

Cultural Relevance: Hip-Hop Music as a Bridge to the Digital Divide

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Abstract

America faces a real challenge to its position as a global leader in information technology, which impacts the preparedness of the national workforce. The 21st century worker is facing a dynamic environment, where knowledge, speed, and technical proficiency will determine the "haves" and the "have nots." This lack of technology proficiency has produced a "digital divide" for many underrepresented groups. This paper proposes to use a medium that is culturally relevant to inner-city youth - hip-hop music - to increase information technology awareness and acceptance, fostering use of resources that offer wealth-creation in an Internet-based economy.

1. Introduction

America faces an internal challenge to its position as a global leader in information technology. This challenge is *real*, and it impacts the core of this country's historical greatness – the preparedness of the national workforce. The 21st century worker is facing a dynamic environment, where knowledge, speed, and technical proficiency will determine the "haves" and the "have nots." This workforce issue is crystallized by the projected demands for highly skilled information technology (IT) workers. Analyses of Bureau of Labor Statistics suggest that the United States will require 1.3 million new IT workers in the core technology disciplines by the year 2006 [56]. These projections are important not only in terms of employment opportunities, but these high demand fields also offer high wage opportunities.

One group that is often seen as a "have not" is inner-city youth. Along with efforts to increase the number of skilled IT workers, concurrent efforts are underway to utilize entrepreneurial growth as a means of enhancing the opportunities for wealth creation in the inner-city [43]. Such approaches are critical for transforming areas of long-term deprivation and decay into models for the

recovery of inherent geographic resources. Yet, if entrepreneurial growth is to represent real advancement for the residents of these inner-city areas, such efforts must also encompass an educational agenda for the communities' young people. It is critical that entrepreneurial growth not be stymied by the educational gaps that have historically limited the achievements of a vast majority of black youth, and many programs are underway to address this issue.

There is a great need to explore extensions to the educational agenda focus by examining the need for a greater inner-city awareness, acceptance, and usage of technological resources and in particular those resources that offer wealth-creation opportunities in an Internet-based economy. The "glass-ceiling" has historically been proffered as effectively limiting opportunities for minorities and women to advance to management and decision-making positions in business [7]. Similarly, current empirical research suggest that the digital divide is threatening to create a continuing society of "haves and have-not" even in the midst of escalating economic growth [49], [20].

The digital economy has profoundly changed our ways of living, working, and interacting within the global community, and indications for the future suggest that this pace of change will only accelerate in the 21st century. Broad Internet acceptance has forced a new business lexicon. Cyberspace, HTML, bandwidth, ERP, and even E-commerce had no concrete images among the most progressive executives just a few years ago. Today, all of these terms have relevancy to the way business is conducted. United States inter-company trade of hard goods over the Internet which was negligible in 1995 and \$43 billion in 1998, is expected to reach sales of \$1.3 trillion in the year 2003 (worldwide Internet sales are projected to reach \$3.2 trillion by 2003 [19].

As information and communication technologies transform the global economy, the required work force and the entrepreneurial opportunities are also dramatically changing. Competitive forces are driving organizations to reduce staff sizes, while simultaneously changing the expectations and competencies of the staff. Estimates of

consumer sales by the top 10 e-commerce web sites generated consumer sales in excess of \$4 billion in 1998 [36]. Yet, demographic indices of Internet users reveal a significant lack of usage among individuals who did not attend college and whose household income is less than \$50,000 [21]. Many inner-city youth fit this demographic pattern. For these individuals, the wealth creation opportunities of the digital economy will be meaningless unless ways of bridging this digital divide are identified.

This study proposes using hip-hop music - a medium familiar and relevant to inner-city youth - to inspire an attitude change toward wealth creation in an information-based economy. Traditional structures for formal learning continue to be important facilitators of knowledge transfer, but "self-directed exploration and discovery learning" [59] (p. 574) enrich learning and stimulate individual creative processes. Using a fundamentally creative medium, which claims the inner-city as its place of origin, will offer a means for exposing inner-city youth to career options and entrepreneurial opportunities that will be useful in this new economy. We anticipate that many of these youth will be at ease with the names of hip-hop artists, e.g., JZ and Puff Daddy, but fewer will be familiar with Darien Dash, the 28 year-old African-American CEO of DME Interactive and self-made entrepreneur, whose estimated net worth exceeds \$110 million [23].

