through various modalities such as at home, at work, through a friend, and so on. These figures are broken down by whether respondents used print materials or the Internet to participate in the DLP. Overall, 52 percent of the 80 survey respondents had Internet access at home. Survey respondents who used the Internet to participate in the DLP were significantly more likely to have access at home than those using print materials ($p < 0.001$). Specifically, 86 percent of respondents who participated in the DLP through the Internet had Internet access at home, compared to 25 percent of those using print materials.

Table 2. Internet Access for Rural Distance Learning Project (DLP) Participants Using Print Media and Internet to Receive Instruction: 2005-2006 Program Year to May 2010 (n=80)

	Mode of Participating in DLP		Total
	Print Materials	Internet	
<i>Have Internet access at ...</i>			
Home	25%	86%	52%
Work	0%	0%	0%
Friend/Family	9%	0%	5%
Other	2%	0%	1%

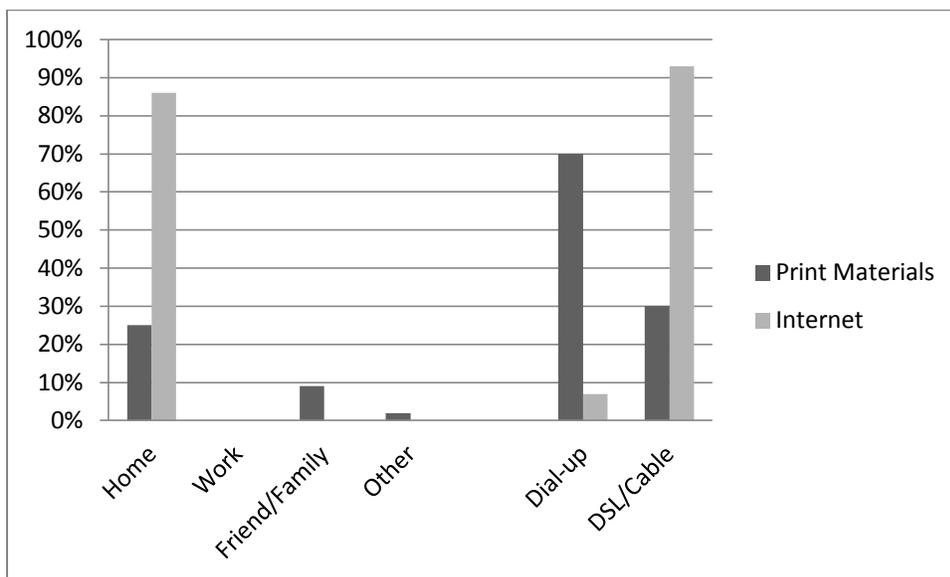
Responses do not sum to 100% because respondents could indicate all that applied.

None (0 percent) of the respondents had access to the Internet at work. About one-tenth (9 percent) of the respondents using print materials to participate in the DLP had Internet access through a friend or family member, whereas none (0 percent) of those participating through the Internet indicated accessing the Internet in this way. Although this difference is not statistically

significant at the .05 level, it tends toward statistical significance ($p < 0.063$). Only 2 percent of respondents using print materials and none (0 percent) of those using the Internet for the DLP indicated having Internet access through some other means.

The survey also asked whether DLP participants had access to the Internet via dial-up modem or DSL cable. Twenty-five (25) out of the 80 respondents answered this question. Nevertheless, the responses are telling. The majority (70 percent, $n=10$) of respondents using print materials indicated having dial-up Internet access, compared to 7 percent of those using the Internet ($n=15$) to participate in the DLP. Conversely, only 30 percent of print-based respondents ($n=10$) had Internet access via DSL/cable compared to 93 percent of DLP respondents ($n=15$) who participated through the Internet. These differences are statistically significantly different ($p=0.001$). Differences between respondents participating in the DLP through print materials and the Internet are illustrated in Figure 2.

Figure 2. Differences in Internet Access between Respondents Using Print Materials and Internet to Participate in DLP



Surprisingly, interview data revealed that 12 out of 16 students (75 percent) had broadband Internet (one of these 12 students used dial-up when she could not pay the broadband bill) and one had dial-up. One student's type of Internet access was unknown. Students with Internet access either owned a computer—in some cases, an old, slow computer—or borrowed one from a friend or relative. Of the two students without a computer or Internet, one used the computer at the library. Nine of the 17 students used a computer and/or Internet for their GED studies.

Support services provided by ABLE-funded DL programs

In addition to providing academic instruction, DL programs provide a host of support services to enable students to attain their goals. Unlike face-to-face instruction, distance learning students cannot raise their hand to ask a question, stay after class to talk with a teacher, or turn to a classmate to ask for help. Thus, DL instructors have to be creative in providing students with both academic support and case management services that aid persistence, such as referrals to social service agencies. This requires using multiple modes of communication and helping students overcome barriers such as limited transportation or Internet access. For example, one program purchased multi-user software to give students. Another program occasionally donated computers to students and provided educational software that did not require Internet access. To expand DL students' online options, another program established an agreement with county libraries:

We encourage that the libraries in this county all give vouchers to my enrolled students so that they don't have to pay any fee to use the library or the Internet....We give our learners an identification card that they take to the library and the library issues them a voucher which is good for one year. If the person stayed in the program longer than a year, they issue a new one.

Table 3 summarizes the types of support ABLE-funded DL programs provided to DL GED students.

Table 3. ABLE-funded Program Support Services for DL Students

Type of support	Number of mentions
Provide support via Internet	8
e-mail	4
teleconferencing	1
discussion boards	1
instant messaging	1
Webinars	1
Provide face-to-face support	7
personal meeting	4
home visits	2
send tutor to student's home	1
Provide support via telephone	7
phone conversation	6
text messaging	1
Send postal mail	6
Make referrals	3
to local literacy center	2
to college	1
Provide supplemental distance lessons	3
for mail delivery or pick-up	2
instructional software	1
Provide other forms of support	6
fax lessons	1
lend or donate computers	1
provide library vouchers for Internet usage	1
help students plan study time and set goals	1
provide weekend tutor access	1
provide on-site childcare if attending a class	1

On the whole, students had a positive assessment of their communication with DL instructors (11 out of 13). They described teachers as “helpful” and “supportive” and appreciated being treated “like a human being.” One person had no communication with a teacher, and another had the opportunity to communicate but did not need to do so. Forms of support from instructors included being “available” (e.g., giving students their cell phone number), explaining the program’s GED instructional options (e.g., DL workbooks, face-to-face classes), giving encouragement, granting extensions on assignments, and providing assistance with academic work via phone, e-mail, face-to-

face meetings, and the Internet. For instance, one student received spoken and visual explanations on subjects such as math using Scriblink, an interactive online tool that allows users simultaneously to write on a digital whiteboard, chat online, and talk via VOIP or phone conferencing.⁷

Goal 2: Demographic and educational characteristics, patterns of program participation, and comparison to face-to-face students

Distance learners in correctional facilities

Residence in a correctional facility on entry into the adult education program was the first variable examined. Results indicate that approximately 1 in 11 (8.7 percent, n=85) rural GED distance learners were in a correctional facility upon program entry. Moreover, none (0 percent) of these distance learners were pure distance learners; rather, all were blended learners. In contrast, 27 percent of the remaining 890 rural GED distance learners were pure distance learners.

Although they were blended distance learners, rural inmates still engaged in a substantial amount of DL instruction—14 hours total, compared to 15 hours for the remaining distance learners, as based on the median (see Table 2). This typically worked out to less than 1 hour of DL per week (median) for learners in both situations. However, distance learners in correctional facilities typically participated in a total of 44 face-to-face hours, whereas non-correctional distance learners completed only 20 face-to-face hours (median). Typically, over one-quarter (median, 28 percent) of the instructional hours were in distance learning for students in correctional facilities, compared to one-half (44 percent) for distance learners outside of correctional facilities. Both types of learners typically participated in about 1 hour of face-to-face instruction per week, although when adding DL and face-to-face instruction, inmates typically participated in two hours of

⁷ “Scriblink is a free digital whiteboard that users can share online in real-time.”
<http://www.scriblink.com/index.jsp?act=about>

instruction per week (median) versus one hour for non-inmates. Based on the median, learners in correctional facilities were typically in the adult education program for 252 days (about 8 months), compared to 174 days (less than 6 months) for other rural distance learners.

Because of the structural constraints inherent in correctional education, these learners were excluded from the remaining analyses for Goal 2. A breakdown of the demographic and educational characteristics of rural distance learners in correctional facilities is provided in Appendix D.

Table 4. Participation in Distance Learning and Face-to-Face Adult Education Instruction for Rural Distance Learners by Residence in a Correctional Facility on Entry into Adult Education Program: July 1, 2004 and December 31, 2008

Type of Distance Learner	n	Hours (median)	Hours (mean)	Standard Deviation	Minimum # of Hours	Maximum # of Hours
Resides in Correctional Facility						
Total DL hours	85	14	23	26.7	<1	139
DL hours per week	85	<1	1	1.2	0	6
Total face-to-face hours	85	44	59	53.2	6	278
Face-to-face hours per week	85	1	1	1.4	<1	8
Total hours	85	74	82	56.6	12	308
Total hours per week	85	2	2	2.1	<1	14
Percent of hours in DL	85	28%	31%	23.6	<1%	89%
Duration of enrollment (days)	70	252	364	304.1	28	1,126
Resides outside of Correctional Facility						
Total DL hours	890	15	29	41.9	<1	512
DL hours per week	890	<1	1	2.0	0	24
Total face-to-face hours	890	20	51	86.0	0	1,086
Face-to-face hours per week	890	1	1	1.8	0	16
Total hours	890	46	80	97.6	<1	1,111
Total hours per week	890	1	2	2.8	<1	24
Percent of hours in DL	890	44%	49%	34.0	<1%	100%
Duration of enrollment (days)	714	174	305	317.7	3	1,613

Patterns of program participation for pure and blended distance learners

Descriptive statistics for indicators of participation for pure and blended learners are presented in Table 5. As indicated above, 27 percent of distance learners who did not reside in a correctional facility on entry were pure distance learners; 73 percent were blended learners. Both groups of learners typically participated in a total of 15 DL hours of instruction (median). Pure distance learners typically participated in one hour of DL instruction per week, compared to less than an hour per week for blended learners (median). On the other hand, blended learners typically participated in a total of 36 face-to-face hours of instruction and pure distance learners did not participate in any face-to-face instruction (median). Typically, 30 percent of blended distance learners' instruction was in DL, compared to 100 percent for pure distance learners. Typically, pure distance learners participated in the adult education program for 132 days (about four months), compared to 223 days (about seven months) for blended learners.

Table 5. Participation in Distance Learning and Face-to-Face Adult Education Instruction for Pure and Blended Rural Distance Learners: July 1, 2004 and December 31, 2008

Type of Rural Distance Learner	n	Hours (median)	Hours (mean)	Standard Deviation	Minimum # of Hours	Maximum # of Hours
Blended Distance Learners						
Total DL hours	651	15	27	38.7	<1	512
DL hours per week	651	<1	1	1.5	0	16
Total face-to-face hours	651	36	70	94.2	6	1,086
Face-to-face hours per week	651	1	2	2.0	<1	16
Total hours	651	64	97	105.0	8	1,111
Total hours per week	651	2	3	2.8	<1	22
Percent of hours in DL	651	30%	34%	24.9	<1%	96%
Duration of enrollment (days)	507	223	355	346.9	13	1,613
Pure Distance Learner						
Total DL hours	239	15	32	49.6	<1	472
DL hours per week	239	1	2	2.7	<1	24
Total face-to-face hours	239	0	1	2.0	0	5
Face-to-face hours per week	239	0	<1	0.2	0	2
Total hours	239	16	33	49.6	<1	472
Total hours per week	239	1	2	2.8	<1	24
Percent of hours in DL	239	100%	90%	17.6	17%	100%
Duration of enrollment (days)	207	132	183	181.2	3	1,286

Demographic and socio-economic characteristics

Rural GED distance learners (excluding inmates) tended to be young, with a median age of 22, slightly lower than the national average of 25 for all GED test-takers (GED Testing Service, 2009b). Only one-fifth (20 percent) of distance learners were over 35. Rural distance learners, including pure and blended, were predominantly female (65 percent). Only 61 percent of pure DL students were women, compared to 66 percent of blended distance learners, but the difference was not statistically significant ($p=0.183$). Rural distance learners were primarily Caucasian (95 percent), and only one learner out of the 890 in the sample reported in Table 6 indicated that they

were an English as a Second Language (ESL) learner.⁸ Rural DL students had typically completed the 10th grade, the same as the national average for all GED candidates (GED Testing Service, 2009b).⁹ However, a significant minority (10 percent) of the learners had completed 8th grade or less, indicating the need for basic-level GED or pre-GED instruction.

More than one-half (56 percent) of all distance learners were unemployed, and another 9 percent were unavailable for work.¹⁰ One-fifth (20 percent) were employed full-time, and 15 percent were employed part-time. Blended distance learners were more likely to be unemployed than pure distance learners, and less likely to be employed part-time, based on the adjusted standardized residuals from a cross-tabular analysis of the data ($p=0.035$). Accordingly, blended distance learners were more likely to receive public assistance through TANF than pure distance learners, based on the adjusted standardized residuals from a cross-tabular analysis of the data (12 percent and 4 percent, respectively; $p<0.001$).¹¹ Consistent with this, pure distance learners were less likely to receive any form of public assistance than blended distance learners (31 percent and 41 percent, respectively). Overall, one-tenth (10 percent) of the distance learners received public assistance through TANF and another 28 percent received only other types of public assistance such as food stamps. Somewhat less than two-thirds (62 percent) received neither cash nor in-kind public assistance.

⁸ Despite their ESL status, these DL learners were assessed as adult basic education (ABE) or adult secondary education (ASE) learners, and are included in analyses reported here.

⁹ Table 4 indicates that a very small percentage (1 percent; 7 adults) of rural distance learners had a secondary school diploma or certificate. All of the adults in the sample ($n=890$) had indicated at some point during their tenure as an adult education student that they had not completed secondary school. The conflicting data for these seven students may be a result of these students continuing their education after entering the program, and their e-Data record being revised. Other students also obtained a secondary school diploma or certificate while attending an adult education program (see results for Goal 3). However, the highest grade completed field in e-Data was not revised for most students who achieved these certifications.

¹⁰ Learners who are “unavailable for work” are unable or indicate an unwillingness to accept employment even if it is offered at the time these data were collected. This could include, for example, stay-at-home mothers or people with disabilities.

¹¹ Learners who received TANF may also have received other forms of assistance.

A majority (60 percent) of rural DL students were low income. In fact, a substantial percentage (35 percent) of rural distance learners who were *not* receiving public assistance were low income. All (100 percent) of the rural DL students receiving public assistance were considered low income. About one-fifth (22 percent) of the rural distance learners were single parents.

