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Review Article

Blended Work as a Bridge Between Traditional Workplace Employment and Retirement: A Conceptual Review

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ABSTRACT

Because of population aging, the consensus among policy makers is that employment in older workers must increase. However, methods for attaining this are uncertain. Blended work, which consists of working anywhere and anytime with information and communication technology, may help achieve this goal. The article focuses on 4 topics related to older workers and blended work: the benefits, risks, individual- and organizational-level barriers, and organizational and government interventions and policies designed to remove these risks and barriers. Legislation to protect against age discrimination and disability associated with age is also reviewed. The objectives are to discuss the literature on blended work and the older worker and highlight some consequences the Age Discrimination in Employment Act and American with Disabilities Act may have on blended work. Delaying retirement through blended work could promote older workers' health and well-being, but risks and barriers at individual- and organizational-levels are not inconsequential. At the individual level, these include social isolation, and managements' loss of control over employees at the organizational level. Potential interventions include developing blended work as an employee benefit to replace long distance travel. Federal policies include providing subsidies to state and local governments to reduce costs of upgrading broadband fiber-optic cables. Specific subgroups of workers are more likely to benefit from blended work. Older white collar professionals with good technological and computer skills and who can work independently are one subgroup that might fit a blended worker personality.

Population aging in industrialized countries is rapidly shaping how work is being defined. The increase in older adults will bring an attendant increase in older workers, although the definition of "older worker" is difficult to characterize, with cut-points beginning from 38 to 55 years of age (Hedge, Borman, & Lammlein, 2006; Silverstein, 2008). Costs and benefits to employers of retaining older workers are unclear. Wages based on seniority are common in industrialized countries and often do not follow age-productivity profiles (Van Dalen, Henkens, & Schippers, 2010), although the literature is inconclusive. Skirbekk (2003) found that individual work performance and productivity decrease in older workers if jobs require problem-solving and speed, but remain high when experience and verbal skills are needed. Perceptions about the characteristics of the older worker are also inconsistent. Positive stereotypes for older workers frequently include "soft qualities," such as experience, commitment, loyalty, reliability, and social skills. Conversely, "hard qualities," such as multitasking, flexibility to adjust to organizational change, mental capacity, and willingness to learn new technologies are typically associated with younger workers (Eisner, 2005; Van Dalen et al., 2010).

While research on soft and hard qualities among age cohorts might be inconclusive, misinformation about the older worker remains. Managers often believe older workers are technologically inferior to younger workers (Malinen, 2009). Although empirical data exist to validate some of these beliefs, findings are inconsistent (Hedge et al., 2006). For example, older workers have declines in working memory, selective attention, spatial declines, and psychomotor skills, including slower response times (Sharit & Czaja, 1994), but, conversely, other research (Sharit, Czaja, Hernandez, & Nair, 2009) suggests that 80 year olds are as capable of navigating and learning internet-related tasks and closely matched the performance of younger age cohorts, although additional training is often required.

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As baby boomers retire, they will be replaced by fewer younger workers due to a baby bust. For example, the percentage of workers between 25 and 54 years of age in the United States is expected to decline 3% from 2012 to 2022 (Bureau of Labor Statistics, 2013). Possible economic consequences of retirement include selective labor shortages in so-called knowledge jobs (Silverstein, 2008). Because of predicted labor shortages of highly skilled, professional workers in industrialized countries (Silverstein, 2008), the consensus among policy makers is that employment among older workers must increase (Ilmarinen, 2001). However, the means of achieving this are uncertain. Blended work might offer a solution (Van Yperen, Rietzschel, & De Jonge, 2014).

Blended work is defined as work that could be performed at several locations, including the home, traditional worksites, and remote and satellite offices. It combines working in a centrally located workplace with working in a noncentrally located environment and is accomplished with communication and information technologies. Blended work is working where, when, and how you need to work (Van Yperen et al., 2014). For the older worker who does not want to retire, it might include phased, partial, or semi-retirement work, a possible reduction of work activity, and represent a change from full-time employment to part-time or part-year work (Collins, 2003; Weckerle & Shultz, 1999).

Blended work may be a suitable alternative to retirement because of the potential reduction in work activity, fatigue, travel, and physical workplace barriers. The replacement of physically demanding tasks with the use of home-based communication and information technologies could also allow the older worker to remain employed. And older adults' established work patterns from a lengthy employment history and their reported self-reliance might work to their advantage (Patrickson, 2002).

