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Designing and Evaluating an Integrated GED/Technology Education Program that Prepares Adults for the 21st Century Workplace

Participants

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Session Summary

Objectives of the Session

The purpose of this session is to report on the design and evaluation of an innovative adult education program. The PlugGED In curriculum and program was designed to provide adults who have not completed high school with a GED course that incorporates technical training and workplace skills as a means to develop skills essential for entry-level employment in global, knowledge-driven, technology-rich jobs. These skills include both “hard” skills, such as the specialized technical knowledge, and “soft” skills, such as communication, workplace ethics, collaboration, and innovation. The session reports on an integrated effort of design and program evaluation, spanning approximately two year's time and ongoing. These data illuminate the process of developing workforce/GED preparation programs, and the potentials and problems of enacting and scaling such programs.

Overview of the Presentation

In the first half of the session we will report on the original goals, resources, and vision for the program, and situate the development of the curriculum in relation to the analyzed needs of regional employers, in relation to the rapid changes in technical training for the global workforce, and in relation to our assessment of the needs of the students. The two papers presented in this half of the session address, respectively, the collective development of the original vision for PlugGED In and the development of the program plan, and subsequently, the development of the curriculum. In the second half of the session we present data from a seven-month situated evaluation of PlugGED

In. These data are analyzed at two levels, first as a report on overall findings that inform the ongoing development and scaling up of the program, secondly, at a personal level by reporting on select case studies of students.

Scholarly or Scientific Significance

This session addresses three issues significant for adult education and adult literacy. First, while the GED certificate is an important educational milestone for high school drop-outs, how might this necessary form of training be supplemented with other forms of training necessary for the 21st Century labor market? In this new curriculum design, what skills and forms of knowledge should supplement GED training? Moreover, how might integration of knowledge areas be achieved? The second issue involves efficiency and effectiveness of program delivery: how might such a program be organized and delivered such that students quickly transition into the workplace or higher levels of training? The third issue concerns the outcomes of the first iteration of the designed program—how does a highly detailed situated evaluation of PlugGED In inform us about scaling up or developing similar programs elsewhere?

Structure of the Session

The session will begin with a brief (5 minute) introduction to the goals of the session by the chair (Richard Sebastian), followed by the papers given in order (15 minutes per paper). Charles Kinzer, a specialist in technology and literacy from Teacher's College, will serve as discussant (approx. 10 minutes), and the final 15 minutes will open for discussion, moderated by the chair.

Paper 1: Envisioning and Designing the PlugGED In Project

Objectives or Purposes

The purpose of this paper is to describe the vision of PlugGED In as it evolved from a concept to a funded development project piloted in Southwest Virginia. The paper examines how PlugGED In was conceived and developed through negotiations with a variety of educational, governmental, and business stakeholders.

Perspectives or theoretical framework

There is a growing disconnect between the skills measured by traditional educational credentials and the needs of a rapidly changing global marketplace. Incoming high school graduates aren't being prepared for the entry-level jobs they are hired to fill (TCB & P21, 2006). The results of this disconnect are evident in Southwest Virginia where, despite the successful efforts of the Commonwealth to lure two high tech companies to economically depressed Lebanon, a higher than average high school drop-out rate in the region (U.S. Census, 2007) has made it difficult to fill new,

high-paying jobs. Employers' demands for skills such as critical thinking and information technology application will only increase during the next five years (TCB, 2006). If left unaddressed, the gap between the skills assessed by credentials such as the GED and the expectations of a global workforce will only grow wider.

Methods, techniques, and data sources of program development

The development of this project began as a series of discussions between members of the Virginia Governor's office, the GED Testing Service, and specialists at the Virginia Adult Learning Resource Center in Richmond, Virginia about creating a technology-focused extension of the GED tests. This idea evolved into a more practical and politically expedient program to help drop-outs in economically depressed Southwest Virginia quickly earn a GED credential and move into available tech sector employment.

The initial stakeholders in the development of the program included Virginia government offices, a university, a community college, a regional adult education program, and two technology sector industries. Once funding to support the development of the program was secured with funds from a state grant, a team was identified to develop the vision into a curriculum and evaluate the program's implementation.

Results of program development process

The resulting PlugGED In curriculum has been negotiated among initial stakeholders, targeted local interests, and the broad interests of the adult basic education student population. The enacted curriculum has also evolved through historical tensions between project partners', as well as by adjustments made by instructional staff delivering the program.