We examine the notion of a digital divide and its impact on inner-city communities. Using the methodologies discussed in the organizational change literature, this paper proposes that using hip-hop music as a universal medium will simultaneously encourage technology usage and entrepreneurial development by inner-city youth. The youth of our urban communities have embraced technology as consumers; the additional goal and challenge is to alter the focus of this group to ensure that these same young people embrace current technologies as resources for knowledge and wealth creation. *This study posits that the focus of this underrepresented group of the IT workforce will change when individuals experience a fundamental change in their awareness and attitudes with regard to IT and how IT can be used to foster wealth-creation.*

2. Literature Review

Recent information systems research has investigated individual responses to computer technology from a variety of theoretical perspectives. Works examine the relationship using Diffusion of Innovations [47], [15], [25], TAM [2], [16], [57], the Theory of Planned Behavior [31], [54], and Social Cognitive Theory [12], [13]. Each of the theories views the responses of individuals to the use of technology as a result of a set of

beliefs about the technology. While each theory reflects a cognitive basis for behavior, the Technology Acceptance Model (TAM) and the Social Cognitive Theory (SCT) are salient to this study. TAM is particularly important to this research because of the impact social influences and belief structures have on acceptance and diffusion of innovations in communities [47]. SCT is useful because of its role in explaining cognitive factors associated with individual behavior and the prominence the theory gives to the concept of self-efficacy. These two theories along with organizational change theory [29] will be used to develop propositions for increasing technology use and bridging the digital divide for underrepresented groups like inner-city youth.

2.1 Digital Divide

The concept "digital divide" is commonly used to describe the gap in computer and information infrastructure access among various community populations [55]. The U. S. Commerce Department's National Telecommunications and Information Administration (NTIA) has traditionally pursued a goal of "universal service" which ensures all Americans access to affordable telephone service. The U.S. Census Bureau uses the Current Population Survey (CPS) to collect data on telephone penetration, and the Federal Communications Commission uses the CPS data to create demographic profile reports of telephone subscription. In 1994, as the global economy increasingly became an information-based society, the Commerce Department requested that the CPS include questions relative to computer/modem ownership and usage. The data was cross-tabulated based on specific demographic variables (i.e., income, race, age, educational attainment, and region). The results of these analyses revealed disproportionate differences in telephone and computer penetrations by geography, education, and income. Rural and central city areas, individuals who had not attended college, and families with poverty level incomes were all identified as groups with the least access to the so-called information highway [55].

Since the initial Department of Commerce report in 1995, considerable research and effort has been directed toward the discovery and elimination of the digital divide [20]. Public and private monies have been channeled toward providing greater public access to computers and to the Internet through schools, libraries, and community centers. Yet, the Commerce Department's 1997 report finds that while "more Americans than ever have access to telephones, computers, and the Internet," the gap separating "American information 'haves' and 'have nots'" remains and "in many instances has widened" [38]. Specifically, the report indicates that the digital

divide is eliminated only when income levels reach or exceed \$75,000. When the study analyzed the gap between highest and lowest educational levels, and highest and lowest income levels, the range of difference exceeded 25% [38].

The research attests to the reality of the digital divide, but many oppose the notion of governmental and corporate interventions to close the gap. Market forces that lead to lower price points for computers, along with increases in the number of wired classrooms, have caused some to espouse that the “gap is closing on its own” [40]. Others note that the solutions to the digital divide are more comprehensive than simply providing access to technology [26]. Presenters at the October, 1999 conference on “Resolving the Digital Divide: Information, Access, and Opportunity” repeatedly addressed the need for *community-based solutions*, noting that “*technology must be culturally relevant*” [26]. A study by the Benton Foundation in association with the National Urban League found that attitudinal barriers are equally as limiting to the deployment and use of new information infrastructure as financial obstacles [8]. The study indicates that societal priorities and ambivalence about technology have caused a lack of Internet awareness among a disproportionate number of Black and Hispanic citizens.

Classic organizational change theory indicates that successful change is achieved through a three-step process of *unfreezing, moving, and refreezing* [29]. Non-use of technological resources represents the status quo, or equilibrium state, for many inner-city youth. *Unfreezing* this state of equilibrium requires individuals to overcome their personal resistance tendencies and the pressures of group conformity, so that they can *move* to a state of IT awareness, and then “*refreeze*” with technology use.