Van Yperen and colleagues (2014) suggest that older workers might perceive blended work as more "personally effective" than younger workers, as older workers have less need for structure and belongingness, and a weaker preference for work–home segmentation. Patrickson (2002) hypothesizes that older workers may succeed at blended work due to their experience and because they are trusted by management, which are important components of autonomous work. Moreover, older workers may less likely be concerned that blended work would adversely affect career advancement than younger workers (Patrickson & Ranzijn, 2005).

Within the last 10 years, there has been a modest but growing shift to blended work from more traditional workplace employment due to rapid advances in broadband connections. The use of mobile telecommunications technology has made the Internet available to wider segments of the population. Developments in videoconferencing, groupware, digital phones, WiFi, cloud computing, and satellite up-links could further increase its demand (Fuchs, 2008). Powerful, inexpensive home computers have shifted business models to seek increases in productivity and new resources in labor (Gibson, Blackwell, Dominicis, & Demerath, 2002).

Blended work has the potential to build a bridge between traditional employment and retirement. While some recent original literature exists on blended work and the older worker, and related phenomena, such as telework and telecommuting (Sharit et al., 2009; Van Yperen et al., 2014), much of the research is dated, and its advantages, drawbacks, and possibilities as a link between workplace employment and retirement have not been recently explored. To address these issues, a conceptual review was performed. The objectives were to discuss the literature on blended work and the older worker and highlight some of its potential consequences with respect to the Age Discrimination in Employment Act (ADEA) and American with Disabilities Act (ADA). It is organized into four research questions:

1. What are the benefits and risks of blended work for the older worker?
2. What are barriers to blended work at individual- and organizational-levels?
3. Are there organizational and government interventions and policies to remove risks and barriers of blended work in older workers?
4. What are the effects of the ADEA and ADA on blended work?

RESEARCH QUESTION 1. WHAT ARE THE BENEFITS AND RISKS OF BLENDED WORK FOR THE OLDER WORKER?

Employee-Related Benefits

Increased comfort and autonomy

While the change in industrialized economies from a manufacturing to a service sector has made work less physically demanding, the use of information and communication technology (ICT) may have increased cognitive workloads (Landsbergis, 2003). Blended work could help older workers feel more comfortable with this technology since many believe they would be more successful learning new skills at their own pace and rhythm and in familiar environments (DiMartino & Wirth, 1990; Patrickson, 2002). Patrickson (2002) reported that many older workers prefer nontraditional work arrangements. Autonomy, which has been linked to blended work, is important to older workers who want discretion over how to meet their learning styles and work within their "comfort zones" (Bennington & Tharenou, 1996). Older adults also prefer to "age in place." This refers, in part, to the opportunity for older adults to reside and work in their own homes, which could afford them comfort and confidence (Yen & Anderson, 2012). Anderson, Bricout, and West (2001) note that comfort and alternative work arrangements are essential to promote healthy work and productivity in older workers.

Decreased psychosocial stress

The risk of cognitive and somatic symptoms, and loss of interest after exposure to psychological stress may be greater in older than younger adults (Fiske, Wetherell, & Gatz, 2009). Montreuil and Lippel (2003) state that blended work could have a positive effect on mental health, as these workers frequently report more job control and lower stress levels. Employees with greater psychological job control—the process, timing, and location of work—often have less psychosocial stress (Karasek, 1990). Gajendran and Harrison (2007) found that in blended workers, stress was reduced by having autonomy.

Lower exposure to travel

Working from home may be preferred among older workers because of the absence of fatigue from commuting (Patrickson, 2002). Older workers might also prefer blended work over long commuting times to avoid the possibility of automobile accidents (Wang & Carr, 2004),

traffic congestion, driving on unfamiliar roads, inclement weather, bad air quality days, and to reduce travel costs (Day & Burbach, 2011; Gibson et al., 2002).

Schettler (2002) reported that blended workers might forgo pay raises if they could work from home. This might be particularly germane for older workers given their greater co-morbidity of heart disease, and gastrointestinal and musculoskeletal disorders than younger adults (Griffiths, 2000; Silverstein, 2008). Data indicate older workers are twice likely to have these conditions, which can interfere with physical mobility, than younger workers (Griffiths, 2000). Moon, Linden, Bricout, and Baker (2013) found that blended work could extend working life in disabled older workers by reducing pain and enhancing reliablity since work-related travel would be lessened.

