

Interactive TV: An Effective Instructional Mode for Adult Learners

Li-Ling Chen

Carole Iris

California State University, Hayward

The inclusion of interactive television (iTV) programs for learning is an emerging genre in education. Literature has concluded that any aspect of learning requires some form of interaction or feedback to be most effective. As television (TV) evolves from being a passive to an active medium, it has the potential to engage learners and reach a mass audience on a scale much larger than traditional education and training.

The term digital TV refers to the distribution and transmission of audio and video digitally to its destination. Interactive digital TV (iTV) means that control moves away from the broadcaster and network and is placed directly in the hands of the potential consumer. ITV programs are TV programs with new forms of engaging educational content enhanced with interactivity. In this paper, iTV instruction refers to any learning utilizing iTV programs. iTV learning is a type of learning that utilizes interactive TV or similar screen-based devices. Video-rich content is delivered via one or a number of different platforms. iTV is not learning with a personal computer as e-learning is recognized today.

Adult learners are typically considered to be people older than the age required for compulsory school attendance. The changing life course of adults is closely related to lifelong learning. Demographers conceptualize the life course as the regularized patterns of transitions and roles that individuals experience as they age. The life course norm has shifted from generally routine and predictable transitions (e.g., from student to worker, from spouse to parent) to one in which lives are more “disorderly” and people hold a variety of roles (Lifelong Learning NCES Task Force, p. 59; Rindfuss, 1991).

The purpose of this paper is twofold: to identify why iTV is an effective instructional mode for adult learners and to promote the integration of iTV instruction into lifelong learning and adult education. The popularity of iTV in Europe and the potential of iTV in the United States is introduced first. The theoretical framework that supports the effects of iTV for learning is discussed. Identified later are the reasons why adults want to learn and the forces that influence adults to learn. The potential and benefits of iTV instruction for adult learners will also be addressed. The challenges of such instruction are identified. Finally, conclusions on the importance and potential of iTV instruction for future adult education are presented.

Popularity of Interactive TV

Interactive TV has a strong foothold in the European TV market. While in the past few years, US (United States) audiences were just beginning to experience basic interactive TV services. Comparative figures for the end of 2001 showed that 37% of UK (United Kingdom) households had digital TV compared with a European average of 16.3%. By 2003 the figure had increased to nearly 44% of British households (Pastore, 2002).

Interactive TV in the U.S. is set to grow 83 percent per year through 2005 compared to online growth that is predicted to grow only at nine percent during the same period. Interactive TV will be an accelerated growth market, reaching approximately 46 million homes by 2005. It is predicted that the U.S. will outpace Europe as a whole in interactive TV penetration by 2005 (Waiting Critical Mass, 2001). Jupiter Media Matrix forecasts that 72 percent of digital cable households and 77 percent of digital satellite households will be interactive by 2007 (Loizides, Gartenberg, & Peach, 2002). By 2008, TV households for digital TV and interactive TV markets for pay will grow to 69 million and 54 million, respectively (Loizides, Card, & Patel, 2003). It is also predicted that by 2005, 625 million people worldwide would use services offered by digital TV (Strategy Analytics Research, 2001).

Theoretical Framework for Supporting iTV Instruction

The major theoretical framework to support the effects of iTV for instruction is the interactivity theory proposed by Vaughan (1998). He proposed that interactivity empowers the end-user of the application by letting them control the content and flow of information. Interactivity permits the user to navigate and explore the application at his or her own pace. This is an important feature in a learning tool in which a learner can view and study at his or her own speed and skill level, thus controlling the pace of learning.

Research has shown that active learning occurs when a learner engages three cognitive processes: (1) selecting relevant words for verbal processing and relevant images for visual processing; (2) organizing words into a coherent verbal model and images into a coherent visual model; and (3) integrating corresponding components of

the verbal and visual models (Moreno & Mayer, 2000). Moreno and Mayer stress that simply presenting verbal explanation of how a system works with an animation does not insure that learners will understand the explanation. Learners have to be able to cognitively engage in the learning process by choosing, organizing and integrating their learning materials. iTV instruction allows learners to select learning materials, to organize and to integrate the selected content. Based on this perspective, iTV is a perfect tool; it provides an active and meaningful way for learners to engage in his/her learning.

Forces Influencing Adults to Learn

One of the main reasons adults seek learning experiences is to help them cope with specific life-changing events; transitions such as marriage, divorce, a new job, retirement, lose of a loved one or a move to a new location. As stress increases and accumulates with life-changing events the adult's motivation to engage in learning experiences increases. Increasing or maintaining a sense of self-esteem and pleasure are strong motivators for adults to engage in learning experiences (Zemke, 1984). Adults' readiness to learn is also directly linked to need-needs related to fulfilling their roles as workers, spouses, parents, etc.