Close to one-fifth (18 percent) of the rural distance learners had a disability. Blended DL students were somewhat more likely to be disabled than pure distance learners (19 percent and 14 percent, respectively; $p=0.056$). Three-fourths (76 percent) of the rural distance learners who were considered disabled had a learning disability.¹² Blended and pure distance learners were similar with respect to this finding – 75 percent of blended distance learners and 79 percent of pure distance learners checked both “disability” and “learning disability.”

Demographic and socio-economic characteristics of rural GED distance learners, as well as distributions for blended and pure distance learners, are presented in Table 6. (Rural distance learners in correctional facilities on program entry are excluded.) The demographic and socio-economic characteristics of pure and distance learners were similar for the most part. Substantial differences are noted in the following narrative.

¹² Student records in e-Data include one variable for “disability” and another for “learning disability.” The former includes “any type of physical, intellectual, psychological, or learning disability that impairs or restricts one or more major life activities including walking, seeing, hearing, speaking, learning or working.... A disability should be recorded if it can be directly observed, is documented, or can be assessed through a valid assessment instrument or procedure designed to identify disabilities” (Bureau of Adult Basic and Literacy Education, 2009, p. 15). By contrast, a learning disability “can be self-reported or officially documented” (p. 15). Thus, learners with both boxes checked may have *only* a learning disability, or a learning disability *and* another type of disability.

Table 6. Demographic and Socio-Economic Characteristics of Blended and Pure Rural GED Distance Learners: July 1, 2004 and December 31, 2008

Characteristic	Blended Distance Learners		Pure Distance Learners		All Distance Learners ¹	
	n	%	n	%	n	%
Age						
15 to 17	82	13%	27	11%	109	12%
18 to 20	214	33%	77	32%	291	33%
21 to 25	121	19%	39	16%	160	18%
26 to 35	104	16%	46	19%	150	17%
36 to 50	101	16%	40	17%	141	16%
51 to 65	28	4%	10	4%	38	4%
66 and over	1	0%	0	0%	1	0%
Total	651	101%	239	99%	890	100%
Average Age (median)	22		22		22	
Sex						
Female	429	66%	146	61%	575	65%
Male	222	34%	93	39%	315	35%
Total	651	100%	239	100%	890	100%
Race/Ethnicity						
Caucasian	619	95%	226	95%	845	95%
African American	21	3%	6	2%	27	3%
Hispanic	7	1%	6	2%	13	2%
Other (Asian, Native American, Pacific Islander)	4	1%	1	0%	5	0%
Total	651	100%	239	99%	890	100%
ESL Participant						
Yes	1	0%	0	0%	1	0%
No	650	100%	239	100%	889	100%
Total	651	100%	239	100%	890	100%

Characteristic	Blended Distance Learners		Pure Distance Learners		All Distance Learners ¹	
	n	%	n	%	n	%
Highest Grade Completed						
8 th grade or less	65	10%	21	9%	86	10%
9 th grade	122	19%	36	15%	158	18%
10 th grade	225	34%	87	36%	312	35%
11 th grade	233	36%	94	39%	327	37%
Secondary school diploma or certification, or some post-secondary schooling	6	1%	1	0%	7	1%
Total	651	100%	239	99%	890	101%
Median Highest Grade Completed	10 th		10 th		10 th	
Employment Status						
Employed Full-time	124	19%	52	22%	176	20%
Employed Part-time	84	13%	46	19%	130	15%
Unemployed	383	59%	117	49%	500	56%
Unavailable for Work	60	9%	24	10%	84	9%
Total	651	100%	239	100%	890	100%
On Public Assistance						
Yes – TANF	80	12%	9	4%	89	10%
Yes – Other	188	29%	66	28%	254	28%
No	383	59%	164	69%	547	62%
Total	651	100%	239	100%	890	100%
Low-income Status						
Yes	395	61%	139	58%	534	60%
No	256	39%	100	42%	356	40%
Total	651	100%	239	100%	890	100%
Single Parent						
Yes	140	22%	56	23%	196	22%
No	511	78%	183	77%	694	78%
Total	651	100%	239	100%	890	100%
Disabled						
Yes	126	19%	33	14%	159	18%
No	525	81%	206	86%	731	82%
Total	651	100%	239	100%	890	100%

Characteristic	Blended Distance Learners		Pure Distance Learners		All Distance Learners ¹	
	n	%	n	%	n	%
Learning Disabled						
Yes	94	14%	26	11%	120	14%
No	557	86%	213	89%	770	86%
Total	651	100%	239	100%	890	100%

Some totals do not sum to 100% due to round-off error.

¹ Excludes learners in correctional facility on program entry.

Educational characteristics of distance learners

Table 7 presents the educational level of rural distance learning students on entry into the adult education program. The National Reporting System for Adult Education requires adults to be placed into one of these educational levels based on results from a standardized assessment, such as the Tests of Adult Basic Education (TABE). The educational levels and their corresponding school grade levels are: (1) beginning literacy adult basic education (ABE, grade level 0-1.9¹³), (2) beginning basic ABE (2-3.9), (3) low intermediate ABE (4-5.9), (4) high intermediate ABE (6-8.9), (5) low adult secondary education (ASE, 9-10.9), and (6) high ASE (11-12.9).¹⁴ Nearly all (98 percent) of the rural distance learners were administered an assessment. Only a small percentage of students were placed at the lowest educational levels (beginning literacy ABE or beginning basic ABE). About one-fifth (21 percent) of the learners were assessed as low intermediate ABE, and another one-third (32 percent) were assessed as high intermediate ABE. About two-fifths (39 percent) were assessed as low or high adult secondary education. On average, rural distance learning GED students were assessed as high intermediate ABE, that is, 6th to 9th grade in language, reading, and math. (To enroll

¹³ Each educational level corresponds to a range of grades in school, such as 6th to 8th grade. The tenths are read as months. For instance, a 1.1 grade level in reading is equivalent to 1st grade, 1st month, whereas 1.9 means 1st grade, 9th month.

¹⁴ The NRS also includes six educational levels for ESL students.

in the Distance Learning Project classes, students must have a minimum reading score of high intermediate ABE.)

Table 7. Educational Level on Entry and Advancement of Level for Blended and Pure Rural GED Distance Learners: July 1, 2004 and December 31, 2008

Educational Level on Entry	Blended Distance Learners		Pure Distance Learners		All Distance Learners ¹	
	n	%	n	%	n	%
Beginning literacy ABE ²	7	1%	0	0%	7	1%
Beginning basic ABE	45	7%	14	6%	59	7%
Low intermediate ABE	153	24%	28	12%	181	21%
High intermediate ABE	212	33%	73	32%	285	32%
Low ASE	75	12%	41	18%	116	13%
High ASE	153	24%	74	32%	227	26%
Total	645	101%	230	100%	875	100%
Average Entry Ed. Level (mean)	<i>High Intermed. ABE</i>		<i>High Intermediate ABE/Low Adt. Sec.</i>		<i>High Intermediate ABE</i>	
Advanced 1+ Educational Levels ³						
Yes	331	92%	78	93%	409	92%
No	27	8%	6	7%	33	8%
Total	358	100%	84	100%	442	100%
Number of educational levels advanced (mean)	1.8		1.4		1.7	

Some totals do not sum to 100% due to round-off error.

¹ Excludes learners in correctional facility on entry.

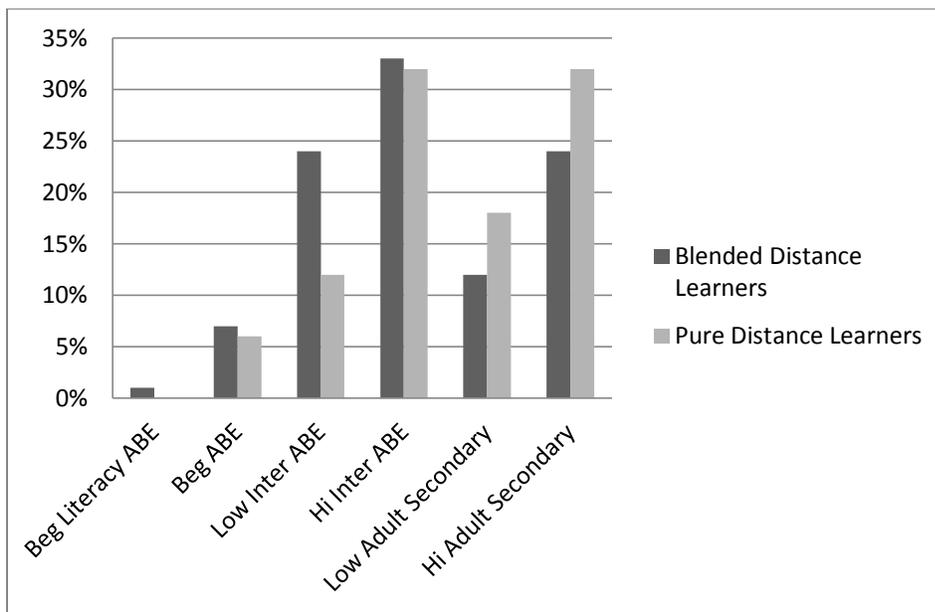
² ABE indicates Adult Basic Education.

³ Among those with a posttest assessing educational level; includes adults receiving GED certificate or high school diploma.

Pure distance learners entered the adult education program at a higher educational level, on average ($p < 0.001$). On average, they were assessed as between high intermediate ABE and low ASE, whereas blended learners were assessed as high intermediate ABE. Pure DL students were less likely to be assessed as low intermediate ABE than blended learners (12 percent versus 24 percent,

respectively), and more likely to be assessed at the low or high ASE (low ASE: 18 percent and 12 percent, respectively; high ASE: 32 percent and 24 percent, respectively). These results are consistent with blended distance learners' lower educational attainment (see Table 6). The differences between pure and blended distance learners are illustrated in Figure 3.

Figure 3. Educational Level on Entry for Blended and Pure Rural GED Distance Learning Students



The percentage of rural distance learners (including pure and blended) who advanced one or more educational levels was calculated for learners who were administered a posttest, passed the GED, or obtained a secondary school certificate. The vast majority (92 percent) of rural distance learners advanced one or more educational levels. On average, rural DL GED students advanced about two educational levels, for example, from high intermediate ABE (on entry) to high adult secondary education (posttest). On average, pure DL students' educational level increased less than that of blended DL students (1.4 compared to 1.8; $p < 0.001$) because the former started the program at a higher level and had fewer levels through which to progress.

Table 8 presents the goals that rural DL GED students set for their adult education participation and the percentage of students who met their goals. Table 8 presents these statistics for blended and pure rural distance learning GED students. The most frequent goals were to enter employment (19 percent) or retain employment (22 percent). About one-half (49 percent) of students met the former goal and nearly two-thirds (62 percent) retained employment.

Table 8. Goals Set and Met By Rural GED Distance Learners¹: July 1, 2004 and December 31, 2008 (n=890)

Goals	Goal Listed		Goal Met (if listed)	
	n	%	n	%
Advance to post-secondary education/training	63	7%	29	46%
Employment				
Enter Employment	169	19%	83	49%
Retain Employment	198	22%	123	62%
Quality of life and personal Goals				
Achieve US citizenship skills	1	0%	0	0%
Register to vote	16	2%	2	12%
Vote for the first time	9	1%	1	11%
TANF grant or equivalent reduced/eliminated	7	1%	3	43%
Increase involvement in community activities	39	4%	21	54%
Family and parenting				
Increase involvement in children's education	63	7%	44	70%
Increase involvement in children's literacy activities	96	11%	72	75%

¹ Excludes learners in correctional facility on entry.

Blended DL students were more likely to set goals than pure DL students (Table 9), possibly because the latter have limited face-to-face interaction with program personnel and thus fewer opportunities to discuss their goals.

Table 9. Goals Set and Met for Blended and Pure Rural GED Distance Learners¹: July 1, 2004 and December 31, 2008 (n=651 and 239, respectively)

	Blended Distance Learners				Pure Distance Learners			
	Goal Listed		Goal Met (if listed)		Goal Listed		Goal Met (if listed)	
	n	%	n	%	n	%	n	%
Advance to post-secondary education/training	51	8%	24	47%	12	5%	5	42%
Employment								
Enter Employment	144	22%	76	53%	25	10%	7	28%
Retain Employment	152	23%	98	64%	46	19%	25	54%
Quality of life and personal Goals								
Achieve US citizenship skills	1	0%	0	0%	0	0%	n/a	n/a
Register to vote	14	2%	2	14%	2	1%	0	0%
Vote for the first time	8	1%	1	12%	1	0%	0	0%
TANF grant or equivalent reduced or eliminated	6	1%	3	50%	1	0%	0	0%
Increase involvement in community activities	38	6%	20	53%	1	0%	1	100%
Family and parenting								
Increase involvement in children's education	63	10%	44	70%	0	0%	n/a	n/a
Increase involvement in children's literacy activities	95	15%	72	76%	1	0%	0	0%

¹ Excludes learners in correctional facility on entry.

Similarities and differences between distance and face-to-face rural GED students

Logistic regression analysis was used to determine which demographic¹⁵, educational¹⁶, and participation¹⁷ indicators distinguish distance from face-to-face rural GED learners. As noted above,

¹⁵ The variables measuring whether the learner received public assistance and whether the learner had a learning disability were excluded from the logistic regression analysis due to the strong association between being on public assistance and low-income status ($r=0.64$; $p<0.001$) and being disabled and learning disabled ($r=0.86$; $p<0.001$). Including both the public assistance and low-income status variables, and disabled and learning disabled variables would be redundant, and therefore create difficulties with the statistical model. Also, to minimize

none of the rural DL students were assessed as ESL learners on entry; all were classified as ABE or adult secondary education students. In contrast, 793 face-to-face rural learners (4 percent) were classified as ESL. The characteristics of ESL learners suggest that their life circumstances differ from those of rural ABE/GED students. For instance, ESL learners are more likely than non-ESL learners to be Hispanic and to be employed. In other words, the inclusion of ESL learners in statistical comparisons of distance and face-to-face learners would skew the results, since no ESL learners are also distance learners. As such, the 793 face-to-face learners assessed as ESL were deleted from the logistic regression analyses comparing rural distance and face-to-face learners. This resulted in a sample of 875 rural distance learners and 16,923 rural face-to-face learners. However, agency staff or students might still identify the learner as ESL. For instance, 1 rural distance learning student (0 percent) and 60 (0 percent) of rural face-to-face GED learners were identified as being an ESL learner. These 61 individuals were included in the analysis. After deleting cases with missing data on one or more of the variables included in the logistic regression model, the sample size for the analysis was 15,560, of which 701 were distance learners and 14,859 were face-to-face learners. When relevant demographic, educational and participation indicators were controlled, the following variables were key factors associated with whether a learner was a distance learner or a face-to-face learner:

drawing conclusions on potentially unreliable patterns in a small number of cases, race/ethnicity was excluded from the model since only 5 percent of the distance learners were not Caucasian.