Personal assistance services and assistive technology

Older workers may require personal assistance services (PAS) at work. Qualifying for and obtaining PAS at the traditional workplace are problematic for employed individuals. Medicaid funded PAS in most states are limited to the recipient's home. The older blended worker could more easily obtain PAS and use their home-based personal attendant during working hours (West & Anderson, 2005). Blended work may also make employment more accessible for older, physically impaired workers because of their potential for greater activities of daily living needs (Merz, Bricout, & Koch, 2001).

Anderson and colleagues (2001) report that vocational rehabilitation services might provide funds for home-based ergonomic or assistive technology equipment for the older, impaired worker if s/he is registered with their agency. Assistive technology is defined here as any piece of equipment that improves physical and cognitive functioning and work performance by providing enhancements to or changing methods of interacting with technology, allowing workers to perform tasks they would be otherwise be unable to perform (Disability Rights Network of Pennsylvania, 2008).

Work–life balance

Another potential advantage of blended work is improved work–life balance. Lambert (2000) found that older workers employed in organizations with helpful work–life policies were more willing to volunteer in "citizenship behavior," such as helping coworkers, than older workers who were provided with less useful policies. This type of citizenship behavior is central for older workers, as it could provide social approval and improved self-esteem (Hao, 2008).

Older workers state that spending more time with their families and friends is an important reason for wanting to blend work (Hill, Hawkins, Ferris, & Weitzman, 2001). Hill and colleagues (2001) also report that a high priority for older workers is an unstructured work environment, which they believe could support and promote a healthy work–life balance. Igbaria and Guimaraes (1999) observed that blended work reduced role conflict as compared with working in a traditional workplace, which has the potential to improve work–life balance. Other benefits of successful work–life balance for the older blended worker include lack of alienation and perceived opportunities for growth (Patrickson, 2002).

While blended work might be associated with social isolation and role ambiguity in certain situations (Baines, 2002), authors have found resilience in older workers who may be exposed to these hazards (Ulrich & Brott, 2005). Similarly, West and Anderson (2005) reported that older workers may be less influenced by these exposures since most already have customary and established work practices and patterns.

"Out of sight, out of mind."

Patrickson and Ranzijn (2005) suggest that older workers generally do not seek career advancement. Therefore, older workers might likely be less affected by the "out of sight, out of mind" phenomenon as compared with younger workers. Moreover, the invisibility of blended work has the potential to separate workplace judgments about an older worker's performance from judgments about an older worker. Blended work may also reduce exposure to older workers from stigmatism (Patrickson, 2002). For older workers, blended work has the potential to be more egalitarian than traditional workplaces (Patrickson, 2002).

Employer-Related Benefits

Improved organizational image

Stereotypes and discriminatory attitudes at the organizational level might lead to barriers to retaining older workers. Organizations that lobby against age discrimination, including the AARP's Foundation's "Back To Work 50+" and "Senior Community Service Employment Program," are likely to endorse industries and companies that promote the retention of older workers (AARP, 2015b). Unquantifiable costs due to age discrimination, such as damage to marketplace reputation, could also occur, impacting a company's profitability (Bennington & Tharenou, 1996). Blended work offers the employer the ability to accommodate those who might find themselves in challenging environments (Patrickson, 2002). Litan (2005) found that blended work could increase job opportunities and quality of life in older workers, which are high priorities for advocates of older adults (AARP, 2015a). Research also indicates that customers prefer and desire to deal more with older than younger workers (Burke & Ng, 2006).

Lower employer costs

Because blended work may result in lower real estate and overhead costs, and less absenteeism, employers could experience lower operating costs (Patrickson, 2002). Authors indicate that older workers can have an increased productivity potential if training is provided (Patrickson, 2002; Silverstein, 2008); from a cost-benefit perspective, older workers often have lower turnover rates than younger workers, which Bennington and Tharenou (1996) suggest might make retraining older workers more attractive to employers than hiring younger workers. Another possible reduction in costs includes fewer required physical workplace accommodations (Kurkland & Bailey, 1999). Lower costs of contract work, fee-for-service based on productivity arrangements, and competence-based pay in blended work could also moderate employers' concerns about possible reductions in productivity and revenue (Patrickson, 2002).