2.2 Change in Technology Usage

Characterizations of the 21st century economy include ubiquitous references to an economy based on advances associated with knowledge, information, and innovation. Quinn, Baruch, and Zien [44] suggest that “intellect and innovation are the sources of virtually all economic value, growth, and strategic edge” (p. 1). They further state that Internet innovation represents the “peak” (p.76) of technology usage to create value, and that anyone who ignores the explosion of potential opportunities is “foolish in the extreme” [44] (p. 78). Measurements of the breadth of the Internet economy (defined as companies directly generating all or some part of their revenues from Internet or Internet-related products and services) lend strong support to this observation. Table 1 outlines key findings

with respect to Internet growth from the first quarter of 1998 to the first quarter of 1999.

Table 1

<ul style="list-style-type: none"> • Growth in the Internet economy increased 68% • Growth in the E-commerce sector alone increased 127% • Internet-related jobs increased from 1.6 million to 2.3 million • 400,000 E-commerce jobs added • 33% of the 3,400 companies surveyed did not exist prior to 1996 • The top ten companies in the study account for only 27% of Internet revenue • The 294 companies doing the most business on the Internet have an average market capitalization of \$18 billion • If the Internet economy were to grow at only half the current 68% rate, it would generate \$1.2 trillion in revenue in 2002 <p>Source: The Center for Research in Electron Commerce at the University of Texas at Austin (1999)</p>
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Yet the promises of the digital age do not bring prosperity to all populations. Early predictions of the Internet revolutionizing democratic communication [20], [60] have not materialized. Tapscott [52] observes that the technological revolution has also produced social trauma and conflict. While the new economy is creating highly paid, high-value jobs, there is little mobility between the old and the new. Full participants in new economy opportunities are limited to those with access to the new infrastructure [52]. But, “access” – the availability of hardware, software, and infrastructure – is significantly different from “accessibility” – the ability of end-users to make use of the technology [25].

Today’s inner-city youth are a part of the large “echo boom” (children of the baby boomers) generation of young people, born between 1977 and 1999. Even with limited financial means, inner-city youth have an instinctive propensity for technological devices. As Tapscott [53] notes, “technology does not dazzle” (p. 190) this generation. They have grown up with video games, TV channel surfing, and varying forms of telecommunication technology. However, inner-city communities characteristically view the technology as “gadgets” and fail to perceive the overriding public need and value of digital technology [8].

Even when community and Internet access is provided in public settings such as schools or libraries, ambivalence toward the technology continues to limit usage. In the Bellcore Survey [8] on computer technology dissemination, the greatest percentage of Internet users learned about it at work or through family or friends. A national public opinion survey published by the Benton Foundation indicated that a “plurality [of library users] would go to somebody they knew rather than a librarian for help with technology” [8]. The Internet is clearly a vehicle for economic growth, and its importance as a tool

for global communication is expanding exponentially. But, the physical and social barriers associated with gaining both access and accessibility to the Internet have caused many to conclude that more creative ways must be found to make computer networking a part of the social lives of people in low-income neighborhoods [8].

Given the call to find creative ways to advance technology use by inner-city youth, this study examines the use of hip-hop music as a context for introducing the second-step, *moving*, of Lewin's change model. Hip hop, popularly known as rap music, originated as a marginal, city-dweller, African-American music genre in the Bronx, New York in the mid-1970s, and has today become a global mainstream medium [34]. In 1998, Time magazine devoted its cover story to hip-hop, the album-of-the-year Grammy Award went to a hip-hop artist, MTV devoted seven programming days to the music during "Hip-Hop Week," and sales of hip-hop exceeded all other genres, including country music which had previously led music sales. Beyond simply a genre of music, hip-hop has fostered a global, youth-oriented culture and influences the industries of fashion, cinema, television, journalism, publishing, finance, law, and advertising. Hip-Hop's pervasiveness in inner-city communities and its association with wealth and notoriety, suggests that it may provide a useful context for inducing change.

