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CSCI 135 Information Technology and Society

6. Changes in work, education, and culture

1. Work-related effects of IT
2. IT in education
3. Effects on culture

Topic and course objectives

6. Explain how changes in IT influence work, education, and culture
- 0f. Support opinions with evidence
- 0h. Document sources used

Reading: Baase, Ch. 6; Sec. 7.2

Subtopic outcomes

- 6.1 Explain how changes in IT affect work life
- 6.2 Discuss educational issues raised by use of IT
- 6.3 Discuss ways in which IT influences cultural life

1. Economic and work-related effects of IT

- What is work?
- Are Facebook, YouTube, and Twitter part of work life?
- Does the information revolution result in:
 - individualization of work?
 - increased fragmentation of society?
 - increased social cohesion?
 - a freer work life?
 - a disposable work force?

Service economy and informationalism

- *Accepted theory* (to be challenged or qualified):
 - knowledge generation and communication explain productivity and growth
 - activity shifts from goods to services
 - managers, professionals, technician will become core occupations
- Distinction is not industrial vs. post-industrial, but between two forms of *knowledge-based production*
- “Goods,” “services” are hard to distinguish in the informational economy

IT and employment

- *IT industry*: \$1 trillion worldwide, 2005
- *IT jobs*: 10.5 million in U.S., 2004
- *Job churn*: 1993-2002, 310 million jobs disappeared; 328 million new jobs were created
- New jobs created by IT tend to require higher education, replacing old jobs that did not
- *Offshoring*: About 3.3 million white collar jobs will have left U.S., 2000-2015
- *Inshoring*: Working for a foreign employer

Effects of IT on employment

- Introduction of technology does not necessarily reduce employment
 - displaces some jobs
 - creates others
 - changes characteristics of new jobs
- One factor is that introduction of technology is associated with growth
- “There is no systematic structural relationship between the diffusion of information technologies and the evolution of employment levels in the economy as a whole”

Labor-force flexibility

- A two-layer model is emerging:
 - core labor force (“symbolic analysts”)
 - a disposable labor force (subject to automation, firing, outsourcing)
- IT fosters flexibility and the need for flexibility of the labor force
- “A crisis in the relationship between work and society”

A global labor force

- Capital is more mobile than labor
- Labor is constrained by borders and policies
- Capital movements by multinational firms have disintegrated the work force in some ways
- A disposable segment of part time and temporary workers is formed
- Some firms and governments have chosen the “low road” of short-term profitability by taking advantage of opportunities to cheapen labor

IT and the restructuring of employer-worker relations

- Transition to informational society is accompanied by deterioration of living and working conditions for many workers
- Since early 1980s, governments and firms have squeezed labor costs to counter the profit crunch
- Some changes were enabled by introduction of IT

Structures of enterprises

- Small businesses have access to global market via the Web
- Mergers and splits of huge global companies
- Computer-driven narrowing of focus reduces company size because more products and services are obtained outside company
- Need for middle managers falls because IT enables more information to go directly to workers; workers manage selves more

New occupational structures and employment projections

- Different informational societies have different occupational structures
- Polarization of income distribution has occurred
- Different management styles are used, e.g., Japan (4% managers, 1990), U.S. (13%)
- Diverse paths are taken to informational paradigm

Effects on the work process

- A fundamental change in work: “the individualization of labor in the labor process”
- A reversal of the socialization of production initiated by the industrial revolution
- Management becomes decentralized, markets become customized, work segmented, and societies fragmented
- Work time, job stability, location of work, and the social contract between employer and employee undergo changes

The work process

- Taking advantage of productivity potential of technology requires better informed workers
- Factors fostering high performance in work: high skills, worker autonomy and feedback, teamwork
- Work force is partitioned as a result of decisions made in the course of introduction of IT
- *Castells*: In 1980s, technology was introduced more often to downsize, save labor, cut costs and subdue unions, than to improve quality and productivity

Telecommuting

- increases flexibility
- reduces commuting cost and time
- increases home-related distractions
- reduces mentoring and team contact
- security issues arise

Employee crime

Types:

- *Embezzlement* using computers
- *Sabotage*, e.g., “logic bombs”

Security measures:

- separation of roles (e.g., establishing insurance policies and authorizing claim payments)
- audit trails