Risks

Musculoskeletal exposures

Montreuil and Lippel (2003) noted that blended work is not without concerns. Musculoskeletal exposures due to poor workstation design in the home environment could result. Other authors reported that blended work was associated with high cognitive

workloads and psychologically demanding work (Kirk & Strong, 2010). Musculoskeletal conditions have been associated with physical and psychosocial exposures (Armstrong et al., 1993; Bongers, Kremer, & Laak, 2002), and these exposures may be more hazardous to older workers (Griffiths, 2000). For example, potential interactions between musculoskeletal exposures and other biological systems, such as a compromised, aging immune system, might result in autoimmune conditions (Wegman & McGee, 2004).

Psychosocial effects

Contrary to reports of improved work–family balance and socialization (Hill et al., 2001), Kurkland and Bailey (1999) reported that since blended work may be less integrated into regular work processes, social isolation could result. Likewise, Baruch (2001) stated that blended work may lead to personal and organizational detachment, and psychosocial stress. Although some literature indicates that informal networking, teleconferencing with work-team members, and frequent in-house meetings with supervisors may resolve certain aspects of isolation and vulnerability among blended workers (Anderson et al., 2001; Stanworth, 1998), this hypothesis seems to be weakly supported by research (Baines, 2002). The possibility of marginalization of the worker within an organization also exists (DiMartino & Wirth, 1990).

Work–life conflict

Older workers who blend work could have higher job demands and experience greater work–life conflict (Jacobs & Winslow, 2004). Authors suggest the increased cognitive complexity from the integration of boundaries between work and family may lead to psychological distress (Ashforth, Kreiner, & Fugate, 2000). Contrary to some authors (Igbaria & Guimaraes, 1999), T. D. Golden, Veiga, and Simsek (2006) cite the possibility of role conflict and spillover with respect to family–work balance in blended workers. This might be particularly relevant among older workers given their greater difficulty multitasking as compared with younger workers (Martin, 2005).

Separation of work–life boundaries could also be difficult to achieve in older, employed adults because of family caregiving responsibilities. About 27% (22 million) of U.S. adults older than 50 years of age perform home-based caregiving tasks. Of these, an estimated 61% are currently employed part- or full-time (NAC & AARP, 2009). Reinhard, Levine, and Samis (2014) report these caregivers often perform complex medical and nursing procedures. These are becoming lengthier and more complicated than in the past, thus increasing the amount of time and attention blended workers must give to these tasks, which then shifts the amount of time away from work.

In addition to caring for older parents and spouses, older adults often have to care for other family members, particularly very young children if their parents are working (Bernard, Phillips, & Chittenden, 2002). Boundary theory (Ashforth et al., 2000) notes that combining work and family implies that borders between these domains are permeable. For work–life balance to thrive, workers, and older workers in particular, might have to construct mental and physical boundaries to separate work and family (Schieman, Milkie, & Glavin, 2009).

RESEARCH QUESTION 2. WHAT ARE BARRIERS TO BLENDED WORK AT INDIVIDUAL- AND ORGANIZATIONAL-LEVELS?

Individual-Level Barriers

Less skilled workers

Less skilled older workers may have reservations about home-based work. Blended work for these workers could lead to poorly paid jobs (Baines, 2002,) repetitive, unchallenging, and exploitive tasks (Sullivan & Lewis, 2001), the deterioration of organized labor (Pyöriä, 2011), and loss of employment benefits (Bailey & Kurland, 2002). Baines (2002) reports blended work among low skilled workers is also related to disenfranchisement.

In jobs requiring low skills but high physical demands, it would be difficult to blend work with ICT. Similarly, it remains unclear whether millions of below-average pay and nonprofessional positions could be shifted to blended work (Ruth & Chaudhry, 2008).

Out of pocket costs

Because blended work would likely require ICT, equipment that is usually provided in the traditional workplace may not be available at home, such as computers, telephones, and adequate office space. Ergonomic equipment and training on this equipment might also be required for older workers, particularly for those with co-morbid conditions. However, while proper fitting ergonomic workstations could be needed for this population, employers in the United States are not mandated to institute controls and it often remains an employee's responsibility to implement ergonomic solutions.