¹⁶ The variables measuring whether the learner advanced an educational level and the number of levels advanced were excluded from the analysis because their inclusion would have reduced the sample size. Fifty percent and 48 percent of rural distance and face-to-face learners had a posttest, respectively, and so the sample size would be reduced by that amount. The only variable measuring educational goals included in the model was whether the learner had a goal of entering or retaining employment. To minimize drawing conclusions from potentially unreliable patterns in a small number of cases, variables measuring the other goals were not included in the analysis because too few learners listed them as a goal (refer to Table 8).

¹⁷ The only participation indicators included in the logistic regression model were the total number of instructional hours, total number of instructional hours per week, and duration of enrollment. The level of participation in DL was excluded because only distance learners participated in this form of instruction. Similarly, the level of participation in face-to-face instruction was excluded because all of the face-to-face learners relied solely on face-to-face instruction.

- gender,
- low-income status,
- educational level on program entry,
- total hours of instruction, and
- duration of enrollment.

Distance learners were significantly more likely to be female and low income than face-to-face learners. Also, the educational level on entry for distance learners was significantly higher than that for face-to-face learners. Distance learners participated in a significantly greater number of hours of instruction and were enrolled for a longer period of time than face-to-face learners.

At the same time, after controlling on the demographic, educational participation indicators in the model, variables that clearly did not differentiate rural distance and face-to-face learners ($p>0.25$) were being a single parent, age, highest grade completed, being employed on entry, having the goal to enter or retain employment, and total instructional hours per week.

The same statistical model was used to identify key similarities and differences between pure and blended distance learners. The sample size for the analysis was 701, of which 198 were pure distance learners and 503 were blended distance learners. Results indicate that when relevant demographic, educational, and participation indicators were controlled, the following variables were key factors associated with whether a learner was a pure or blended distance learner:

- educational level on program entry,
- total hours of instruction,
- total number of hours of instruction per week, and
- duration of enrollment.

Educational level on entry for pure distance learners was significantly higher than that for blended distance learners. On the other hand, blended distance learners participated in significantly more total hours of instruction across the course of their enrollment and per week, and were enrolled for a longer period of time. At the same time, after controlling relevant demographic, educational, and participation indicators, none of the demographic variables nor the goal to enter or retain employment were significantly related to whether the distance learner was a pure or blended ($p>0.05$). However, older learners tended to be pure distance learners ($p=0.067$).

Goal 3: Effectiveness of DL compared to face-to-face GED classes

The Bureau of ABLE e-Data system and the GED database were used to assess the effectiveness of DL compared to face-to-face classes in preparing rural students to pass the GED Tests. Out of the 24,143 rural GED students participating in Bureau of ABLE programs between July 1, 2004 and December 31, 2008, 6,265 rural ABLE students took the GED exam.¹⁸ Of these students, 355 (5.3 percent) participated in distance learning classes through ABLE-funded agencies. Three-quarters (74.6 percent) of these DL learners passed the GED, slightly higher than the national pass rate of 73 percent in 2008 (GED Testing Service, 2009a). Slightly less than one-fifth (18.6 percent) of rural DL students completed the GED by taking all five tests, but did not pass the examination.¹⁹ The remaining 6.8 percent of rural DL learners did not complete all the GED content area tests.

Typically, DL learners who passed the GED Tests participated in 18 distance learning instructional hours (based on the median). Those DL learners who completed but did not pass the GED Tests participated in a median of 26 distance learning instructional hours. One explanation for

¹⁸ The latter figure only includes those students who (1) took the English version of the GED, (2) indicated that their primary language is English, (3) were adult basic education or adult secondary education learners, (4) provided research permission to use their data from the GED and GED U.S. Demographics survey, and (5) did not reside in a correctional facility on entry into the adult education program, based on their record in e-Data.

¹⁹ The maximum score on each of the five content area tests is 800 points, for a maximum total score of 4000. Passing the GED Tests requires a minimum total score of 2250 and a minimum of 410 on each content area test.

this discrepancy is that those students who passed the GED were more academically prepared upon enrolling in DL and thus needed fewer instructional hours. In other words, they needed only a brief review of the subject matter. By contrast, the non-passing students may have had academic challenges that additional instruction was unable to remedy.

The annual pass rates for rural distance learners are listed below. Table 10 reports the Pennsylvania and U.S. pass rates for the same years.

- 2004-2005: 92 percent
- 2005-2006: 80 percent
- 2006-2007: 83 percent
- 2007-2008: 69 percent

The 2008-2009 figures were not computed, as the Distance Learning Database does not contain data for the second half of the program year. Rural Pennsylvania distance learners who took the GED Tests in 2007-2008 were less likely to pass than those who took it earlier in the data series (2004-2005). While not statistically significant, the pass rate also declined between 2004-2005 and 2006-2007. It is likely that these results are an artifact of the database. That is, due to the longitudinal nature of the data, later test takers would have been less likely to have taken the GED Tests as many times as those taking it earlier in the data series, and hence would be less likely to have passed it at that point in time.

Table 10: State and National GED Pass Rates, 2004-2008

Year	Pennsylvania	U.S.
2004	67.3%	71.2%
2005	69.5%	72.1%
2006	65.5%	68.7%
2007	68.7%	71.5%
2008	69.6%	73.1%

source: GED Testing Service

Logistic regression analysis was used to assess the effectiveness of participation in DL compared to face-to-face instruction for completing and passing the GED, controlling for demographic, educational, and participation indicators. After deleting cases with missing data on one or more of the variables included in the logistic regression model, the sample size for the analysis was 5,848. Preliminary cross-tabular analysis indicated that the distance learners were no more or less likely to pass the GED than face-to-face learners ($p=0.409$). In addition, whether a learner was a distance learner or a face-to-face learner was not related to the number of component GED tests passed ($r=0.001$; $p=0.911$).

Results from the logistic regression model indicate that, even after controlling on all of the factors in the model, whether a student is a distance or face-to-face learner was not statistically related to passing the GED. Additional logistic regression models were estimated that contained a statistical interaction term; interaction terms measured whether the effect of being a DL student varied with educational level on entry, highest grade completed, total number of participation hours, and days in the program, and were included in the model one at a time. None of these interaction terms was statistically significant nor approached statistical significance. Factors associated with passing the GED in this sample were being younger in age, being employed, not being disabled, higher educational level on entry into the adult educational program, and a shorter duration of enrollment (i.e., days in the program).

The same statistical model was used to assess the relative effectiveness of pure and blended distance learning for passing the GED Tests. The sample size for the analysis was 303.

Preliminary results indicated that pure DL students were significantly more likely to pass the GED than blended distance learners ($p=0.007$). However, once educational level on entry was controlled, pure distance learners were no longer significantly more likely to pass the GED than

blended distance learners. Instead, educational level on entry into the adult education program was the only indicator significantly related to passing the GED Tests. As in the prior analyses, distance learners with a higher educational level on entry were more likely to pass the GED Tests ($p < 0.001$).

Distribution of GED testing sites in rural counties

The accessibility of GED test sites is an important factor in DL students' ability to take and pass the GED Tests. Data on the distribution of GED test sites in rural counties (as of August 2009) were obtained from Pennsylvania's then-GED Administrator. The following explanatory comments will help readers interpret these data:

Note that State Correctional Institutions, jails, and institutions test only their residents. This, however, is not always an accurate picture of GED testing services available in a county. Some GED Test Centers have been approved by the GED Testing Service® to administer the GED Tests at an addendum site. These addendum sites are usually either not eligible to be GED Test Centers or they have too few candidates to make it worth the expense of running a test center. So, some counties have addendum testing locations open to the public that are operated by a test center from another county. (Janice Wessell, personal communication, 8/3/2009)

The distribution of public and institutional GED Test Centers in rural counties, excluding addendum sites, is described in Table 11. Each rural county had an average of .96 public Test Centers (median=1). Of the 48 rural counties, 11 had no public GED Test Centers. Six of these counties are clustered along a diagonal corridor from Fulton County on the South-Central border to Sullivan County in the Northeast (see Figure 1 for a map of geographic regions). Twenty-nine counties (60 percent) had one public Test Center, and only eight (17 percent) had two or three public Test Centers. In sum, in 2009 about three-fourths (77 percent) of rural counties had one or more public GED Test Centers and approximately one in four (23 percent) had none.

Table 11: Distribution of Public and Institutional Test Centers in Rural Counties

# and Type of GED Test Centers	# and % of Rural Counties	Counties and Geographic Regions
0 public 0 institutional	8 (17%)	Central-Northeast (4): Columbia, Montour, Snyder, Sullivan South-Central (2): Fulton, Juniata Northwest (1): Potter Southwest (1): Washington
0 public 1 institutional	3 (6%)	Central-Northeast (1): Northumberland Northwest (1): Forest Southwest (1): Greene
1 public 0 institutional	21 (44%)	Northwest (9): Armstrong, Butler, Cameron, Clarion, Elk, Jefferson, Lawrence, Venango, Warren Central-Northeast (8): Carbon, Clinton, Monroe, Pike, Susquehanna, Tioga, Union, Wyoming South-Central: (4) Adams, Bedford, Blair, Mifflin
2-3 total, including 1 public	8 (17%)	Central-Northeast (3): Centre, Schuylkill, Wayne Northwest (2): Crawford, Indiana Southwest (2): Fayette, Somerset South-Central (1): Perry
2-4 total, including 2 public	7 (15%)	Central-Northeast (3): Bradford, Clearfield, Lycoming South-Central (2): Franklin, Huntingdon Northwest (1): McKean Southwest (1): Cambria
3 public 0 institutional	1 (2%)	Northwest: Mercer

Table 12 reports the number of public Test Centers and public addendum sites, excluding correctional and institutional sites. These data provide a more comprehensive view of testing sites for rural DL and face-to-face GED candidates. With the addition of addendum sites, the average number of public testing sites increased to 1.29 (median=1). On average, the 15 Northwest rural counties had the most public sites (1.13), whereas the five Southwest counties had the fewest (1.0). Even after including addendum sites, the same 11 counties still had no public testing site. That is, the addendum sites were located in counties that already had at least one public Test Center. Between 13 percent (Northwest) and 40 percent (Southwest) of the rural counties in each

geographic region had no public testing sites. However, nearly one-half of the counties (n=22; 46 percent) had one public site and 31 percent (n=15) had at least two public sites, compared to only eight (17 percent) and eight (17 percent), respectively, when addendum sites are excluded.

Table 12: Distribution of Public Test Centers and Addendum Sites in Rural Counties

# of Public GED Test Centers and Addendum Sites	# and % of Rural Counties	Counties and Geographic Regions
0 public testing sites	11 (23%)	Central-Northeast (5): Columbia, Montour, Northumberland, Snyder, Sullivan South-Central (2): Fulton, Juniata Northwest (2): Forest, Potter Southwest (2): Greene, Washington
1 public testing site	22 (46%)	Northwest (9): Armstrong, Butler, Cameron, Clarion, Crawford, Elk, Indiana, Jefferson, Warren Central-Northeast (8): Carbon, Centre, Monroe, Pike, Schuylkill, Susquehanna, Wayne, Wyoming South-Central (4): Adams, Bedford, Mifflin, Perry Southwest (1): Somerset
2 public testing sites	8 (17%)	Central-Northeast (3): Clearfield, Clinton, Lycoming South-Central (3): Blair, Franklin, Huntingdon Northwest (1): Lawrence Southwest (1): Cambria
3 public testing sites	5 (10%)	Northwest (3): McKean, Mercer, Venango Central-Northeast (2): Tioga, Union
4 public testing sites	1 (2%)	Central-Northeast: Bradford
5 public testing sites	1 (2%)	Southwest: Fayette

Although rural GED test-takers travel further to the test site than their urban counterparts, both groups travel 25 miles or less, on average (Cathy Kassab, personal communication with first author, May 24, 2010). However, since rural, low-income adults typically have limited access to private and public transportation, traveling even 25 miles to a testing site may pose a challenge.

Goal 4: Cost of DL provision

Data from the DLP, ABLE DL provider agencies, and non-ABLE agencies were used to assess the cost of providing DL for GED students. Unfortunately, the data management systems used by these agencies and the Bureau of ABLE precluded the disaggregation of costs for rural students.

Distance Learning Project costs

According to 2008-2009 data from the ABLE-funded Distance Learning Project, \$164,421 was budgeted for distance instruction. The cost per student (n=268) was \$613.51, whereas the cost per enrolled student, that is, those completing 12 hours or more of DL instruction (n=239), was \$687.95. The Tuscarora Intermediate Unit (TIU), which operates the Distance Learning Project, serves as a “secondary agency” that provides DL instruction for students who are referred from “primary agencies,” usually near the student’s community.

Due to the complexity of this DL delivery system, two factors must be considered when interpreting these figures (Carol Shefrin, personal communication, March 22, 2010):

- The cost reflects TIU’s “investment for each student as secondary agency; [the] primary agency may have...additional costs associated with that learner. These additional costs might reflect a broad range from just providing intake and assessment [hours,] to the blended students [who] may have considerable additional hours.”
- Some of TIU’s “total funding under the ‘instruction category’ is not attached to centralized students but rather supports instruction in other...ways [such as] statewide licenses used by all distance learners.”

The Bureau of ABLE does not require agencies to disaggregate expenditures on DL instruction; however, it does maintain records on the estimated costs of educating DL students requested in agencies’ proposals for funding. In 2007-2008, 53 ABLE-funded agencies requested

funds for educating distance learners. Agencies estimated that they would serve 750 distance learners, with the average (mean) estimated expenditure per distance learner being \$360.80.

Distance learning costs: Perspectives of ABLE-funded program staff members

One of the main costs incurred by DL is staff time. In some agencies teachers only taught DL students, but in most programs teachers provided both face-to-face and DL instruction. As such, the amount of time devoted to DL varied weekly, depending on the number of students enrolled, students' learning needs, the frequency of communication with students, the need for data entry and documentation, and the like.

Another DL cost is the purchasing of instructional materials such as workbooks, software, and annual site licenses for online curricula, as well as technology and computer hardware such as DVD players, DVDs, videotapes, computers, and laptops.

Programs using primarily print-based materials incur significant costs for postage and mailing supplies because they must send students workbooks, worksheets, videos, assignments, and other educational resources *and* provide self-addressed, stamped envelopes for students to return assignments and materials. For instance, one program spent approximately \$500 per year on postage. For DL students without computer and Internet access, teachers must use the postal system. Preparing student mailings is also "very time consuming" for teachers. In sum, as one person put it, "the kinds of supplies that you need to do distance properly [do] require funding."

Distance learning costs for non-ABLE DL providers

Non-ABLE agencies provided the following data on cost. Three agencies reported that their total expenditures for DL activities in the last complete fiscal year were \$1,200, \$24,390, and \$100,000. The fourth agency did not know the amount. The estimated cost per student at each of the four agencies was as follows: \$60 (home study program), \$100 to \$500 depending on how long

students have been enrolled in the program, \$562, and \$2,500. When asked to compare the cost of DL provision to face-to-face (if offered by the agency), responses varied considerably. One agency each estimated that DL instruction costs “much less,” “about the same” (community college), or “somewhat more” (community college). This variation reflects differing delivery systems, instructional formats, teacher salaries, and related costs.