2.3 Entrepreneurship/Wealth Creation

Venkataraman [58] defines entrepreneurship as an activity that occurs at the nexus of two phenomena: the presence of lucrative opportunities and the presence of enterprising individuals. In the information age, where wealth is increasingly being identified as intellectual capital [50], [52], entrepreneurship is widely being viewed as the "gateway to growth and prosperity" [61]. In addition to entrepreneurship opportunities providing opportunities for wealth creation, research reports indicate that workers in the digital age are also in high demand. Analyses of information technology (IT) occupations point to significant growth in higher skilled jobs creating a shortfall in the global IT labor pool [56], [10]. The U.S. Department of Commerce [56] report specifically addresses this issue, noting that "without a concerted effort to develop students and workers to meet the new challenges of the digital economy, the United States could face a migration of high-skilled, high-wage jobs to other countries" (Chapter 7, p. 49).

Hip-hop music again offers a useful context for assisting inner-city youth envision wealth creation opportunities. Numerous artists and entrepreneurs, with significant celebrity appeal, have begun to openly address the issues of creating long-term wealth through their music ventures. Most notable among these individuals is

Russell Simmons, CEO of Rush Communications, and entrepreneur behind familiar products of Def Jam Records and Phat Fashions. Russell recently sold his remaining interest in Def Jam to Seagram's Universal Music Group, netting over \$250 million in liquidated value [18], [45]. Master P graced the cover of the September 27, 1999 issue of Fortune magazine, as one of America's wealthiest Americans under 40 years of age. In a ranking of 40 Americans, Master P was listed as 28th wealthiest, ahead of such well-known names as Michael Jordan (29) and Halsey Minor, Chairman and CEO of Cnet [9]. The stories of Jeff Bezos, Michael Dell, and Marc Andreessen are well known to those familiar with the business press, but Sean Puffy Combs statement, "I'm not foolin' around - I'm building assets" may be more relevant to inner-city youth [24].

Numerous references can be made to African-American entrepreneurs and corporate executives who have benefited from the economic growth of the last decade, and it is very important for inner-city youth to be exposed to these accomplishments. However, Lewin [51] notes that the mere introduction of change does not necessarily eliminate the pre-change condition or ensure that the change will be enduring. The use of intervention tactics that sell the change rationale, and allowing affected individuals to participate in the change process are found to be effective forces for constraining change resistance [46].

2.4 Technology Acceptance Model

As researchers examine practical approaches for developing a more diverse IT citizenry, one challenge that is recurrent in the literature involves the role of individual differences in the adaptation of new technologies. Kwon & Zmud [22] reviewed varying research models pertaining to the implementation of information systems, and concluded that user motivation and capabilities are important determinants of success. Agarwal & Prasad [2] observe, however, that while many studies find that specific individual difference variables are "germane influences on the implementation of a new IT" (p. 364), few studies examine the *processes* by which individual differences influence IT success.

Agarwal & Prasad [2] describe the technology acceptance model as a parsimonious and theoretically grounded conceptualization which is useful in explaining and predicting individual behaviors toward information systems. According to this model, beliefs or perceptions act as mediating variables in the relationship between individual differences and IT acceptance. The researchers state that one implication that can be inferred from the model is that rather than focusing on individual differences, managers can "proactively [act to] influence

beliefs directly through...broad-based information dissemination” (p. 363). One of the foundations of the proposed study is that authority figures such as managers, teachers, and peers can affect the use of technology.

Agarwal & Prasad’s [2] empirical study of 230 information technology users from a Midwestern *Fortune* 100 corporation confirms the mediating role of beliefs (i.e., perceptions regarding technology usefulness and ease of use) as a predictor of technology usage. Further, a broader implication that emerges from the study relates to the tangential finding as to the importance of an environment that supports organizational learning. The authors note that “learning is critical to technology acceptance” (p. 385) and suggest the need for a work climate that encourages (e.g., as a performance expectation) and rewards self-learning. While other authors have discussed the relationship between technology acceptance and learning *theoretically* [63], [47], Agarwal & Prasad’s *empirical* findings advance our awareness of the issue and support the need for extended study of this relationship. We believe that Social Cognitive Theory literature, which is discussed next, will enhance our understanding and application of the learning premise as it relates to individual attitudes and differences.

2.5 Social Cognitive Theory

Social Cognitive Theory (SCT) is a widely accepted and empirically validated model of individual behavior [5], [6]. The theory’s premise is that environmental influences (e.g., social pressures), cognitive and personal factors (e.g., personality and demographic characteristics), and behavior are reciprocally determined [12]. The reciprocal relationship suggests that individuals make choices (e.g., about their environment), but they are also influenced by these choices. In describing SCT, Bandura [6] advances two notions, **outcome expectations and self-efficacy**, as the major cognitive forces guiding individual behavior.