Employers may want to use their own equipment to improve connectivity in blended work. Conversely, employees might have to replicate technology and hardware and pay for dedicated telephone lines if employers do not cover these costs (Anderson et al., 2001). Older workers could also require more assistive technology, yet it remains unclear whether certain technical aspects of human–machine interfaces are viable for older age groups (e.g., 75 years and older) (Anderson et al., 2001).

Organizational-Level Barriers

Managements' blended work bias

Among the greatest opponents of blended work are managers who rose within an organization by working in traditional environments. They fear the loss of control over employees; lack of trust has also been associated with low blended work opportunities (Lamond, 2000). Other major reasons why blended work has not been widely implemented by managers are likely the concern of deterioration of organizational communication (Raiborn & Butler, 2009) and company identity (DiMartino & Wirth, 1990), which they perceive could lead to detachment. Gibson and colleagues (2002) state that leadership models that comprise in-house teamwork and rapid customer response may be contradictory to home-based work.

Differential training bias based on age

Certain characteristics of computer work could be novel and require substantial costs and periods of training for the older worker. For example, for remote computer tasks involving sales, support, graphics, programming, and data analysis, employee training could take as long as three to over 6 months (Friedberg, 1999). However, research suggests that

costs and time related to training on unique software applications for essential work-related tasks might be differentially provided by age and employer. Friedberg (1999) found that while management paid nearly 40% of financial costs for in-school training, workers aged 60–64 were more likely to pay for all costs associated with training and less likely to be given time off than their younger counterparts (aged 23–39).

Similarly, older workers could have more difficulty than younger workers regarding assistance needed for computer training. Despite the likelihood that older workers would require greater assistance for training on novel ICT, findings indicate a differential bias exists in favor of younger workers (Bennington & Tharenou, 1996). Loretto and White (2006) report managers may exclude older workers from training on new technologies. Rupp, Vodanovich, and Crede (2006) note managers often view older workers as having lower economic worth to their organization. One consequence may be that older workers are less likely to be given structured computer training than younger workers (Martin, Dymock, Billett, & Johnson, 2014).

Issues of trust

As noted above, trust influences which employees are allowed to blend work. Managers are more likely to allow professionals than clerical workers to blend work (Mokhtarian, Bagley, & Salomon, 1998). Although many older workers in professional positions are trusted and perceived by managers as more reliable than younger workers to complete a project regardless of location (Stein & Rocco, 2001), Barth, McNaught, and Rizzi (1993) describe a vicious cycle of employment practices. They report that although managers consider older workers to be more reliable and loyal, their attitudes toward them are often ambivalent. Negative stereotypes among managers include labels that older workers are rigid, resistant to supervision, and irritable. This perception could portend a self-fulfilling prophecy of employability for older workers (Sterns & Miklos, 1995), particularly if blended work requires substantial supervision (T. D. Golden, 2009).

Negative perceptions about technological skill and fit

Managers might consider younger workers more likely to fit a blended worker personality than older workers (Raiborn & Butler, 2009), as the former are often perceived to be more productive and become easily bored (Martin, 2005). While this last trait might be disruptive in traditional workplaces, it could make younger workers appealing to managers seeking blended workers (Raiborn & Butler, 2009). Managers also often assume that younger blended workers have greater technological skills for knowledge jobs. Component processes of cognition, such as the retrieval of remembered knowledge, decline with age (Salthouse, Kausler, & Saults, 1990). Layoffs are commonly made on the basis of knowledge, skills, and worth to an organization. If older workers are perceived as less knowledgeable and skilled than younger workers to blend work, their employment may be terminated (Raiborn & Butler, 2009).

Costs to organizations

Employer costs for ICT at home could be greater than at a traditional workplace to establish, maintain, and update telecommunication systems, which are crucial for blended work. Employers might have to provide a variety of equipment and software for blended workers, such as multiple computers, a camcorder for videoconferencing, internet access with high-speed broadband, and a cellphone, fax, copier, scanner, and printer (Barron, 2007). The role of the communication and information technology department is vital for the blended worker, as the department often has to create a firewall and business-specific software (Behtash, 2008). In addition to these expenses, organizations might incur higher costs if they purchase adaptive and assistive technologies to offset potential declines in physical or cognitive functioning in older blended workers. Examples of assistive technologies to compensate for these declines include speech synthesis systems with built-in word vocabularies, grammar-based word prediction, low-vision magnifiers, and electronic page turners (Dishman, Matthews, & Dunbar-Jacob, 2004).