Monitoring of employees

- Screen views, keystrokes, and voice can be monitored
- Surveillance cameras monitor many work environments
- *Goals:* Assess productivity, courtesy, accuracy, computer theft
- Employers have an ethical obligation to explain monitoring policies
- Location monitoring may occur in transportation and is a side effect of door-key IDs

Employer email systems

- About half of large U.S. companies sometimes access employee email, voicemail, or computer files
- 26% of employers surveyed said they had fired employees for misusing company email
- 15% of companies surveyed had had lawsuits against them because of employee email, 2006

Monitoring of employee email

- *Motivations:*
 - Obligation to prevent harassment by email
 - Employees emailing jokes
 - Running businesses or betting pools
- Courts have upheld most company email and computer-file monitoring

Subtopic outcome

6.1 Explain how changes in IT affect work life

2. IT in education

- What is education?
- How do people learn?
- Does the feedback loop of knowledge acting on knowledge aid self-reflection in learning?
- Does the information revolution result in radical changes in education?
- Is the classroom doomed?
- What is the place of online learning?
- What is the place of laptops in the classroom?

What IT offers education

- Custom preparation of course materials
- Communication by students outside classroom
- Collaboration tools
- Access to research sources
- Support for learning as discovery and as construction of knowledge

Active learning

- Learning is an action/feedback process of *experience* interacting with the environment
- The learner may interact with educational software and with instructor and other students via software and telecommunications
- Online resources support interaction and provide access to research data

Collaborative learning

- Students reinforce their own learning by supporting each other's learning
- *Example:* a student who has just learned a concept may know just the words to help another overcome a conceptual obstacle
- Software and communications technology, e.g., Web 2.0, support collaboration

Advantages of technology

- Increases student-teacher interaction
- Cooperation and collaboration among students
- Active learning
- Prompt feedback
- Access to content
- Respect for diverse talents and learning styles
- Engagement of students
- Promotes critical thinking

Tools

- Course management systems (CMS),
e.g., Blackboard
- Web links
- Interactive multi-media objects
- Collaboration tools, e.g., Merlot

Subtopic outcome

6.2 Discuss educational issues raised by use of IT

3. Effects on culture

- What is culture?
- What is *your* culture like?
- Is there a FSU, U.S., or world culture?
- Does integration of media radically change culture?
- Does open access radically change culture?
- What are the cultural roles of: video games; on-demand video; Facebook?

Media and audience diversification

- VCRs and number of TV channels expanded consumer choice, market segmentation, and product diversification,
- Corporations and governments retained power
- Are we living in a global village, or in “customized cottages globally produced and locally distributed”? (M. Castells)
- Is information age “marked by the autonomy of culture ” in relation to material constraints?

Computer-mediated communication

- Internet
 - 1973: 25 computers
 - 1999: 173 million users (of which 60% in U.S.-Canada)
- Inequality: circa 2000, industrialized countries had 88% of users but 15% of world population
- Computer-mediated communication networks are pervasive, decentralized, and flexible
- Internet is suited for developing many weak social connections

Communications and culture

- Integration of electronic communication
- End of the mass audience
- Rise of interactive networks
- Alphabet (Greece) revolutionized mental infrastructure for thought and communication
- Integration of text, sound, images, video, interacting globally with open access, changes culture

A culture of real virtuality

- Castells: A new *culture of real virtuality* is emerging
- *Real virtuality*: “a system in which reality itself ... is entirely captured, fully immersed in a virtual image setting” in which appearances become the experience
- *Example*: Dan Quayle’s debate with Murphy Brown

Rise of the mass-media culture

- TV prevailed as path of least resistance for consumers (easier than reading)
- Mass culture resulted from control of electronic media by governments and mega-corporations
- Media are ubiquitous, but our reaction is subject to our will
- “Media tend to work on consciousness and behavior as real experience works on dreams, providing the raw material...”

Critiques of IT in entertainment

- The simplifications of virtual reality are “frequently misleading and treacherous”
- Computer games are said to invite addiction, violence, health problems, dehumanization
- Web-based pornography can be accessible to children
- *Opinions due to:* G. Stamatellos

Subtopic outcome

6.3 Discuss ways in which IT influences cultural life

References

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- M. Castells. *Rise of the Network Society*, 2nd ed. Blackwell, 2000, Ch. 4.
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- R. Spinello and H. Tavani, ed. *Readings in CyberEthics*, 2nd ed. Jones and Bartlett, 2004.
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