The concept of outcome expectations posits that individuals will be more likely to engage in behaviors if they believe the outcome will be valued. What the individual is seeking through valued outcomes is some level of personal control regarding the benefits associated with changing a behavior (e.g., Will the action favorably affect my career or academic progress?). Self-efficacy, or the personal judgments one makes about their ability to perform a specific task [6], influences an individual’s choice about which behaviors they will undertake. The linkage between outcomes and self-efficacy recognizes that if one doubts their ability to accomplish an action, even positive expectations as to the value of the outcome will not motivate active participation in the endeavor.

Applying SCT to technology usage, Compeau, Higgins, & Huff [14] state that an individual’s self-efficacy and personal perceptions regarding the value of the outcome are critical to their decisions about whether, and to what extent, to use technology. Noting the tight linkage between outcomes and self-efficacy, the researchers comment that even when one believes the outcome is worthy, they still will not undertake the necessary learning required to change a behavior if they perceive that they lack the ability to perform the task. Compeau, et al. [14] assert that it is insufficient to anticipate a changed behavior in the adoption and use of technologies by simply offering individuals a well-reasoned argument regarding its merits. Changed behavior must also be motivated through “coaching, teaching, and encouraging individuals to ensure that they have the requisite skills and confidence in their skills to be successful in their use” (p. 146).

Compeau, et al. [14] tested the influence of computer self-efficacy, outcome expectations, affect, and anxiety on computer usage. The study used longitudinal data gathered from 394 end-users over a one-year interval. Findings from the study indicate a significant and predictive relationship between self-efficacy and computer usage, and the relationship was supported over a two-year period. With respect to outcome expectations predicting computer usage, the authors found a high correlation between expectations and usage. However, over the two-year period, the direct relationship between these two variables was slightly negative. Consistent with other expectation research [30], Compeau, et al. [14] found that when the expectations of participants about the benefits of technology were unrealistic (i.e., expected promotion, salary increase) users tend to be less satisfied and use the technology less than individuals with more realistic expectations. Using the longitudinal data, the authors found that persons who had expectations regarding financial rewards and increases in status in year 1, had by year 2, become disillusioned with those expectations, and that added information led to negative opinions about the use of technology. Otherwise, the model was supported, and persons with high beliefs about the personal benefit of technology indeed were more likely to use the technology. SCT transfers readily to the goals for this proposal and for the challenge of increasing minority participation in the IT workforce.

The above discussions of the digital divide, the change in technology usage, entrepreneurship/wealth creation, technology acceptance, and social cognitive theory leads us to the theoretical model (Figure 1) as adapted from Agarwal [1] which guides our research.

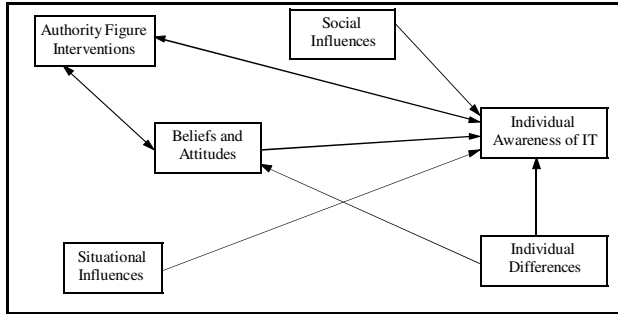


Figure 1: Theoretical Model (adapted from Argarwal, 2000)

Incorporating variables associated with social cognitive theory, the model indicates that social influences, situational influences, and beliefs and attitudes directly motivate student acceptance of IT. Further, beliefs and attitudes are shown to be a function of faculty interventions within the target (i.e., student) population. Although TAM postulates that individual differences have an indirect effect on the acceptance of IT, a significant body of literature on diffusion of innovations [47] supports a simultaneous direct effect. This model used in this study includes indirect and direct effects of individual differences on IT acceptance. From this model, the following propositions are posited.

Proposition 1: Exposure and awareness of what the Internet is, how it can be accessed, and what kinds of information can be obtained from its use, using a culturally relevant medium, will positively affect Internet usage.