Although physical and cognitive functioning and mobility are highly variable with aging, older workers are more likely to have compromised biological systems than younger workers. Older workers experience more lost workdays than younger workers (Laflamme & Menckel, 1995), possibly indicating that after an injury recovery is poorer and severity is greater (Silverstein, 2008). The increase in injury severity associated with older workers could lead to greater operating costs for organizations in order to comply with the Occupational Safety and Health Administration (OSHA) Act and when purchasing Workers' Compensation insurance. For example, under Workers' Compensation (WC) for home-based work, if a blended worker sustains a severe injury while s/he is working from home and the injury is directly related to work, OSHA will consider this a recordable work-related injury. Employers will generally be liable, possibly leading to fines and higher WC premiums (United States Office of Personnel Management, 2009).

Lack of co-worker support

Walls, Safirova, and Jiang (2007) found that employees wanting to blend work are employed part-time, have higher educational levels and job control, have more job tenure, and are older. A survey by the Behavior Research Center (Gibson et al., 2002) found that individuals who blend work have an inter-quartile age range between 40 and 49 years. If older workers are more likely to blend work than younger workers, adverse workplace consequences may result, such as lower job satisfaction and increased turnover intentions among the coworkers employed in traditional workplaces (T. D. Golden, 2009).

Traditional workplace employees may also perceive blended workers as having more job flexibility and control. Coworkers employed in traditional workplaces might report increased frustration, erratic workloads, and interruptions due to "absent" colleagues from work teams in organizations that blend work (Kurkland & Bailey, 1999). Workplace employees frequently believe that blended workers have a negative impact on team performance when work requires immediate and personal collaboration (Raiborn & Butler, 2009). Coworkers may experience increased restrictions if they have to adjust their tasks and schedules to conform to blended workers; additional work tasks for these workers may also be required in the absence of the blended worker (T. Golden, 2007).

RESEARCH QUESTION 3: ARE THERE ORGANIZATIONAL AND GOVERNMENT INTERVENTIONS AND POLICIES TO REMOVE RISKS AND BARRIERS OF BLENDED WORK IN OLDER WORKERS?

Organizational Level

Training and education of older workers and co-workers

Repeated training during the early stages of learning ICT could ensure that skills and confidence develop when using computer-interactive

tools among older workers. Otherwise, cognitive resources that might be directed toward developing a mental model of the task may instead be allocated to secondary concerns related to technology (Sharit, Czaja, Hernandez, Yang, & Perdomo, 2004). Intervention strategies directed at older workers should also ensure that competency is first achieved on less complex problems (Sharit et al., 2004).

Despite training, information seeking places demands on cognitive abilities, and the dynamics and processes of finding information may be obscure for the older worker (Sharit et al., 2004). Reasoning ability could have a strong impact on the extent to which an older worker is able to negotiate the demands of information seeking. Sharit and colleagues (2004) found that instruction in several domains of knowledge, with emphasis on reasoning ability for more complex problems, could substantially enhance the older worker's ability to perform database information searches. Therefore, interventions aimed at improving reasoning ability, coupled with training on more challenging tasks, could improve the effectiveness of training and education.

Czaja and Sharit (2003) noted that website designers should be mindful of the characteristics of multiple users, including workers of different age groups, skill sets, and physical and cognitive abilities. Instituting in-house education in "user-friendly" software for software designers is an intervention that could address possible cognitive limitations of the older worker (e.g., difficulty in processing high amounts of information under time pressure). Similarly, Sharit and coworkers (2008) found that heavy loads on working memory could be compensated for by designing Web pages and search engines that address older workers capabilities when navigating complicated tasks. Software could be programmed to include drop-down menus, with bullet lists and task reminders using call-outs embedded within menus.

Assistive technology

Sterns and Miklos (1995) report that older workers may compensate for changes in learning, memory, and speed with crystallized knowledge, that is, knowledge that comes from prior learning, rooted in experiences (Cattell, 1963). Interventions that could substantially alleviate cognitive declines associated with aging might consist of incorporating crystallized knowledge using auditory or visual cues within assistive technology. This might help older workers anticipate functions present in new applications and prepare them to map new techniques and procedures to established ones (Sharit et al., 2009). Likewise, abilities and performance tests suggest the need for assistive technology to help older workers' focus attention on completing tasks while keeping track of multiple items (Sharit et al., 2004). Organizational interventions that ensure older workers have a range of assistive technology based on their capabilities and limitations could help focus the older worker's attention on one or several pending work activities.