According to Hiemstra (2003), there are three major forces that act in concert to generate this interest and need for adults to learn. The first of these can be described simply as the rapidity and constancy of change in the society. A second major force is the continuous march by many adults toward occupational obsolescence. Adults frequently must turn to learning activities in and out of the workplace just to maintain or regain competence. The third force that has helped create the interest in, and need for, lifelong learning deals with the change in lifestyles or value systems affecting so many people.

Friedrich (1993) emphasized the importance of self-directed learning in adults. This self-directed type of learning appears to be related to life satisfaction and independence in adults. He also claimed that adults want to learn because "humans are unfinished beings; they are in the process of becoming. This unfinished character of humans along with the changing character of reality, requires that education be an ongoing activity. Therefore, people have not finished their education when they reach old age; rather it is a lifelong process."

Potential of iTV Instruction for Adult Learners

Interactive TV holds promise for adult learners based on following three reasons: iTV instruction can motivate adult learners, iTV instruction promotes adult learners' self-efficacy and iTV instruction offers an environment conducive for learning. The specific discussion follows.

iTV Instruction Can Motivate Adult Learners.

Few adult education textbook authors devote any attention to the role of motivation in learning or the developmental course of adult motivation (Smith & Gallagher, 2002). Adults are more often internally motivated by the potential for feelings of worth, self-esteem, achievement, etc. Pourchot (1999) has suggested that the development of a sense of generativity in middle adulthood is positively associated with increased intrinsic motivation. As adults develop, they are therefore likely to experience changes in how and where their motivation is directed. Adult educators should assist adults in appropriately channeling their motivation in order to accomplish their personal learning goals.

The best educational TV and films use imagery to captivate and stimulate the audience. Those skilled in this medium know how to tell a story, how to intrigue and convey ideas effectively. In contrast, developers of adaptive educational software have focused on individualizing the content and its presentation to motivate the user. Interactive TV programming can motivate adult learners because it requires the innovative merging of these two approaches (Luckin, et Al., 2003).

Recreating a semblance of a traditional teaching environment (classroom) for the interactive TV interface is but one possible initial scenario that may be used to build user familiarity with this new medium of instruction. Interactive TV offers possibilities for an innovative learning environment with the ability to overcome the physical and temporal limitations imposed by the traditional educational process. By its intrinsic nature, it enables the creation of a rich, dynamic and stimulating "virtual environment" which constitutes a new learning context that directly influences perception, activation and memory and develops a new way of thinking (Garito, 2001).

iTV Instruction Promotes Adult Learners' Self-Efficacy.

According to Bandura (1982), self-efficacy is a self judgment of one's ability to perform a task within a specific domain. Self-efficacy influences the choices people make, the effort that is put forth and the level of persistence when confronted with obstacles. How people behave can often be better predicted by the beliefs they hold about their own capabilities than by what they are actually capable of accomplishing, for these self-perceptions, which he called...self-efficacy beliefs, help determine what individuals do with the knowledge and skills that they have (Pajares, 2002).

Research studies concluded that adult learners' self-efficacy scales were correlated with media uses and exposure (Hofstetter, Zuniga, & Dozier, 2000). Media self-efficacy exists in adult learners. iTV instruction uses television as a tool for instruction that assists the promotion of adult learners' self-efficacy.

iTV Instruction Offers a Conducive Learning Environment.

Setting a climate that is conducive to learning is vital. There are at least two aspects of climate: physical environment and psychological atmosphere. The psychological climate is even more important than the physical climate according to Rossman (2000) who states, "Adults must feel secure and safe within any learning situation. They must be treated with respect and dignity. Learners must also feel supported." Knowles (1989) wrote, "People learn better when they feel supported rather than judged or threatened."

Television is not a new technological tool for adult learners. Interactive TV instruction based on the technology and concept of television provides adult learners a learning environment that is familiar, comfortable, and conducive to learning. This type of instruction opens up the possibility of personalized, adaptive learning experiences for individual and group learners.

Challenges of iTV Programming for Lifelong Learning

The major challenges involved in the integration of iTV instruction for lifelong learning are the availability of iTV programs and the unstable iTV policy. There are very few appropriate iTV programs available for adult learners as iTV is presently an emerging technology for learning. Therefore, there is a great need for the design and development of educational iTV programs. When designing an iTV program for adult learners, it is very important that the general characteristics of adult learners be considered. Cave, LaMaster, & White (1998) outlined a list of adult learners' general characteristics that presents important basic criteria to consider when designing or choosing appropriate educational programs for adult learners:

1. Adults perceive themselves to be doers; and they prefer using previous learning to achieve success as workers, parents, and so on, and they have a broad, rich experience base to which to relate new learning.
2. Adults depend upon themselves for material support and life management. They are largely self-directed, and they learn best when they perceive the outcomes of the learning process as valuable contributing to their own development, work success, etc.
3. Adults are very different from each other. Adult learning groups are likely to be composed of persons of many different ages, backgrounds, education levels, etc.
4. Adults, in addition to perceiving time itself differently than children do, are more concerned about the effective use of time. Although, for the most part, they learn more slowly than children, but they learn just as well.
5. Adults are much more likely to reject or explain away new information that contradicts their beliefs.
6. Adults' readiness to learn is more directly linked to need-needs related to fulfilling their roles as workers, spouses, parents, etc. and coping with life changes (divorce, death of a loved one, retirement, etc.).
7. Adults are more concerned about the immediate applicability of learning.
8. Adults have well-formed expectations, which, unfortunately, are sometimes negative because they are based upon unpleasant past formal learning experiences.