Approximately half of the original 17 students are anticipated to complete the program as it nears its first graduation (end July, 2009). While certification processes are ongoing, all have earned a GED, a Career Readiness Certificate, and a Microsoft Digital Literacy Certificate. In addition, four students have earned IC3 certification. During this implementation, the economy has undergone dramatic shifts, which has influenced corporate investment in the program and continues to challenge us to develop a supply model for ongoing development. Current efforts are underway for scaling the program, with questions remaining about how to achieve similar or improved results with other adult populations.

Paper 2: Designing a 21st Century Literacy Skills Curriculum for PlugGED In

Objectives or Purposes

The purpose of this paper is to describe the development of an integrated curriculum that emphasized the skills required for the 21st century workplace. The main goal of the curriculum was to provide learners with the knowledge and skills for success in an entry-level, technology sector job. Specific objectives were for learners to earn their GED, Career Readiness Certificate, Microsoft digital literacy certificates, and develop professional soft skills and 21st century skills, which emphasized problem solving, critical thinking, and collaboration.

Perspectives or theoretical framework

Curriculum development for PlugGED In was heavily grounded in the 21st century skills (Partnership for 21st Century Skills [P21], 2006) and new literacies of Internet-based reading, writing, and communicating (Gee, 2000; Lankshear & Knobel, 2003; Leu, Kinzer, Coiro, & Cammack, 2004). Instructional activities included a capstone project centered on problem-based learning, a proven method for increasing disciplinary knowledge, developing skills, and promoting professional leadership (e.g. Barrows, 1986; Duffy & Cunningham, 1996; Jonassen, 1991; Torp & Sage, 1998; White, 1996).

Methods, techniques, or modes of inquiry

Curriculum development relied on central tenets of instructional design (Gagne, Wager, Golas, & Keller, 2005; Reigeluth, 1999) and addressed the aforementioned goals. Instructional analysis and identification of learner characteristics indicated minimum requirements for admission into the program. These requirements helped guide the development of performance objectives and instructional activities across the four content strands.

Data sources, evidence, objects, or materials

Virginia's GED Content Standards (Virginia Department of Education, 2006) were utilized for the GED and Career Readiness strand. Specific content standards in five areas (reading, writing, mathematics, science, and social studies) were referenced throughout the instructional activities to make specific, integrated connections between the four strands of the PlugGED In curriculum. The Framework for 21st Century Learning (P21, 2006) was utilized to develop two strands, Professional Soft Skills and 21st Century Skills. Lessons introduced students to the expectations and formalities of the modern workplace. The Digital Literacy strand was developed specifically from the Microsoft IT Academy Program (2009). Learners progressed through a series of digital literacy certification areas. As an individual learner successfully completed certificates in one course, he/she could begin training in subsequent areas. Design of the Capstone Project drew from a new literacies framework (Leu, et al., 2004) as well as a model for classroom instruction that emphasizes collaborative inquiry projects (Author, 2008). The capstone project helped learners apply knowledge and strategies learned

from the core content as they worked to solve an issue or challenge from the local community.

Results and/or substantial conclusions or warrants

Preliminary results show that ten students, instructed with this curriculum, completed their GED, and Microsoft Digital Literacy, and four have earned their Internet and Computing Core certificates. Two students enrolled in classes at the Southwest Virginia Community College. The program completion date is July 31, 2009. Additional results are pending.

Scientific or scholarly significance of the study or work

Technology sector employers expect entry-level employees to have specialized technology skills. Unlike most GED-preparatory courses, learners in PlugGED In were given opportunities to prepare for the workplace by developing professional soft skills, earning technology certifications, and learning 21st century skills by completing team-based capstone projects; thus, graduates from this program may have an increased opportunity for career success compared to programs that focus solely on GED completion.

Paper 3: Evaluating PlugGED In: Using a Situated Evaluation to Address Issues of Sustainability and Scale

Objectives or Purposes

This paper presents an overview of findings from a formative and summative evaluation of PlugGED In. Those results most relevant to issues of sustaining and scaling up the program are emphasized.

Perspectives or Theoretical Framework

The evaluation is informed and guided by perspectives on situated evaluation (Bruce & Rubin, 1992; Hodas, 1993). Through studying the dynamic relationships among new technologies, curriculum, pedagogical practices, institutional rules, and the details of social, political, and cultural situations, situated evaluation assumes a system-based perspective on technical innovation. From this standpoint, PlugGED In is evaluated as an emergent and dynamic activity system (Engestrom, 1993; Wertsch, 1998), with attention given to the unpredictable and emergent qualities of the program as it has developed in situ.