DL costs in other states

According to Jerome Johnston, the Director of the Project IDEAL Support Center at the University of Michigan, “It's very difficult to get consistent data across states because of differences in source of funds and whether the state” provided “special funding for DL” or funded DL through “the regular budget for instruction” (personal communication, 4/20/10). Researchers obtained publicly available cost data for California and Ohio (figures have not been adjusted for inflation). According to the 2006-2007 applications to California’s “Innovation Programs” for adult education distance instruction, the estimated average cost per learner per course varied from \$97 to \$2,298, with an overall statewide average of \$485 and a median of \$444 (Stiles & Porter, 2007, p. 9). This wide variation in cost per distance learner is similar to the \$60 to \$2,500 range for the non-ABLE DL agencies that provided data for this study.

In 2005-2006 Ohio spent \$293 per ABE/GED student, down from \$738 in 2002-2003 (Project IDEAL, 2010b). During this period enrollment tripled from 185 to 615. This accomplishment was attributed to the decision to start with a small, experimental DL program and then to expand DL provision while using continuous evaluation to improve services. The Distance Learning Project’s cost per student (\$614-\$688) is somewhat higher than the average for California (\$485) and Ohio (\$293). However, many adult education programs across Pennsylvania benefit from the DLP’s financial support for distance education (e.g., site licenses, professional development). On the other

hand, ABLE-funded DL provider agencies' average estimated expenditure per student (\$361) is somewhat less than California's and slightly more than Ohio's.

DL costs for students

In Pennsylvania, ABLE-funded adult education classes, including GED courses via distance learning, are provided at no cost to students, nor are students charged for curricular materials. DL students are also provided with postage to send assignments to teachers, if needed. These students may incur costs for personal expenses such as long distance phone calls, transportation, or Internet.

The cost of GED preparation through other non-profit and for-profit DL providers, whether located in Pennsylvania or other states, varies widely (see Table 13). For instance, the online GED course offered by free-ed.net is free. Most of the popular DL providers identified by the research team and key informants, however, charge approximately \$15 to \$189 for GED preparation and \$590 to \$1300 for adult high school diploma preparation. In general, online GED courses that provide instruction and tutoring assistance cost more than those that provide self-study materials with little or no instructional support.

Table 13: DL Costs for GED Students

GED Program	Cost	Description
GedforFree ²⁰	Free	200-page online, self-study GED course
GED & College Prep ²¹	Free	74-lesson, online GED course with a moderator available through free-ed.net
Online Learning Center ²²	Free	Online supplemental study materials to complement McGraw Hill's <i>Contemporary's GED</i> workbooks
LiteracyLink ²³	<ul style="list-style-type: none"> • PBS TV lessons: free • Workbooks: \$13 or \$17 each (1 to 5 workbooks total) • Fast Track DVD set: \$525 	<i>GED Connection</i> , <i>Pre-GED Connection</i> , and <i>Workplace Essential Skills</i> curricula combine PBS TV broadcasts, workbooks, and online instruction (activities, GED practice tests, tutor support). If ABLE agencies purchase the curricula the materials are free for students.
Learning Express Library ²⁴	\$15 per course	Online, 20-lesson courses, including scored practice tests, available only through libraries. Students take multiple courses
My-GED.com ²⁵	\$30	Website provides “multimedia instructional guides and a battery of [GED] practice tests.”
GEDonline ²⁶	\$65 for 4-month membership	Online GED preparation in English and Spanish that provides scored GED practice tests, scored essays, interactive lessons, and monitoring of progress by tutors
Delaware County Community College ²⁷	\$89	Provides DL GED classes through Ed2go.com (below)
Ed2Go.com ²⁸	\$139	12-lesson, 6-week online GED course with teacher support. Local agencies can also purchase DL courses from Ed2go

²⁰ www.gedforfree.com

²¹ ged.free-ed.net/free-ed/ged/

²² highered.mcgraw-hill.com/sites/0809222329/

²³ litlink.ket.org/

²⁴ www.learnatest.com

²⁵ www.my-ged.com/index.html

²⁶ www.gedonline.org/

²⁷ www.ed2go.com/dc3/online_course/ged/detail/GED_Preparation.html?CategoryId=0

²⁸ www.ed2go.com/classes/online_course/ged/detail/GED_Preparation.html?CategoryId=0

GED Program	Cost	Description
GED Prep Program ²⁹	\$189	200-hour online GED course with tutor support offered by Luzerne County Community College’s eLearning Center. Provided through GED Academy.
GED Academy ³⁰	\$299	Online GED course with practice tests, personalized tutor support, and analysis of academic progress. Local agencies can also purchase DL courses from GED Academy.
Stratford Career Institute High School Diploma ³¹	\$589	High school diploma program that uses print- and computer-based materials and offers instructor support via email and toll-free telephone
Ashworth High School Diploma ³²	\$657 to \$897	“General” and “college prep” high school diploma courses offered online or through correspondence
Penn Foster High School Diploma ³³	\$1,295	High school diploma program that uses print- and computer-based materials (including an online library) and offers instructor and librarian support via email and toll-free telephone

Another cost for students is GED testing fees. In Pennsylvania, these are determined by each Test Center, ranging from approximately \$50 to \$100 for the complete test battery. Fees for individual sub-tests and retesting also differ across Test Centers. In 2009, one-third of all Test Centers nationwide provided free testing, 11 percent had varying fees, and 56 percent charged a set fee—\$63 on average (\$1 to \$250). In addition, nearly 29 percent of Test Centers waived fees under certain conditions (GED Testing Service, 2010a).

²⁹ lcc.theelearningcenter.com/detail/ged_prep_program

³⁰ www.passged.com/

³¹ www.scitraining.com/High_School_Diploma

³² www.ashworthcollege.edu/programs/high-school/

³³ www.pennfoster.edu/diploma/index.html

Goal 5: Advantages of DL for students and agencies

This section reports data from interviews with rural staff members (n=9) and students (n=17) in ABLE-funded programs concerning their experiences with DL GED classes.

Reasons for enrolling in DL: Staff perspectives

According to agency personnel, rural students enroll in DL mainly due to barriers to face-to-face class attendance such as limited transportation (n=8), work-related reasons (n=6), child care and caretaking responsibilities (n=4), and the desire for privacy and confidentiality (n=1). The following comment is illustrative:

We felt it [distance learning] was an excellent option because our county is a very rural county and we have a lot of people that are living slightly above poverty level to below poverty level. There [are] many barriers in their [lives] that...prohibit them from attending one of our GED classes. And so when [the] state of Pennsylvania began offering distance learning, we thought this was a great option for our students, because we really lack public transportation in our county. We lack adequate child care resources for parents who want to attend a GED class, but they can't get to a class because of little ones at home. And then a lot of our job market is in the warehouse business and distribution centers and so the people are working like twelve-hour shifts. So that is not conducive for when our classes are. So the distance learning option is just a real asset to be able to offer people that really wanted to work on their GED.

Three staff members also noted that students select DL because budget cuts have reduced the number of face-to-face GED classes in rural counties. For instance, Pennsylvania's federal adult education funding was reduced by 17 percent and the delay in passing the 2009-2010 state budget prompted ABLE-funded programs to close or restrict the availability of GED classes. Three people cited students' health problems and mental health (e.g., social phobias) as a reason for choosing DL and one person mentioned students' prior "bad experiences" in "classroom situations."

Reasons for enrolling in DL: Student perspectives

Students' reasons for choosing DL instead of face-to-face GED classes overlap considerably with what they considered the advantages of DL (see below) and with teachers' responses. The most frequently mentioned reason was convenience and flexibility (n=7). For example, students did not have to spend time driving to class and could fit studying around their work schedules and other demands. Four students selected DL because they had to care for children (n=3) or a spouse (n=1). A preference for studying independently or alone was mentioned by four respondents, in one case because of "social anxiety" and in another case because of the desire for confidentiality. For instance, one woman did not want anyone to know she was studying for her GED:

I was ashamed of the fact that I had never graduated. Here I worked in a job for seventeen years and nobody around me knew that I had never graduated. I was not about to tell them. That is why I went to school to get my GED.

In four other cases, students stated that DL classes were "available" or were the only option, or that they did not know other types of GED classes were available. Transportation (no car or license) was a factor for two people. Finally, the personalized attention and inexpensive (free) cost of ABLE-funded DL classes were each mentioned by one person.

Additional insights into reasons for selecting DL were drawn from DLP's 2008-2009 student survey (n=105) (Distance Learning Project, 2010b). The respondents

cited the convenience, independence and self-pacing as primary attractions to distance learning – 71%, 37%, and 48% respectively. Child care, work schedule and transportation were cited by between 20-30% of respondents as reasons distance was chosen as an alternative or supplement to face-to-face instruction. (p. 2)

Advantages of DL for students: Staff perspectives

According to DL personnel, the main advantage of DL is that it expands access to education. DL students, they believed, would otherwise be unable to attend face-to-face classes due to factors

such as limited transportation, conflicting work schedules, or family responsibilities. Similarly, they believed DL provided rural students with greater access to information:

[There is] a lot of information and a lot of resources available through the technology and online that is not available to people who live in a little tiny town way up in the country, but they can access it online [through DL] and learn that way.

A second advantage of DL is intensified instruction. That is, DL enables students to devote more hours studying than they would in a face-to-face class or to supplement face-to-face attendance with independent study through DL. For instance, a student who attends three face-to-face hours per week can also complete two hours of “independent study and reinforcement.” In this way, “the students are actually getting more hours and more time with the program. That has been a major advantage.”

In turn, increased instructional time contributes to a third advantage: increased academic gains. Specifically, personnel believed DL students developed stronger “study skills” and learned to “take ownership of their learning” because DL study requires time management, independence, and related skills, while also providing students with instructional support.

Personnel identified three additional benefits of DL for students: it helps them save money, for example, on gasoline for transportation; it allows teachers to “individualize” instruction; and it enables students to “work at their own pace.”

Similarly, staff members stated that if their agency’s DL classes were not available, their students “would not get their GED,” would make slower academic progress, or would select academically inferior or fraudulent online GED classes. The following comments illustrate why access to DL is especially vital for rural residents:

Some of them would just never get their GED. They would have to try to find a program that had hours when they could make it [and that] was closer to their house. But in [our] county and especially with our agency, all of our smaller sites that we used to have in schools and churches and things like that, they are going away and most of our classes are stand-alone

sites [like] Career Links and training agencies. It seems that everything is being condensed into larger classroom settings versus the two evenings a week at the local school. So it means that for most of the people in the county, transportation is now a requirement. You know, you can't walk down to the elementary school and go to the class two evenings a week. You have to go to [another town]...that is fifteen miles away to attend the class. So some of these students just would not do anything. They would have no other options.

ABLE-funded agency personnel identified specific advantages of *blended* compared to pure DL or pure face-to-face instruction. Adding distance learning to face-to-face class attendance enabled programs to provide students "additional instructional time" and allowed students to make up any work they had missed. In turn, staff members believed that supplemental DL instruction helped accelerate students' progress toward their academic goals. This is especially important because, as previously noted, blended DL students in rural Pennsylvania have slightly lower educational attainment and test at a lower educational level than pure DL students. Second, students "get the best of both worlds" because they can work at their own pace at home, but also go over problems with their teacher in person, which is "easier" than providing explanations over the phone or the Internet.

Advantages of DL for students: Student perspectives

Students cited eight main advantages of DL. Similar to DLP survey respondents, the majority (71%, n=10) of interviewees most appreciated the convenience, flexibility, and freedom of distance learning, including the ability to make their own schedule, to study anytime or anywhere (especially at home), and to take care of other responsibilities, such as laundry, while studying. As one student put it, "You are not on a time clock." The following comments were typical:

Distance learning would just be so much easier because whenever I was home I could do the school. It was fine. I did not have to worry about it. I did not have to run anywhere to do it. It was in my own home so I could do it at my leisure and be comfortable with it.

The other advantages of DL included:

- the ability to combine GED study with an irregular, unpredictable, or demanding work schedule (n=4);
- the ability to study “at their own pace” (n=4);
- increased privacy and confidentiality, and diminished social anxiety (n=4);
- the instructional materials and approach, for instance, the use of certain books, opportunities for extra practice, and the choice between books and computers (n=3);
- reduced spending on gas (n=3);
- no need to find a babysitter (n=2); and
- a supportive, friendly learning environment with the teacher and peers (n=2).

Advantages of DL for agencies

Six staff respondents viewed increased enrollment as the main advantage of DL provision; two people, however, believed DL had not influenced enrollment. Increased retention (n=2) was another advantage. Specifically, DL enhanced agency performance on student retention measures because DL allowed students to continue studying if they were unable to attend class in person. As one person put it, “Distance learning is one more option that we can offer people to help them stay in the program.” Third, DL gave agencies another “dimension” or “option” (n=3) to offer students who could not regularly attend face-to-face classes. Fourth, by increasing students’ instructional gains, DL enhanced agencies’ ability to meet federal and state standards “for the educational functioning levels and for those acquiring their GED” (n=2).³⁴ Organizations utilizing DL also benefited from the ability to hire “experienced distance teachers” who did not live near the program site (n=1). Finally, certain DL GED curricula such as *Skills Tutor* provided teachers and

³⁴The National Reporting System for Adult Education requires adult education programs to show that learners have made gains on standardized tests such as the TABE.

administrators with access to useful data such as instructional hours and pre- and post-test scores. They could then use this information to provide additional support or to update student records in the Bureau of ABLE e-Data system.

Goal 5: Challenges and disadvantages of DL provision: Staff perspectives

Limited access to computers and the Internet

The most pervasive challenge cited by DL staff members was students' restricted access to computers and the Internet, especially high-speed Internet (n=7). In rural areas, "people don't have computers and people don't have Internet access. If they do have Internet access they [have] poor Internet access." Moreover, GED students, many of whom "are teetering at the poverty level," can seldom afford to buy and maintain computers and Internet service. These economic and technological problems shape who can enroll in DL, the types and quality of instructional materials programs can use, and student persistence. To confront this challenge, personnel reported that students who do not have computers at home typically go to a friend's or relative's house or occasionally to the library. However, this strategy has limitations:

It [online DL] is not open to everyone. It is only open to people who have the Internet or who have access to the Internet. You know, a lot of times I hear, 'I don't have a computer, but my mom does. I can go there.' And usually that is setting them up for failure because it is difficult for them to go to their mom's house and take their kids to their mom's house or to go to their parent's house after work to get on [the computer].

According to staff members, students who do have computers at home also switch between online and print DL materials depending on their ability to pay the Internet bill.

To expand students' technological access, DL programs employed the following strategies: (1) refer students to libraries, CareerLink, and other locations with Internet access and provide vouchers to cover usage fees; (2) provide students with free computers and instructional software,

for example, by soliciting donations of used computers from the military or by purchasing multi-user software; and (3) make the program's computer lab more accessible to students.