Coupled with individualized content presentation and conveying ideas effectively, interactive TV programming is presented with the challenge of providing for the traditional social nature of television watching. It is quite probable that interactive lifelong learning programming will be used by small groups of users as well as solo users. Furthermore a formidable question arises, how can interactive TV programming adapt to a group of viewers, in such a way that each individual benefits from the material? This is a very important consideration, as it is known that even amongst adults of the same age significant differences will occur with respect to interests, knowledge and learning capabilities (Masthoff, 2002).

Policy is a challenge as well as a factor that explains an important reason why US digital interactive TV currently lags behind Europe. The DVB (digital video broadcasting) project, an international consortium of broadcasters, manufacturers and regulatory agencies that began working in 1993 to establish a European standard

for digital transmissions has been highly influential. While the US standards committee got bogged down in political squabbles and technical issues, the DVB group developed a standard so technologically reliable that some US station owners have petitioned the FCC (Federal Communications Commission) to let them use it instead of the standard they agreed to (Rose, 2000). To promote the use of iTV and to integrate iTV technology for adult learners, the FCC in the US needs to establish digital transmission standards that are agreed upon and accepted by the television industry and relevant institutions.

Conclusion

Interactive TV instruction is an effective tool for providing adult learners new learning opportunities. In our rapidly changing society, more and more adults need to keep learning in order to cope with specific life-changing events or environments. Interactive TV instruction holds significant promise for adult learners in three potential benefits: iTV instruction can motivate adult learners, iTV instruction promotes adult learners' self-efficacy and iTV instruction offers a conducive learning environment.

Interactive TV instruction has tremendous potential to provide an optimal experience for the self-directed informal lifelong learner. Statistical information demonstrates that digital interactive TV is rapidly gaining a place in households worldwide, thus providing an excellent means of access to lifelong learning for many millions of adult learners who would otherwise be excluded from informal educational opportunity.

Reference

- Bandura, A. (1982). *Self-Efficacy: The exercise of control*. New York: W.H. Freeman.
- Friedrich, E. (1993). Radical adult education with older persons. *New Horizons in Adult Education*, Volume 7, (1), Retrieved October 19, 2003 from http://www.nova.edu/~aed/cumulative_index.html
- Garito, M. (2001). Telematics: Digital television and life long learning. *European EducationTechnology Forum Dublin*, 27-09-2001. Retrieved October 29, 2003 from <http://www.ucd.ie/avc/html/homepage/garito.pdf>
- Hiemstra, R. (2003). *Lifelong learning: An exploration of adult and continuing education within a setting of lifelong learning needs* (3rd ed.). Layetteville: HiTree Press [Electronic version] Retrieved November 20, 2003 from <http://www-distance.syr.edu/lll.htm>
- Hofstetter, C. R., Zuniga, S. & Dozier, D. (2000). Media self-efficacy: Validation of new application," *Mass Communication and Society*, 3(4).
- Knowles, M. (1989). *The making of an adult educator*. San Francisco: Jossey-Bass.
- Moreno, R. & Mayer, R. E. (2000). *A learner-centered approach to multimedia explanations: Deriving instructional design principles from cognitive theory*. *Interactive Multimedia Electronics Journal of Computer-Enhanced learning*, 2(2).
- Pajares, F. (2002). *Self-efficacy beliefs in academic contexts: An outline*. Retrieved November 2, 2003 from <http://www.emory.edu/EDUCATION/mfp/efftalk.html>.
- Pourchot, T. (1999). *Adults' motivation toward participation in higher ducation*. Unpublished doctoral dissertation. Northern Illinois University: DeKalb.
- Rossman, M. (2000). Andragogy and distance education: together in the new millennium *New Horizons in Adult Education 14(1)*, Retrieved November 3, 2003 from <http://www.nova.edu/~aed/horizons/vol4n1>.
- Smith, M. & Gallagher P. (2002). Relevance of adult development and aging textbooks' contents to adult education. *New Horizons in Adult Education*, 16(2), Retrieved October 19, 2003 from http://www.nova.edu/~aed/cummulative_index.html
- Vaughan, T. (1996). *Multimedia: Making It Works* (3rd ed.). Berkeley: Osborne McGraw Hill.
- Zemke, R & S. (1984). 30 things we know for sure about adult learning. *Innovation Abstracts Vol 6(8)*. Retrieved November 5, 2003 from <http://www.hcc.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/adults-3htm>