Methods and Data Sources

The situated evaluation of PlugGED In has been based primarily on ethnographic means, including participant observation, fieldnotes, and video-recording of class sessions. Other forms of strategic data collection include in-depth interviewing, video-recorded student mock employment interviews,

and focus groups. Conceptually grounded categories are being developed in analyzing the interpretive data, using methods of data triangulation, searching for discrepant data, testing hypotheses, and member-checking.

Further, the iSkills (ETS) assessment has been given as a pre- and post-course measure of students' abilities to navigate, use, and critically assess digital information. These scores will be reported along with other measures of achievement embedded into the program (e.g., GED completion, TABE scores, IC3 and other certifications).

Results

While data collection in the evaluation is still ongoing (to be completed in August, 2009), data collection and analysis have yielded the following results:

- The level of integration between GED skills, technology training, and 21st Century literacies may be conceived of as an interaction between the designed curriculum, instructor professional and pedagogical histories, and time structures and pressures.
- The "hidden curriculum" of particular technical certification packages creates conflict with curriculum integration through test-focus and through embedded models of pedagogy.
- The accelerated pace of the program serves as a resource for engagement and for rapid student advancement, while also exacerbating student differences in basic skills and learning styles.
- "Buy in" from corporate mentors and corporate interests in general is difficult to sustain without clear extrinsic benefits, and is influenced by the changing state of the economy.
- Retention and student support structures rely heavily on the unofficial roles of program personnel who develop safety-nets for students who struggle with life constraints (e.g., childcare and transportation).

Scientific or Scholarly Significance

While PlugGED In represents one regional program, its evaluation addresses adult workplace and adult literacy education that are critical and national in scope. Moreover, the integrated and accelerated program design is a novel effort to address multiple problems of providing adult education for the 21st Century workplace. The detailed evaluation of PlugGED In as a model program provides information concerning how such programs may be more effectively designed and developed in the future to provide expansive opportunities for adult learners in a rapidly changing economy.

Paper 4: Letting the Students Speak: Case Studies from PlugGED In

Objectives

To better understand individual student experiences in PlugGED In, we constructed cases of particular students. This method allowed us to explore the complexity of students' experiences and to construct a more robust picture of the program from their perspectives.

Perspectives or theoretical framework

The ways that people represent experiences are heavily contextualized--they depend on the frameworks for interpretation that people bring to those experiences. In addition to looking at the "local particulars of some abstract social phenomenon" (Dyson and Genishi, 2005, p.3), case studies allow us to look at experiences holistically, including factors that might be meaningful in understanding the experience (Yin, 2008). Constructing a set of cases offers the opportunity to not only understand each case individually, but also to learn something about the group of cases, or the quintain (Stake, 2005). Both the individual cases and the quintain provide ways of understanding the PlugGED In experience.

Methodology and data sources

Participants

Of the ten students who completed the program, we selected five students (four females and one male, ranging in age from 20 to 40 years) as case studies. We selected these students to represent a range of ages, levels, and experiences in the program.

Data sources

Data collection involved 80+ hours of classroom observation, using video, field notes, and structured observation protocol. We conducted two semi-structured interviews with each case student, involving students' backgrounds and program experiences. Students also completed mock job interviews with mentors from local businesses at the beginning and end of the program; these interviews were videotaped. Course artifacts (assignments and writing samples) were collected from students, and students' participation in the program's online social network (on a Ning) were collected and analyzed.

Results

While data collection and analysis are ongoing, several results are emerging from the case study data:

1. The program has helped students gain a better sense of opportunities and of what they want in their futures. Students' future plans involve continuing their education at the community college and/or obtaining a job. For some students, this experience has made them realize they do not want a job in the IT field.
2. Students recognize different levels of student accomplishment in the program and feel a need for more individualized support to allow students to work at their own levels, particularly with the technical certifications.

3. Students feel particularly connected to the soft skills aspect of the program, believing that this will benefit them in both their professional and home lives.
4. The support system of the program is very important to the students for keeping them motivated and in the program. Students named instructors and other students as especially motivating.

Scientific or scholarly significance

This work allows us to more fully understand the experience of PlugGED In, by learning about the experience of individual students in the program. Also, by looking at the group of cases, we can gain additional insights about how programs like PlugGED In may be designed for a broad range of learners and contexts.

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