Limited awareness of the availability and value of DL

Six staff members commented on students' (n=3), agency staff and administrators' (n=2), and legislators' (n=1) limited awareness of DL and what it offers. Agencies had difficulty "just getting the word out" to the wider community that DL is "available." Second, certain agency personnel or administrators were unsupportive of DL, in part because DL teachers' work with students was less visible than that of face-to-face teachers. Finally, adult basic education providers must constantly work hard "to make sure that legislators are aware of our services" and "let them know the importance of...[our] work."

Student isolation

Five staff members noted that because DL students work independently, they may "feel isolated" or have difficulty staying "motivated" and accessing the support they need from peers and teachers. It may also be more difficult for teachers to establish rapport with them. One program confronted this challenge by using discussion boards with online students to create a "sense of a learning community."

Funding

Having adequate funds to hire DL teachers and provide DL classes was a challenge for three programs. One of these programs expanded its resources by obtaining technology donations and grants from foundations and corporations.

Maintaining contact with students

Another challenge was maintaining contact with students who move or whose phone number has changed or been disconnected, and ensuring that students complete mandatory post-testing (n=3). Programs employed multiple strategies to keep in touch with students, including the use of different kinds of communication (e-mail, phone calls, postal mail, etc.) and providing flexible appointment times.

Time required to provide high-quality DL

Three respondents believed a disadvantage was the time it takes to design, establish, and maintain a DL program and to teach DL classes and support students.

Student time management

Staff members from three agencies noted that due to the unstructured nature of DL classes and students' life demands, some students have difficulty making time to study. As such, teachers "try help students plan for study times and be realistic with goal setting and finding time to study."

Level of difficulty

DL students may become easily frustrated if the course material is too difficult, as they cannot readily ask a peer or raise their hand to ask a teacher for help (n=3). Scheduling appointments either face-to-face or online and providing supplemental lessons were suggested as ways to reduce student frustration.

Delayed feedback for students

Unlike face-to-face instruction, DL teachers can seldom provide students with immediate help and feedback (n=2):

If they are working at 1:30 in the morning I am not there or another teacher is not there to be available to them to say, 'Okay, relax, and here is what we want to do, and here is how we set it up, and here is why we set it up.' So a lot of times that is the biggest case: They don't get that immediate feedback.

In turn, the inability to observe what students are doing makes it difficult "to diagnose where the troubles are."

Limited capacity of online enrollment

With an enrollment limit of 20 for online DL classes (programs must pay companies for a certain number of DL spots), two programs were able to serve only a limited number of GED students.

Difficulty of motivating students

Two staff members noted that lack of regular face-to-face contact makes it difficult to motivate DL students:

It is easier to keep them motivated if they are here than it is if they are 30 or 40 miles away and I don't have that much contact with them....It is very hard to motivate a student online. I can send an e-mail and say, 'Hey, I haven't talked to you in a while,' or 'I haven't seen you logged in. Is everything okay?' I am just not a face. I am simply just an e-mailer. I am a bunch of words, and it is easier to motivate face-to-face.

Additional challenges

The following challenges were each mentioned by one person.

- Open enrollment, in which students can enroll or withdraw at any time, means DL teachers must constantly "juggle" students. Managed enrollment classes of a specific length were suggested as a solution.
- In one agency DL teachers did not receive many student e-mails because, in an effort to reduce junk e-mails, certain types of e-mail addresses (e.g., Yahoo accounts) were blocked from staff computers at all program sites.

- Before assigning students to DL, programs must determine whether potential students can motivate themselves and “work independently,” as students who are “misidentified” can become “easily frustrated.”
- DL is not well-suited to meeting the needs of less academically prepared students. Providing supplemental materials and additional teacher support can be useful for such students.
- Some students cannot, or prefer not to, read online.
- Retention of DL students is difficult.
- The same barriers that prevent students from attending face-to-face classes also hinder them from completing post-tests at the program site. (Pre- and post-tests in ABLE-funded programs are nearly always administered in person.)

Goal 5: Challenges and disadvantages of DL provision: Student perspectives

Delayed feedback and limited access to teachers

The most frequently mentioned disadvantage of DL was the difficulty of obtaining timely help and support from instructors (n=6). In particular, students disliked having to wait for teachers’ feedback and assistance, for example, when they were studying at night. Such delays were longer for students using print materials. (Two students, however, found it easier to obtain assistance in DL, since they could e-mail or call their teacher with any questions.) In addition, one student found it harder to understand teacher explanations of academic material provided over the phone. As one student explained, “It’s a little harder to learn when you don’t have a teacher there to help you.” Another concurred, stating that when stuck with a problem in the GED workbook “it would be so

much easier if I had [my teacher] sitting right there, where she could come over to my table or have a board where she would [write].”

Understanding academic subject matter

Understanding subject matter such as math, English, reading, and writing was another challenge (n=5), especially for those who had not studied “in years.” This challenge, however, is not specific to distance learning; it is also common in face-to-face adult education classes.

Maintaining focus and interest

According to three students, maintaining their focus and interest in the academic coursework was a challenge, particularly in subject areas where they struggled.

Isolation

Two students missed having classmates or other peers from whom they could learn and receive help in figuring out academic problems. As one student stated, “It kind of helps when you are stuck on a problem and you talk about it with someone and you figure out maybe the easiest methods.” Another learner remarked, “I was basically all alone.” Since most of her friends had dropped out of school, they did not understand the math problems with which she needed help.

Curriculum-related complaints

Two students expressed dissatisfaction with the curricular materials (GED Pathways and Skills Tutor) used in their DL program, citing specific features that they found confusing, redundant, or unhelpful.

Additional challenges

One student each mentioned the following challenges of DL study:

- technical problems with the computerized curriculum;

- the difficulty of balancing GED studies with family responsibilities and other life demands; and
- unclear instructor expectations for what the student needed to do at home.

CONCLUSIONS

Types and usage of DL

Data on usage of DL for GED preparation relative to the need for the GED credential indicate great potential for expanding distance education in rural Pennsylvania. During the period analyzed for this study (July 1, 2004 to December 31, 2008), only 4 percent (975) of all rural students in ABLE programs participated in DL classes—between 153 and 324 per year. Inmates, who currently comprise 9 percent of rural DL students, are an overlooked population that could benefit from GED study via distance learning.

Approximately three-fourths of rural DL students participated in both DL and face-to-face instruction, likely because teachers tend to add DL to boost face-to-face students' academic skills and to provide additional study opportunities. Notably, without the distance option, the other 25 percent of rural DL students would have had little, if any, adult education instruction. In other words, for one in four rural DL students, distance education is likely the only viable study option.

Aside from ABLE-funded programs, only four organizations providing GED preparation via DL for rural students were identified. If other such agencies exist, our study participants, key informants, and adult education networks were not aware of them. Many rural GED candidates, however, study for the GED independently using workbooks, free online materials, GED websites, and other resources at their disposal.

The results show that in ABLE and non-ABLE programs, print-plus-computer is the most common instructional format, although video is also used. Computer-only was the least common format. This finding is consistent with national data suggesting that most candidates do not chiefly rely on computers or the Internet to study for the GED. In a survey of 2,382 GED chief examiners,

27 percent...reported that their candidates received at least half of their GED instruction on a computer and 17 percent indicated that at least half of the GED instruction received was online....Nearly 50 percent and 30 percent of the [GED test] centers, respectively, reported that their candidates did not prepare at all using the internet or a computer. (GED Testing Service, 2010a, p. 6)

The programs in this study rely heavily on print materials, yet these have many disadvantages such as expense, preparation time, and delayed feedback. DL personnel would like to use more online resources that enhance academic instruction and student support, for instance, by using Web conferencing or technologies such as Scriblink that combine real-time visual, written, and oral communication through the Internet. However, the cost of hardware and software for programs, coupled with limited student access to high-speed Internet and reliable computers, prevents many programs from taking advantage of innovative instructional technologies. Although ABLE teachers used myriad methods to communicate with and support students, and learners were generally satisfied with this support, the incorporation of more Internet tools would help alleviate frustration with explaining complex concepts using only one mode of communication, such as phone or print.

Data on student Internet access reveal that having *high-speed* Internet *at home* is a prerequisite for participating in DL through the Internet. That is, studying for the GED by using the Internet at another person's home is, as one staff member put it, "a recipe for failure."

Characteristics and participation of rural DL and face-to-face students

The demographic characteristics of rural GED DL students are typical of the life circumstances that are associated with low educational attainment and that make distance learning

an appealing option. DL students are predominantly young (about two-thirds are 25 and under), White (95 percent) women (65 percent) with a 10th grade education, with 10 percent having completed 8th grade or less. Moreover, distance learners are significantly more likely to be female and low income than face-to-face learners, whereas men are under-represented relative to their proportion of the Pennsylvania population without a high school education.

Rural DL students' average reading, math, and language scores upon program entry place them at the 6th to 9th grade level. However, blended students, who comprise three-fourths of all rural DL students, have slightly less formal education and lower academic assessment scores than do pure DL students. In addition, a substantial minority of rural DL students have a physical and/or learning disability. Together, these characteristics indicate a need for basic-level GED instructional resources via DL, especially for blended DL students.

About one in five rural DL students is a single parent, and more than one-third work full-time (20 percent) or part-time (15 percent). Six in 10 rural DL students are considered low-income (60 percent), and nearly four in 10 receive cash (10 percent) or in-kind (28 percent) assistance. Thus, the typical rural GED candidate will require various types of support to overcome economic and situational barriers to participating in DL and passing the GED Tests.

Effectiveness of DL compared to face-to-face GED classes

The study shows that distance learning is just as effective as face-to-face classes in preparing students to pass the GED Tests. In fact, the pass rate for rural Pennsylvania DL students is slightly higher than the national rate of 73 percent in 2008. DL students who obtained the GED credential tend to be younger, employed, and not disabled, and have fewer total instructional hours and higher educational assessment scores upon program entry. Comparison of pure and blended DL students revealed that assessment scores were the only significant predictor of passing the GED

Tests. These results indicate that more academically prepared students are ideal candidates for short-term, accelerated DL study, as discussed in the recommendations.

Distribution of GED testing sites in rural counties

To take and pass the GED Tests, rural DL students need to access testing sites. About three out of four rural Pennsylvania counties have at least one public GED testing site (n=37); however, one in four has none (n=11). The latter counties, six of which form a diagonal corridor from Fulton County on the Southern border to Sullivan County in the Northeast, are ideal locations to add addendum sites or Test Centers.

Cost of DL provision

Although precise data on cost of DL provision were not available, estimates from Pennsylvania and other states are instructive. The cost per enrolled student in the ABLE-funded Distance Learning Project was approximately \$688 (refer to the caveats mentioned in the section on DL costs). The average estimated cost per distance learner in ABLE-funded provider agencies' funding proposals was \$361. Estimated costs for non-ABLE agencies varied from \$60 to \$2,500 per student—similar to the range reported by California DL programs (Stiles & Porter, 2007, p. 9). In California (2006-2007) and Ohio (2005-2006), the average cost per DL student was \$485 and \$293, respectively. In sum, the estimated cost per student in Pennsylvania is consistent with other states.

Advantages of DL for students and agencies

According to ABLE DL learners and program personnel, students' primary reasons for enrolling in DL include accessibility (e.g., no need to travel); convenience and flexibility; the ability to fit GED study with employment, childrearing and caretaking, and other life demands; preference for independent, self-paced learning; and the desire for privacy or confidentiality. The perceived

advantages of DL for students are similar. From the perspective of instructors, DL affords rural GED candidates with more options to pursue educational credentials—in some cases, their *only* option. DL also enables blended learners to study outside of class and, as such, increases academic growth—a view that is supported by quantitative data on blended DL students’ educational gains. For students, DL provides much-needed convenience and flexibility and allows them to combine GED study and employment, to study “at their own pace,” and to maintain confidentiality, which is especially important for those who are ashamed of dropping out or who have social anxiety. These advantages of DL correspond closely to the characteristics of DL learners cited above, including poverty, single motherhood, and part- or full-time employment.

DL also affords various advantages for educational agencies, including increased enrollment, student retention, and performance on federal and state program accountability standards (e.g., educational gains, percentage of students meeting goals), as well as more instructional formats to offer students. In short, DL can enable agencies both to enhance student learning and to comply with program performance requirements.

Challenges and disadvantages of DL provision

Despite the potential of DL, it also has limitations for students and educational providers. As noted earlier, most DL students have restricted computer and Internet access. Student and program usage of online GED resources depends on the availability and affordability of rural broadband and computer technology. In addition, agency staff members cited limited awareness of DL’s existence and value as a constraint. Programs also lack adequate funding for DL, an instructional format that requires the investment of financial resources and staff time. From a pedagogical perspective, program personnel identified challenges such as communication with students, delayed feedback on assignments, and student struggles with isolation, time management, and difficult course

material. Each of these pedagogical issues, as well as maintaining interest and focus and specific curricular concerns, was also mentioned by students. For distance learners, accessing timely help and support from instructors is the most difficult aspect of DL, especially for those using print. These results underscore the importance of having access to an array of technologies (in addition to phone, e-mail, and postal mail) that allow students and teachers to contact each other and teachers to provide adequate, timely explanations of GED subject matter.

POLICY CONSIDERATIONS

The policy recommendations in this section are drawn from analysis of (1) the research findings, (2) the policy suggestions made by ABLE- and non-ABLE funded agency staff (n=13) and the key informant, (3) the scholarly literature on DL in adult basic education reviewed for Goal 6, and (4) the DL and GED services provided by other states with large rural populations.

Launch a GED and distance learning publicity campaign

Aggressively publicize the GED credential and DL services in rural areas

The “major barrier” to GED study via DL is that rural residents “just don’t know” it exists:

To me it is a lack of information and a lack of communication and a lack of marketing and lack of extensive promotion that these opportunities are available to them. I know in our community I have never seen any extensive publicity or marketing about these options. (key informant)

Interviews with DL personnel support this conclusion, as do the quantitative data: During the 4½ year period analyzed, only 4 percent (975) of the 24,143 rural GED learners in ABLE-funded programs studied at a distance.

Since this study demonstrates that distance learning is just as effective as face-to-face instruction in preparing students to pass the GED Tests, policy makers can promote DL without

hesitation. The proposed strategy is to launch an “intensive,” “aggressive” statewide multimedia campaign in English and Spanish to publicize (a) the need for, and benefits of, the GED credential and (b) the availability of GED opportunities via DL and face-to-face instruction in rural areas. GED candidates should be directed, for example, to a toll-free phone number and an official website.

Other states with large rural populations have held successful GED campaigns, including Utah (GED Testing Service, 2007), Kentucky (College Access Marketing, n.d.; Kentucky Adult Education, 2010; Office of State Budget Director, 2003), Virginia (Virginia Adult Learning Resource Center, 2008; Virginia Department of Education, 2010), and Georgia (Technical College System of Georgia, 2008), among others. Following Kentucky’s “GO GED” campaign, for example, the number of people taking and passing the GED Tests increased by 26 percent and 17 percent, respectively (Office of State Budget Director, 2003). Typically, these campaigns have been undertaken by the state adult education agency, in concert with other institutions such as the state workforce development agency or the community and technical college system, as in Georgia’s case (Technical College System of Georgia, 2008).