Proposition 2: Internet technology usage through a culturally relevant medium will positively affect individual attitudes with regard to entrepreneurship and wealth creation.

3. METHODOLOGY

The propositions put forward in this paper pertain to whether awareness of the Internet impacts *usage* and whether use of the Internet impacts *attitudes* toward using technology for wealth creation. These propositions will be tested within the framework of the research model presented in Figure 2.

3.1 Research Model

The research model is derived from Lewin's [29] model which gives a framework from which to study change and Argarwal's [1] model. The unfreezing stage of Lewin's model corresponds to the *technology awareness* variable. The moving stage corresponds to the

technology use variable, and the refreezing stage corresponds to the *attitude change* variable. As the research model proposes, technology awareness impacts technology use when moderated by the intervention of a culturally relevant medium. Continued use of this medium impacts wealth creation, as measured by changes in attitude.

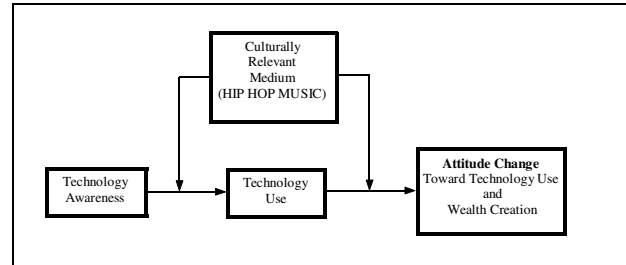


Figure 2: Research Model

3.2 Subjects

The subject pool consists of middle-school and high-school students in inner-city neighborhoods. These are the students who are most at risk for the digital divide. Although they may have access to technology through the schools and libraries, they do not have the accessibility to technology that is needed to propel them forward to use technology for wealth creation.

3.3 Dependent Variables

The dependent variables examined in this research are (1) *technology use* and (2) *attitude change* toward technology use as a means for wealth creation. Students will be introduced to technology use options with a PowerPoint presentation. The dependent variable, technology use, will be measured by the number of Websites visited during the laboratory session.

Attitude and perception have often been studied as outcome variables for various phenomena [28]. Recent studies have examined attitude and perceptions for Web use [39]. Attitude change is a function of individual choice shift. For this research *individual choice shift* or attitude change is defined as the difference between an individual's attitude before and after the intervention/task and/or group discussion [48], [11]. Attitude change will be measured using a Likert-scale pre/post-test instrument. Changes in students' attitudes with respect to technology use for wealth creation will be statistically evaluated using analysis of variance.

3.4 Independent Variables

Independent variables either cause a variable to vary or affect a variable [4]. One such variable is **technology awareness**. In this study, technology awareness affects technology use when moderated by a culturally relevant medium. Technology awareness will be measured with an opened-ended, pretest questionnaire. The purpose of the pretest is three-fold. First, the pretest will establish a benchmark for evaluating student understanding of technology, specifically the Internet. Secondly, the pretest will serve as a tool to motivate students to use technology, and finally, the pretest will provide a basis for evaluating attitude change toward technology use and wealth creation.

The variable technology use can also be thought of as an independent variable. According to the research model, after intervention, technology use affects or causes learning or a change in attitude. For this research, technology use will be treated as a dependent variable.

3.5 Contextual Variables

Research has shown that decision making processes and outcomes are strongly contingent on a variety of contextual variables including characteristics of the decision making entity, task characteristics, the supportiveness of the organizational context, and the nature of technological support available to decision makers [42], [33], [41], [32], [17]. For this research, the contextual variable of **Hip Hop Music** is one that is culturally relevant to the population at hand. According to the propositions, this variable will enhance the two dependent variables - technology use and attitude change of technology as a means for entrepreneurship and wealth creation.

4. IMPLICATIONS OF THE STUDY

The potential impact of the research is an increase in the entrepreneurial motivation and technological capabilities among inner-city youth. An experimental test of the change perspective will be conducted as described in the methodology. Based on the results of the research, we anticipate that the concepts will be applicable in other settings by identifying an underlying medium, one that is culturally relevant, that encourages the “unfreezing” process essential to inducing changed behaviors. As America begins to assess the impact of the “echo boom,” it must include economic growth models that address the needs of inner-city youth and ensure their exposure to effective wealth creation opportunities.

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