The promotional campaign should employ not only TV, radio, and print (e.g., newspapers, billboards, bumper stickers, food tray liners³⁵, food bag stuffers³⁶), but also new media such as blogs (eLearnVA, 2010), Facebook, and YouTube, the second most popular Internet search engine. For instance, the GED Testing Service (2010, March) has posted 20 1-minute informational videos on YouTube³⁷ and established a Facebook page.³⁸ In addition to mass media, collaboration with local organizations (e.g., employers, civic groups, congregations, non-profits, school districts, human service and health care providers, Cooperative Extension) and community leaders in rural areas is

³⁵ <http://www.kyae.ky.gov/NR/rdonlyres/AA403DB8-3340-491F-A978-63F912920C62/0/TrayLiners.pdf>

³⁶ <http://www.kyae.ky.gov/NR/rdonlyres/89264BA0-1699-4429-9F0D-D2253CC9FAB2/0/BagStufflers.pdf>

³⁷ <http://www.youtube.com/gedtestingservice>

³⁸ <http://www.facebook.com/group.php?gid=46193757671>

essential to promoting the GED (College Access Marketing, n.d.; Technical College System of Georgia, 2008) and DL study options.

To ensure success, publicity of the GED and DL services should be funded by the state, *not* individual programs or agencies:

You have to market it aggressively that this option [GED preparation via DL] is available. Then you have to have the system in place to make sure that it is going to work....I know... adult ed programs or ABLE-funded programs don't have funds to...provide aggressive promotion of these options. It is all done by word of mouth or by referral, which is fine, but I think it is still missing a lot of people, particularly the out-of-school youth. (key informant)

Funding could come from a blend of corporate, philanthropic, and public sources. For instance, Virginia's campaign featured an innovative partnership with the Richmond International Raceway and other raceways to "promote the GED initiative," "give away race tickets to GED graduates," "host classes and graduations," "award scholarships to those unable to afford the \$35 test," and serve as a testing site (GED Testing Service, 2004, para. 4, 5; Virginia Adult Learning Resource Center, 2008).

Target GED publicity toward young adult dropouts

By directing publicity about the GED credential and DL services toward recent dropouts aged 16 to 20, the information will reach the audience most likely to *pass the GED Tests* and most likely to *benefit economically* from the credential. In 2008 "the GED completion and pass rates for candidates aged 16 to 19 were higher than those in the whole population" (GED Testing Service, 2009b, p. 1). In Pennsylvania, the pass rate for 16- to 19-year-olds was 77.0 percent, compared to 71.3 percent for those aged 20-24 and 65.4 percent for those aged 25-29 (GED Testing Service, 2009a, p. 92). Moreover, national data indicate that adults who pass the GED Tests at or before age 20 accrue more economic benefits than do older GED recipients—on average, \$77 more in weekly wages and \$2,989 more in annual personal income (Song & Hsu, 2008, pp. 14-15). In directing

publicity toward school-age (i.e., 16- to 18-year-old) young adults, however, educators and policy makers should avoid portraying the GED diploma as an easier, more attractive option than staying in school. That is, publicity should focus on youth who have already dropped out.

Include in the campaign organizations that work with out-of-school youth and youth at risk of dropping out

For instance, the Pennsylvania Partnerships for Children’s “Operation Restart” campaign aims to “re-engage” dropouts in high school completion and the workforce.³⁹ Blendedschools.net “offers courses developed by certified PA educators to meet PA assessment anchors and academic standards” (Blendedschools.net, 2010). A school district in Lawrence County, for example, provides alternative online education for high school students through Blendedschools.net (Pennsylvania Partnerships for Children, 2010). The efforts, professional networks, and technological infrastructure of such organizations could be harnessed to enhance the effectiveness of the GED and DL publicity campaign.

Increase legislative awareness of and support for DL and the GED

As several study participants noted, legislators’ and policy makers’ support is essential to expanding rural Pennsylvanians’ opportunities to prepare for the GED via distance learning. In sum, the publicity campaign requires that policy makers understand the importance of the GED credential and the potential of DL to serve rural dropouts, a point articulated by the key informant:

The bottom line is, educate the policy makers about the definite correlation between education and economic development. The more education people have, the more productive citizens they are going to be. That all generates additional income taxes for the state and it just raises the whole tide of people in the state.

³⁹ http://www.papartnerships.org/reports/re-engaging/re-engaging_hs_dropouts.pdf

The fact sheet prepared for this study, among other methods, can be used to deepen legislators' understanding of the GED and DL options.

Create the infrastructure and resources required to access and succeed in GED study via DL

Expand rural students' access to high-speed Internet and computer technology

The greatest number of DL staff recommendations (n=11) focused on technology. Ensuring Internet access and affordability for rural residents is a prerequisite for expansion of DL study options. High-quality, online GED instruction requires high-speed Internet, a luxury that many rural, low-income students cannot afford. DL instructors' comments suggest that print-based materials are neither cost-effective nor optimal for learning, yet the majority of programs must use them because students lack consistent Internet and computer access. Data from the Distance Learning Project indicate that students with high-speed rather than dial-up Internet access at home are far more likely to participate in online GED instruction. This suggests that expanding the *availability* and *affordability* of broadband in rural Pennsylvania (see Glasmeier & Wood, 2003), both in homes and in public sites such as libraries and Career Link, is a vital step to promoting and enhancing DL instruction. Federal funds available through the Broadband Initiatives Program and the Broadband Technology Opportunities Program could be used to expand the availability of rural broadband.⁴⁰

Second, establish creative partnerships with corporations and foundations and provide state funding to increase student access to computer hardware and software, and to train students in how to use these tools. Most DL students still have limited access to computers. In some cases even library computers are not free, as students who live outside the city limits may have to pay for a

⁴⁰ See for example <http://www2.ntia.doc.gov/pennsylvania>.

library card. Some respondents suggested that school districts could provide DL students with access to computers after school hours or lend them laptops. Cyber schools were mentioned as a model for lending computers and subsidizing Internet costs for enrolled students.

Provide social, academic, and financial support for rural DL GED students

DL personnel suggested various ways to create a stronger support system for distance learners. First, the Bureau of ABLE should investigate and recommend effective ways to establish a learning community among print-based learners who may feel isolated because they cannot communicate with other GED students via e-mail, discussion boards, or other Internet-based technologies. Other recommendations include provision of case management services for distance learners, transportation to enable DL students to meet with teachers and classmates on an occasional basis, and a centralized, online service where DL students could pose questions to any ABLE distance instructor.

Policy makers should consider financial incentives to reduce testing costs similar to those offered by other states. For instance, until fall 2009 the Ohio Department of Education offered a fee waiver to candidates who took the Official Practice Test and met or exceeded the minimum passing score.⁴¹ Kentucky also waived GED testing fees (\$30 in 2001-2002) as part of its Go Higher college access campaign (Kentucky Council on Postsecondary Education, 2002). In 2005, Kentucky Adult Education partnered with Amazon.com, which operates distribution centers in the state, and the Chamber of Commerce to promote the GED credential (Kentucky Council on Postsecondary Education, 2006). Amazon.com provided “up to \$40 for a GED test fee reimbursement, a \$20 Amazon.com gift card and preference in hiring to GED graduates” who resided in the 20 counties that comprised Amazon.com’s labor pool (Kentucky Adult Education, 2006, para. 2). Nationally,

⁴¹ http://webapp2.ode.state.oh.us/curriculum-assessment/assessment/ged/GED_Application06.pdf

some counties or individual GED testing sites offer full scholarships⁴² or partial testing fee waivers⁴³ for candidates who meet certain economic and/or academic criteria.

Expand and enhance DL options for GED preparation

Create an accelerated DL GED course for academically qualified candidates

In accelerated DL instruction, people with qualifying assessment scores—whether new students or students already enrolled in another GED preparation program—would be eligible for short-term, managed enrollment DL GED classes administered by the Bureau of ABLE. The initiative could be modeled after Virginia’s “Race to GED,” which targeted high school dropouts aged 18 to 64 whose reading and math TABE scores (a minimum of 567 and 543, respectively) indicated readiness to pass the GED Tests “within 90 days and with 60 hours or less of instruction” (Packard & Chafin, 2005a; Virginia Department of Education, 2010). These “Fast Track GED” classes provided 6 to 8 weeks of intensive instruction, whereas the “GED Prep” courses prepared candidates to take the GED Tests in approximately 180 days (Virginia Department of Education, 2010).

Statistical analyses from this study lend support for accelerated instruction. First, two of the factors associated with passing the GED were higher scores on standardized assessments and short duration of enrollment in DL. These results suggest that GED candidates who are more academically prepared upon entry need little instructional time before they are ready to pass the GED Tests. Second, pure DL students had a higher educational level on entry than did blended learners, indicating that the former would be ideal candidates for an accelerated course.

⁴² <http://www.cookcountygced.org/EnglishApplication.pdf>

⁴³ <http://www.ccsf.edu/Services/GED/cost.htm>

Direct rural GED candidates to assessments aligned with the GED Tests

ABLE-funded DL programs already assess students' academic preparation using various tools such as the TABE or GED curricula. GED candidates who are not enrolled in ABLE-funded programs, however, should have access to information (for instance, through the PDE GED website, a toll free number, or other media) about free or inexpensive, high-quality GED assessment options, both online and in print. For example, Steck-Vaughn, the publisher of the Official GED Practice Test, provides a free unofficial practice test at gedpractice.com.

Expand the types of sites where individuals can prepare for the GED via DL

To reach a greater proportion of rural adults with less than a high school education and to create an effective DL system, the Bureau of ABLE should consider how to collaborate more closely with organizations that do not receive ABLE funding, such as libraries, community colleges, school districts, public TV stations, non-profits, employers, Cooperative Extension, and others that can play a vital role in offering DL. For instance, one respondent recommended that PDE and ABLE-funded programs coordinate with the library system to assess how “we can use the libraries as a base to help individuals, particularly in the rural areas, prepare for the GED.” In Pennsylvania, libraries and other educational institutions such as community colleges provide GED candidates with access to the Learning Express Library, an online, self-directed learning website that provides GED preparation courses in English and Spanish and GED practice exams, among other topics.⁴⁴ The key informant recommended that “all parts of the state” offer this service to GED candidates. Libraries would undoubtedly need additional funding to provide more DL services, as they have already had to curtail services due to the 2009-2010 and 2010-2011 budget cuts.

⁴⁴ <http://www.learntest.com/LEL/index.cfm/general/moreInfo/ged>

Similarly, PDE could explore ways for large employers in rural areas to sponsor or subsidize DL GED classes for their employees, for instance, by offering companies financial incentives for providing such classes. Since work schedules are a common reason for choosing DL, such an arrangement would allow employees both to prepare for the GED and to retain their employment.

Widen the range of ABLE-approved DL instructional materials

Eleven recommendations mentioned support and resources for instructional materials. Six ABLE DL personnel recommended more options and “flexibility” in choosing ABLE-approved DL materials, for instance, identifying materials for lower-level students and allowing a “broader spectrum of teacher-created materials that counts as distance learning.” The federal Office of Vocational and Adult Education (2008) requires states to identify “a list of curricula that may be used for distance education or an explanation of how local programs select curricula” (p. 2) and to “describe how supplemental instruction will be monitored” (p. 14). The Bureau of ABLE recently changed its policy to allow more flexibility in choosing and creating DL materials, a change for which four staff members expressed appreciation. To count the time students spend on teacher-created lessons that supplement ABLE-approved curricula, certain criteria must be met. For instance, before directing DL students to complete a math lesson on a certain website, a teacher must (1) complete an online professional development module offered by the DLP; (2) create a lesson plan that explains the activity and specifies how long it will take students, on average, to complete the lesson (this “proxy time” is later recorded in e-Data); and (3) complete a “supplemental instruction activities” form and keep it in the student’s file (Distance Learning Project, 2010a).

Although curricular flexibility exists, some still perceived that the “paperwork” involved in creating supplemental lessons makes it a time-consuming task, which may dissuade teachers from designing their own lessons. This suggests that the Bureau of ABLE should clarify the policy and

consider ways to simplify the use of supplemental lessons, while also complying with federal regulations. One person, for example, suggested creating an online repository where DL instructors can find supplemental lessons for DL students—especially lower-level students—that have already been approved by ABLE.

Increased state funding (see below) would enable programs to purchase crucial resources such as multi-user educational software and instructional resources for lower-level GED students. The Bureau already funds DL licenses (e.g., *Skill Tutor*) and computer technology instruction; however, another person recommended allowing programs to purchase more expensive DL curricula. The results indicate a need for GED resources for lower-level DL students. First, rural distance learners' average math and reading scores were at the 6th to 9th grade level, and more than one in four students (29 percent) was assessed below the 6th grade level. Second, 10 percent of the 890 rural DL students had completed 8th grade or less. Finally, nearly one in five (18 percent, n=189) of rural distance learners had a disability; of these three-fourths had a learning disability.

Link DL GED instruction more closely to opportunities for postsecondary study

Several respondents noted the importance of connecting rural GED recipients to postsecondary education, echoing the growing national emphasis on GED-to-college transitions (GED Testing Service, 2010b; Patterson, Zhang, Song, & Guison-Dowdy, 2010). For instance, the key informant recommended “counseling” DL GED students about their “next step,” such as “opportunities for distance learning at a community college or a university nearby.” Kentucky, Florida, Ohio, Massachusetts, and a group of 6 New England states, for example, offer college transition support for GED recipients (GED Testing Service, 2010b). PDE should explore strategies for providing college transition services for DL GED candidates, both through adult education programs and two- and four-year colleges.

Protect rural residents from unauthorized online GED credential programs

According to the GED Testing Service (2010c), unsuspecting GED candidates are “lured by claims of web sites offering accredited diplomas online and pay fees from \$200 to \$1,200” (p. 2), only to discover that their GED credential is not valid. An ABLÉ staff member also mentioned the possibility of students being fooled by TV or Internet ads claiming the GED Tests can be taken at home or online for a fee. The GED Testing Service provided several recommendations for protecting citizens from fraudulent online GED testing programs:

- Using the attached example, issue a warning from the Attorney General’s office to consumers.⁴⁵
- Notify state offices (e.g., the department of education, department of workforce services, and department of social services) to the threat of dubious online high school credentialing programs.
- Inform your state’s citizens that there is only one GED Testing Program and that the GED Tests are not a generic credential available from any other source.
- Notify the above state offices to accept only official GED Transcripts, which are difficult to forge, instead of a certificate or diploma.
- Ensure that accurate information on your state’s GED testing program is available on one of the official GED testing program web pages (see www.GEDtest.org, www.GEDtest.org/administrators, www.GEDtest.org/locator).
- Work with your state department of education to create a list of credible accreditation bodies and, if possible, programs that are recognized as accredited by your state.
- Monitor the legitimacy of online degree granting programs and take action as appropriate. (p. 2)

According to the Director of the Bureau of ABLÉ, all of these steps have been implemented. For instance, the ABLÉ website unequivocally states that the GED Tests are not available online,⁴⁶ and the GED Testing Service provides accurate information about Pennsylvania’s GED testing program. Details about how and when the other steps were implemented were not provided. Researchers could find no mention or warning about online GED testing scams on the Pennsylvania Attorney

⁴⁵ http://www.acenet.edu/Content/NavigationMenu/ged/etp/pros/NAAG_File.pdf

⁴⁶ http://www.portal.state.pa.us/portal/server.pt/community/ged%C2%AE_learner_information/9084#online

General's website. Full implementation of the aforementioned recommendations can help ensure that rural residents do not waste money on fraudulent GED programs.

Increase access to the Official GED Practice Test (OPT) and GED testing sites

Provide ample opportunities to take the Official GED Practice Test

As the key informant attested, the OPT is an invaluable assessment tool that enables teachers to tailor instruction, motivates students, indicates readiness to pass the GED Tests (Packard & Chafin, 2005b), and prevents candidates from wasting time and money by taking the exam prematurely. A study of 90,032 individuals who took the GED Tests in 2004 found that "taking a practice test was associated with higher GED Test scores" (McLaughlin, Skaggs, & Patterson, 2009, p. 24), especially in Mathematics. Moreover, students enrolled in adult education programs benefited from taking the OPT more than those engaged in self-study. The former gained 15 to 22 points on average per content area, compared to 10 to 15 points for the self-study group (after controlling for confounding factors such as educational background). In another study, candidates who were younger than the state minimum (they must show additional documentation to take the GED Tests) were more likely to pass if they took the OPT (Zhang, Han, & Patterson, 2009).

The OPT is currently available free of charge to participants in ABLE-funded programs, and a free *unofficial* practice test is available on Steck-Vaughn's website. However, many GED candidates do not have access to the OPT because they are not enrolled in an ABLE-funded program. Thus, they take the GED Tests without adequate preparation or knowledge of their readiness to pass.

To expand rural GED candidates' access to the OPT, PDE should coordinate with other rural institutions such as libraries, school districts, community colleges, community action agencies, county Extension offices, and employers to offer the OPT either free of charge or for a nominal fee

(e.g., \$5-10). The key informant recommended the latter because he believed GED candidates would feel more “invested” and be more likely to keep their OPT appointment. Nationally, 51 percent of GED Test Centers require the OPT for some (e.g., underage) or all candidates; of these, 94 percent provide the OPT for free (GED Testing Service, 2010a). Regardless of where the OPT is administered, a qualified person would have to score it, interpret the results, and direct candidates who are not ready to pass the GED Tests to appropriate DL (or face-to-face) courses.

Supported by subsidies from local racetracks, some adult education programs, Test Centers, and school districts in Virginia offer the OPT for free as part of the Race to GED initiative (Virginia Adult Learning Resource Center, 2008). In addition, and a certain number of candidates with passing OPT scores are eligible to win free registration for the GED Test—and a pair of speedway tickets. If similar strategies and partnerships were adapted to rural Pennsylvania, distance learners would be more likely to take the OPT and pass the GED Tests.

Indeed, the Race to GED (Packard & Chafin, 2005a) recommended that in addition to the TABE, which is routinely used for in GED assessment, instructors use the OPT “to generate a detailed diagnosis of a student’s knowledge needs” (Packard & Chafin, 2005b). After taking the OPT several times in the six- to eight-week class, Virginia students were better prepared for the GED Tests and more confident in their ability to pass.

Establish more GED testing sites and/or more frequent testing in rural regions

This study shows that although rural Pennsylvania counties have, on average, one public GED testing site, nearly one-fourth have none. Moreover, infrequent testing dates complicate DL students’ ability to take the GED Tests. For instance, a DL instructor reported that the county’s only public Test Center offers GED testing only once a month. Since test results can take up to six weeks, students who fail one or more GED subjects may have to wait two to three months before they can

re-take the test. Increasing the number of testing sites and frequency of testing in rural counties would help alleviate this problem. In fact, a study on the effect of Test Center policies on test scores for 641,126 GED candidates in 2008 showed that “a test center that is open all months of a year can benefit candidate performance in the Mathematics content area,” which is “widely considered one of the most challenging” GED subjects (Medhanie & Patterson, 2009, p. 23). Efforts to expand access should focus on the 11 Pennsylvania counties with no public testing sites. Strategies for the expansion of testing can be gleaned from states such as Utah, which was acknowledged by the GED Testing Service (2007) for establishing more rural sites. As Virginia’s experience suggests, unconventional testing sites should be considered.

Create one GED testing site Web page and direct all PDE links to this page

Currently, the PDE website includes four sources of information on Test Centers:

(a) “GED® Test Centers in Pennsylvania”⁴⁷ is found on the ABLÉ website under “GED/Learner Information.”

(b) A link under “Where can I take the Tests?” on ABLÉ’s “GED Information and FAQ” page⁴⁸ directs viewers to a search page on the *GED Testing Service’s* website.⁴⁹

(c) An “additional link” at the bottom of ABLÉ’s “GED Information and FAQ” page sends viewers to a “searchable database of GED Test Centers in Pennsylvania,” a website operated by PDE but not part of the PDE portal (a, above).⁵⁰ The relationship between websites A and C is unclear.

⁴⁷ http://www.portal.state.pa.us/portal/server.pt/community/ged%C2%AE_learner_information/9084/ged%C2%AE_test_centers_in_pennsylvania/522866

⁴⁸ http://www.portal.state.pa.us/portal/server.pt/community/ged%C2%AE_learner_information/9084#test

⁴⁹ http://www.acenet.edu/resources/GED/center_locator.cfm

⁵⁰ <http://www.ged.ed.state.pa.us/GEDOnline/TestCenterOL/wfTestCenterList.aspx>

(d) The hotlink to GED Test Centers in ABLE's official GED brochure (available as a PDF through links on various ABLE GED Web pages⁵¹) directs readers to PDE's *home page*, not one of the PDE Web pages with information about Test Centers (a or c, above).⁵²

It is unclear why PDE directs the public to four different Web pages on Pennsylvania GED Test Centers. Moreover, none of these Web pages includes information about addendum sites or testing dates, times, and fees at a given testing site (unlike some other states, fees in Pennsylvania vary by Test Center). A website with detailed information about each Test Center and addendum site, such as the website maintained by the Texas Education Agency⁵³, would provide rural residents and DL students with more complete information about GED testing options.

Ensure that data reporting systems accurately reflect DL student achievement

Due to the requirements of the National Reporting System for Adult Education (established by the Office of Vocational and Adult Education), GED programs only receive credit for a student passing the GED Tests *if* the program set the GED as the student's goal. The GED can only be set as a goal in Bureau of ABLE e-Data system if program personnel believe the student will pass the GED *within the current program year*. Programs do not receive credit for any DL or face-to-face students who pass the test but do not have the GED set as a goal, such as a student with low reading and math scores upon entry who advances more rapidly than anticipated or a student who enrolls late in the program year and passes the GED shortly thereafter. If programs were to set the GED as a goal for such students, they would risk missing the standard for the percentage of participants meeting their goal.

⁵¹http://www.portal.state.pa.us/portal/server.pt/community/ged%C3%82%C2%AE_learner_information/9084

⁵²www.education.state.pa.us

⁵³<http://bass.tea.state.tx.us/Tea.GEDi.Web/Forms/TestCenters.aspx>

Thus, the data reported to the state and federal governments “does not always accurately reflect how many students actually achieved their GED goal or other goals.” ABLE administrators should consider revising reporting procedures so that programs receive credit for every DL (or face-to-face) student who passes the GED Tests, regardless of the goal they set.

Increase funding for GED instruction via DL

Nine respondents identified increased state funding for adult education in general and DL in particular as essential to supporting DL instruction for rural GED students. As one person stated, “I think there are a lot of agencies, but without further funding, it is not possible to reach more people. I think the system is there and funding is what prevents the reach.” Another urged legislators to “please stop cutting funding for adult education.” And a third contended that the “kinds of [technological] supplies that you need to do distance properly” require funding.

Provision of funds for DL would enable agencies to advertise more intensively, to expand DL services, to serve more students, to purchase more and better quality computer hardware and software and thus teach in more innovative ways, to hire more teachers, to provide sufficient academic support and case management for students, to offering professional development for instructors, and much more. Indeed, Project IDEAL (2010a) considers funding a “key element” of successful DL programming:

Funds are necessary for the participating agencies and teachers, the point person, training and ongoing support and curricular materials. In order for agencies and their teachers to put enough time and effort into building a distance learning project, they must either receive financial compensation or release time from other assignments. This is too challenging a project to be added as an additional assignment to educators who are already carrying a full workload.... Pennsylvania funded an agency to oversee and provide technical support for providers involved in the distance learning experiments....Several states have purchased state-wide or agency-wide licenses for the curricular package they are using. Successful states recognized that this program needs financial support if it is to flourish. (para. 12)

As noted earlier, innovative funding has been used successfully in other states such as Virginia.

Provide ongoing professional development and support research on best practices in DL

The need for ongoing professional development and for research on best practices in DL GED instruction was mentioned six times. For instance, to take advantage of technologically sophisticated instructional tools, DL instructors need training in how to use technology and Internet resources effectively. Professional development in DL is currently offered through the Bureau of ABLE. In fact, two staff members expressed gratitude for the support and training they received in DL. Continued coordination between the Bureau's Distance Learning Project, Professional Development Centers, and the Family Literacy Professional Development Project will enhance the breadth and usefulness of DL-related professional development. In addition, instructors would benefit from taking subsidized postbaccalaureate courses in DL and technology such as Penn State's Certificate in Distance Education or Educational Technology courses, both offered on-line by the Adult Education or Instructional Systems Program, respectively.

This recommendation echoes Project IDEAL (2010a), which advised state agencies to provide "ongoing technical support in using the selected curricula and professional development to build skills needed for teaching at a distance" (n.p.). DL programs that provide effective technical support assign a "person or agency" to "provide information about the curricula being used and guidance on delivering instruction at a distance" and create opportunities for DL sites to support and share ideas with each other, for instance, through "conference calls," "online discussion boards," or "face-to-face meetings" (Project IDEAL, 2010a). The most effective professional development opportunities "allow teachers and administrators to learn together and to plan how changes will be made in their own organizations" (Project IDEAL, 2010a).

In conclusion, these policy recommendations offer strategies for creating a greater demand for GED study via DL in rural Pennsylvania; for strengthening and expanding the existing DL system; for enhancing the quality, sophistication, and effectiveness of instruction; and for using DL to help GED graduates transition to postsecondary education.

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APPENDIX A: SURVEY OF NON-ABLE PROVIDERS

Distance Learning for GED Students in Rural Pennsylvania

- Read the introduction to each section and the questions verbatim.
- For closed-ended questions list the responses provided.
 - If they choose "other," specify in the space provided.
- For questions asking for a number, type the number in the space provided.
- For open-ended questions, type their response.

Provision of distance learning

I'd like to start by asking some questions about your agency's provision of distance learning.

1. For how many years has your agency provided distance learning (DL)? [PROBE: Can you provide your best estimate?] _____

_____ Don't know

2. How does your agency use distance learning? (READ the responses & check all that apply)

- a. For learners who cannot participate in face-to-face instruction
- b. To prevent interruptions in instruction or "stop-outs"
- c. To increase the number of instructional hours
- d. We provide only distance learning
- e. Other (please specify)

3. Does your agency provide DL classes designed especially for GED students?

_____ Yes

- a. How long has your agency provided DL classes for GED students? _____

_____ Don't know

_____ No

- b. What DL options does your agency provide for students who want to obtain their GED diploma?

4. During your agency's last complete fiscal year, approximately how many DL students were studying for their GED? Please provide the exact number or your best estimate. _____

_____ Don't know

5. During your agency's last complete fiscal year, approximately how many DL students obtained their GED diploma? Please provide the exact number or your best estimate. _____

_____ Don't know

6. Of all the GED students you served last year using DL, approximately what percentage lived in a rural area? (read the responses and check one)

- None or very few
- About one-tenth
- About one-quarter
- About one-half
- About three-quarters
- Nearly all or all
- Don't know

DL Materials and Delivery Systems

The next set of questions is about materials and delivery systems for your GED distance learning program.

7. What distance learning delivery systems do you use for students who wish to obtain their GED diploma? (read the responses & check all that apply)

- | | |
|---|--|
| a. Print-Based Courses | d. Video-based courses (TV or video casts) |
| b. Online Courses (utilizing tools such as e-mail, chat rooms, discussion boards, streaming video, and/or instructional software) | e. DVD |
| c. Audio delivery (teleconferencing, podcasts, tapes) | f. CD |
| | g. Face-to-face classroom instruction |
| | h. Other (please specify) |

8. About what percentage of your distance learning students working on their GED participate in hybrid courses—in other words, courses that combine face-to-face classroom instruction with other systems used in distance learning, such as online courses or print-based courses? (read the responses and check one)

- None or very few
- About one-tenth
- About one-quarter
- About one-half
- About three-quarters
- Nearly all or all
- Don't know

9. How frequently does your agency use the following DL *instructional formats* with GED students? (read the category and the possible responses; by the time you read the responses once or twice, they'll probably be able to give the response themselves, e.g., "seldom")

a. Print-based materials

1 2 3 4 5
Rarely or neverseldom sometimes frequently Always or nearly always

b. Print plus computer-based

1 2 3 4 5
Rarely or neverseldom sometimes frequently Always or nearly always

c. Collaborative online network

1 2 3 4 5
Rarely or neverseldom sometimes frequently Always or nearly always

d. Video-based courses

1 2 3 4 5
Rarely or neverseldom sometimes frequently Always or nearly always

e. Other (please specify)

1 2 3 4 5
Rarely or neverseldom sometimes frequently Always or nearly always

10. What types of *materials* are used for DL for GED students? (read the responses and check all that apply)

- a. Books
- b. Worksheets and workbooks
- c. Online resources
- d. TV or video casts
- e. DVD
- f. CD
- g. Audio (teleconferencing, podcasts, tapes, etc.)
- h. Face-to-face classroom instruction
- i. Other (Please specify)

11. During your agency's last complete fiscal year, approximately how many GED students used each type of material? (read the responses and check all that apply)

a. Books

0	51 – 60
1 – 10	61 – 70
11 – 20	71 – 80
21 – 30	81 – 90
31 – 40	91 – 100
41 – 50	More than100

b. Worksheets and workbooks

0	51 – 60
1 – 10	61 – 70
11 – 20	71 – 80
21 – 30	81 – 90
31 – 40	91 – 100
41 – 50	More than100

c. Online resources

0	51 – 60
1 – 10	61 – 70
11 – 20	71 – 80
21 – 30	81 – 90
31 – 40	91 – 100
41 – 50	More than100

d. TV or video casts

0	51 – 60
1 – 10	61 – 70
11 – 20	71 – 80
21 – 30	81 – 90
31 – 40	91 – 100
41 – 50	More than100

e. DVD

0	51 – 60
1 – 10	61 – 70
11 – 20	71 – 80
21 – 30	81 – 90
31 – 40	91 – 100
41 – 50	More than100

- | | |
|--|--------------|
| f. CD | |
| 0 | 51 – 60 |
| 1 – 10 | 61 – 70 |
| 11 – 20 | 71 – 80 |
| 21 – 30 | 81 – 90 |
| 31 – 40 | 91 – 100 |
| 41 – 50 | More than100 |
| g. Audio (teleconferencing, podcasts, tapes, etc.) | |
| 0 | 51 – 60 |
| 1 – 10 | 61 – 70 |
| 11 – 20 | 71 – 80 |
| 21 – 30 | 81 – 90 |
| 31 – 40 | 91 – 100 |
| 41 – 50 | More than100 |
| h. Face-to-face classroom instruction | |
| 0 | 51 – 60 |
| 1 – 10 | 61 – 70 |
| 11 – 20 | 71 – 80 |
| 21 – 30 | 81 – 90 |
| 31 – 40 | 91 – 100 |
| 41 – 50 | More than100 |
| i. Other (Please specify) | |
| 0 | 51 – 60 |
| 1 – 10 | 61 – 70 |
| 11 – 20 | 71 – 80 |
| 21 – 30 | 81 – 90 |
| 31 – 40 | 91 – 100 |
| 41 – 50 | More than100 |

12. Which curricula does your agency use for distance learning? (check all that apply)

- | | |
|---------------------------------|---------------------------|
| a. GED Connection | m. Plato |
| b. Pre- GED Connection | n. Other (please specify) |
| c. GED Connection Locator tests | |
| d. Skills Tutor | |
| e. Workplace Essential Skills | |
| f. Madison Heights | |
| g. Lifelines | |
| h. MHC Interactive | |
| i. Contemporary GED | |
| j. Integrated Online Solution | |
| k. GED Video Partners workbook | |
| l. WIN | |

Cost of DL provision

I'd like to ask you some questions about the costs of providing distance learning.

13. What was the total expenditure by your agency in the last complete fiscal year for distance learning activities? Please provide your best estimate.
14. What is the average cost per student participating in distance learning activities? Please provide your best estimate.
15. If your agency provides both distance learning and face-to-face instructional formats, how does the cost per student for distance learning compare? Compared to face-to-face instruction, DL costs:

- Much more than face-to-face
- Somewhat more than face-to-face
- About the same as face-to-face
- Somewhat less than face-to-face
- Much less than face-to-face

Policy recommendations

The next few questions ask about your recommendations for policies related to distance learning.

16. What suggestions do you have for improving the delivery of distance learning for GED students in rural Pennsylvania? [TYPE RESPONSE]
17. What additional resources and support does your agency need to provide effective distance learning for rural GED students? [TYPE RESPONSE]
18. What types of innovative distance learning models could be used to reach more rural GED students (for instance, delivery models, instructional materials, or new technologies)? [TYPE RESPONSE]

Background information

We're almost finished. The last few questions provide background information about you & your agency.

19. Is your agency non-profit or for-profit?

- Non-profit
- For-profit
- Other (please specify)

20. What is your role at your agency? (check all that apply)

- a. Instructor
- b. Administrator
- c. Program Coordinator
- d. Other (please specify)

21. What counties does your agency serve?

22. What kind of services does your agency provide? (read responses & check all that apply)

- Public television
- Distance education
- Public library
- Other: [SPECIFY]

23. If additional information is needed, would you be willing to have a member of our research team contact you?

- Yes
- No

24. Do you have any other comments or questions?

Thank you for completing this survey! Would you like to be entered in a drawing for one of four \$25 Barnes & Noble gift cards?

NO: OK, thanks again for your time.

YES: OK. Would you please give me your mailing address? [TYPE NAME & MAILING ADDRESS IN A SEPARATE DOCUMENT]

The Penn State financial office requires that we obtain your signature before sending the gift card. If your name is selected, I'll send you a letter asking for your signature and then I'll send you the gift card. Thanks again for your time. I really appreciate it!

APPENDIX B: INTERVIEW GUIDE FOR ABLE-FUNDED DISTANCE LEARNING STAFF

Background

1. Introductions (name, program, position)
2. What led your program to provide GED classes via distance learning (DL)?
3. How far would your DL GED students have to travel to attend face-to-face classes? (*ask for a range, from closest to furthest, e.g., 2-40 miles; general perceptions are fine*)
4. Tell me about the types of distance education that you provide for GED students.
 - a. Do DL students come in for initial assessment and testing? Post-testing?
 - b. What kinds of support services do GED students receive at a distance?
 - c. What kinds of face-to-face interaction, if any, do your DL GED students have with staff?
 - i. What kinds of face-to-face support services, if any, do DL GED students receive?
 - ii. Do DL GED students attend any face-to-face classes?
 1. If so, do they attend face-to-face and DL classes simultaneously or attend a face-to-face class first and then do DL?
5. Approximately how many GED students each year are enrolled in your DL classes?
 - a. How has adding a DL component for GED students affected your overall program enrollment?

Advantages and disadvantages of distance learning

6. For your agency, what have been the main advantages of providing DL for rural GED students? (I.e., how has your program benefited from providing DL versus face-to-face classes?)
7. What have been the main advantages of DL for rural GED students? (I.e., how do rural GED students benefit from taking classes via distance learning versus face-to-face?)
 - a. What are the main advantages of blended classes for students?
 - b. What are the main reasons that rural students enroll in your DL GED classes (instead of attending face-to-face classes)?
 - c. What would these students do if DL classes were not available?
8. For your agency, what have been the main disadvantages (challenges) of providing GED classes for rural students via distance learning?
 - a. How have you tried to overcome these disadvantages (challenges)?
 - b. What additional resources or support do you need to continue meeting these challenges?

9. For rural GED students, what have been the main disadvantages (challenges) of taking classes via distance learning?
 - a. How have students tried to overcome these disadvantages (challenges)?
 - b. What additional resources or support do they need to continue meeting these challenges?

State Policies

10. What do you see as the major policy issues affecting DL in PA?
 - a. Which policy issues are especially relevant for DL in rural areas?
11. Which current state policies have *helped* make DL work for rural GED students and programs? (Note: State policies include Bureau of ABLE.)
 - a. In what ways have these policies benefited (helped) your program?
12. Which current state guidelines or requirements are *barriers* to making DL work for rural GED students and programs? (*If they can't think of any, re-phrase as follows: Which policies or guidelines have made DL provision more difficult or complicated than it needs to be?*)
 - a. In what ways have these policies, guidelines, or requirements made the provision of DL more difficult for your program or other programs that you know of?
 - b. How would you change these policies, guidelines, or requirements to make them more supportive of DL for rural students?
13. What support does your program need from the state government and the Bureau of ABLE in order to provide effective DL for rural GED students?
14. What kinds of support and resources from the state government do rural GED students need to take full advantage of DL classes?
15. What are your recommendations for policies that would support distance learning, especially for programs and students in rural areas?

Costs associated with distance learning

16. How do you financially support your DL program? How well do you think this is working?
17. Are there any additional costs associated with providing GED classes through distance learning? (e.g., instructional materials, staff time, purchase of technology)
 - a. If so, what are they?
 - b. How does your program pay for these additional costs? (e.g., funding sources)
18. Compared to your face-to-face GED classes, how much time do instruction and support for your DL GED classes require?
 - a. Which activities require additional time?
 - b. How many hours per week would you say staff spend on DL instruction?
 - i. How about support services, intake, assessment, and administration?

19. How many staff members are assigned to the distance learning segment of your GED classes? (Also ask how many staff members they have in all.)
- How many of these are full-time? Part-time? (If you have time, probe for benefits & disadvantages of part-time DL staff.)
 - Have you hired any additional staff to provide DL services? How are their positions funded?
 - Are the same staff assigned to face-to-face and DL segments, or do they only do one or the other?
20. What kinds of materials do you use for GED distance learning students? (e.g., Internet, computer-based, workbooks, videos)
- Are these the same or different than the materials used for face-to-face classes?
 - If different: How would you assess the quality of DL GED materials compared to your face-to-face GED materials?

Internet

21. Is broadband available in the areas where your DL students live?
22. If agency uses Internet materials:
- How accessible is the Internet for your rural GED students?
 - Where do most DL students access the internet? (e.g., home, library, friend's or relative's house)
 - If at home: Do most have dial-up or broadband?
 - How affordable is it for them?
23. If they don't use Internet materials: What are the main reasons your agency doesn't use Internet-based materials? (probe for challenges)
24. What would enable your agency to provide more Internet-based DL services? (e.g., professional development, rural broadband, state financial support)

Concluding questions

25. What suggestions do you have for innovative ways to reach more rural GED students with DL? (e.g., delivery models, instructional materials, technologies)
26. Do you have any other comments on DL? Any questions about this study?

APPENDIX C: INTERVIEW GUIDE FOR ABLE-FUNDED DISTANCE LEARNING STUDENTS

1. Introductions (name, program, position)

Previous educational experiences

2. What was the highest grade you completed in school?
3. Is this the first time you've been in a program to study for the GED?
 - a. If this is their first GED experience, skip to #4.
 - b. If they've been in a previous program: (*ask these questions for all previous programs*)
 - i. When did you enroll in that program? How long did you take classes?
 - ii. What were your reasons for not continuing?
 - iii. Did you take face-to-face classes, meet with a tutor, or take distance learning (DL) classes?
 - iv. If DL was available the last time you were enrolled in a GED course, why did you decide not to participate?
 - v. What did you like about the classes/tutoring?
 - vi. What did you not like?
 - vii. How is this DL program different from your previous program(s)? (Ask about following probes if they don't mention them.)
 1. materials
 2. support from staff
 3. time it takes
 4. convenience
 5. cost
 - viii. Which do you like better: DL or face-to-face? (*probe for reasons*)

General DL educational experiences

4. When did you first enroll in this DL class?
 - a. Have you ever had to stop taking DL classes in this program for a period of time? (*If yes, probe for reasons.*)
5. How did you find out about these DL classes?
6. What were your reasons for enrolling in this GED program? (*Most will probably say "to get my GED." If so, follow up with probes such as, what made you decide that you needed to enroll in this program now, at this point in your life? What do you think a GED will help you accomplish?*)
 - a. What were the main reasons you chose DL?
 - b. Since we're interested in learning about the experiences of *rural* GED students, would you mind telling me what town you live in?
 - i. How far would you have had to travel to take face-to-face classes or meet with a tutor?
 - ii. Do you have a car or access to a car that you can borrow?

- c. Did you have the option of attending face-to-face classes or meeting with a tutor?
 - i. If yes: What made you choose DL instead of face-to-face?
 - ii. If no: Would you have preferred attending a class or meeting with a tutor instead of DL? Why or why not?
- 7. What do you like about taking classes through DL?
 - a. What do you not like? (*If they're hesitant to say anything, re-phrase: How would you improve the DL classes if you could?*)
- 8. How well do you think this program provides for your needs as a GED student?
 - a. What are some examples of ways that the program has met your needs?
 - b. What needs do you have that are not being met?
- 9. What has been your biggest challenge as a distance learner?
- 10. What is the greatest advantage of DL for you as a GED student in a rural area?
- 11. If you could design the perfect DL program for GED students, what would it be like? (e.g., materials, cost, support from teachers)
- 12. Based upon your experiences, how would you suggest improving DL for GED students?

Support from program staff

- 13. How often do you have contact with your DL teacher?
 - a. How do you communicate? (email, phone, in person, etc.)
 - b. Do you wish you had more or less contact, or is it just about the right amount?
 - c. Have you had any difficulties communicating with your teacher or other program staff? If so, please describe.
- 14. How do you get your assignments?
- 15. When you have questions about your assignments or concern about the DL classes, how do you get help?
- 16. Do you think it is easier or harder to get help with a DL class as opposed to face to face? (*only ask this if they've taken face-to-face*)
 - a. Can you recall any experiences that lead you to believe that?
- 17. What are some ways that the staff and teachers provide support for you as a distance learner?
 - a. What else could the staff and teachers be doing to help you?

Program materials & technology

18. Where do you do your DL lessons? (e.g., home, library, work, friend's or relative's house)
- a. How well are you able to concentrate on your DL lessons at [*place where they do their work*]? (i.e. Are there a lot of distractions where they do their DL work.)
19. What types of materials do you use in your DL program?
- a. How satisfied are you with these materials? (E.g., Are they easy to work with? Do they cover what you want to learn?)
20. Do you use a computer for any of your DL lessons?
- a. If yes:
 - i. Whose computer is it? (at home, friend's, relative's, at library, at work, etc.)
 - ii. How satisfied are you with the computer that you use? (I.e., is the computer adequate for their needs or is it so old and slow that they get frustrated?)
 - iii. How comfortable are you using a computer?
 - b. If no: Would you use a computer for your DL lessons if you had access to one? Why or why not?
21. Do you need to use the Internet for any of your DL lessons?
- a. Do you have internet access at home?
 - i. If yes:
 1. Is it dial-up or broadband (fast connection)?
 2. How often do you get on the Internet? (If they use it for GED classes, also ask how often they get on the Internet for this purpose.)
 - ii. If no:
 1. What are the main reasons you don't have Internet access at home?
 2. Do you get on the Internet in other places like a friend's house, your work, or the library?
 - a. If yes:
 - i. How often do you get on the Internet?
 - ii. Do you use the Internet for your DL lessons? Why or why not?
 1. How often do you get on the Internet for your DL lessons?
 - b. If no:
 - i. What are the main reasons you don't get on the Internet?
 - ii. Would you use the Internet for your DL lessons if you had a way to get online? Why or why not?

Concluding questions

22. Do you have anything else to add about your experiences as a DL student?
23. Do you have any questions about this study?

APPENDIX D: DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF RURAL DL

STUDENTS IN CORRECTIONAL FACILITIES

Table D1. Demographic and Characteristics of Rural Distance Learners in Correctional Facilities on Entry into Adult Education Program: July 1, 2004 to December 31, 2008

Characteristic	Rural Corrections Distance Learners	
	n	%
Age		
15 to 17	2	2%
18 to 20	33	39%
21 to 25	19	22%
26 to 35	17	20%
36 to 50	11	13%
51 to 65	3	4%
66 and over	0	0%
Total	85	100%
Average Age (median)	23	
Sex		
Female	41	48%
Male	44	52%
Total	85	100%
Race/Ethnicity		
Caucasian	75	88%
African American	8	9%
Hispanic	1	1%
Other (Asian, Native American, Pacific Islander)	1	1%
Total	85	99%
ESL Participant		
Yes	0	0%
No	85	100%
Total	85	100%