Another intervention might consist of a data dictionary. Older workers report it would be helpful to have a glossary of terms with more background information, particularly in the home environment since technical support may not be easily available (Hill, Ferris, & Märtinson, 2003). Using terms linked to the task, Sharit and colleagues (2004) observed that older workers were able to learn tasks that reflected their abilities and difficulties in adapting to technically oriented work environments, such as those that may be encountered in blended work.

Blended work as an employee benefit

Proponents of blended work state that the recruitment of talent and reinforcement of human capital may encourage employers to implement blended work as an employee benefit for those with tenure and organizational loyalty; this would likely influence whether older workers remain with an organization (Claes & Heymans, 2008). Since many blended workers with good ICT skills often self-select into blended work (Peters, Tijdens, & Wetzels, 2004), another potential intervention is to develop a specific career track for blended workers who already work at the organization, with specific selection criteria, such as seniority, as a pathway to blend work.

Businesses that encourage blended work among older workers could mitigate the loss of knowledge capital at the organizational level. Knowledge capital is based on experiences with business processes that veteran employees share with coworkers in order to improve work efficiencies (Law Dictionary, 2015). Older workers frequently have organizational breadth, depth, and knowledge that crystallized intelligence and long-term experience often provide, which can then be transferred to younger colleagues.

Management training

Remote supervision requires setting timely goals between managers and employees to measure outcomes, including quality, output, and productivity. Managers often have little experience in remote supervision practices, which often leads to frustration and failed blended work policies (Kowalski & Swanson, 2005). Interventions are required to train managers in remote supervision.

As previously noted, managers often assume that younger workers match a blended worker personality better than older workers (Raiborn & Butler, 2009). Managers also frequently believe that older workers have difficulty adapting to new work environments and are resistant to change, although little research supports these stereotypes (Bennington & Tharenou, 1996). Indeed, older workers are characterized by loyalty (Roberts, 2006), wanting to remain productive and connected to their professional identities (Sharit et al. 2004; Ulrich & Brott, 2005), and wanting to form a collective purpose to achieve a common organizational goal (Ulrich & Brott, 2005). While agreeing on outcome measures between a manager and the older blended worker may be as effective as with a younger co-worker, interventions are required to educate managers about the capabilities and stereotypes of the older worker.

Governmental Level

Training and educational funding

Interventions by government that contribute to increasing educational achievements in ICT among nonprofessional workers are likely to increase blended work among less skilled older workers, but these should be combined with targeted tax credits to employers willing to provide this education (Walls et al., 2007). Similarly, since low skilled older workers might have a difficult time finding meaningful work, a suggested intervention strategy would be to provide blended work training to blue and so-called "pink" collar workers, coupled with tax incentives to employers with imminent labor shortages (Van Horn & Storen, 2000).

Managers may be uninformed about governmental policies regarding employment and funding opportunities to train older workers. Federal grant funding options exist for accessing ICT and related equipment that could be used to train older blended workers. Similarly, the US Department of Labor's (DOL) Employment and Training Administration has developed protocols to train older workers on

employment barriers. The Workforce Investment Act (WIA) and the Senior Community Service Employment Program (SCSEP) are funded programs that provide retraining to older workers (Eyster, Johnson, & Toder, 2008). WIA also allows states and local governments to give older workers priority when allocating training funds. State-worker programs funded through WIA serve a substantial number of older workers, focusing and tailoring funding based on their training needs. Nonprofit organizations have established programs to help older workers remain in the workforce. For example, the DOL funds the SCSEP through grants to national nonprofit organizations to retrain older workers (Eyster et al., 2008).

Subsidies for ICT

In 2013, about 50% of United States Medicare recipients had annual incomes below $25,000 (CMS, 2014). Federal policies could create infrastructures that benefit older blended workers, such as providing subsidies to state and local governments to reduce the costs of upgrading broadband fiber-optic cables to improve Internet reliability and speed. A federally based intervention to increase blended work employment, particularly for older workers with limited finances, is to install underground fiber-optic cables in rural communities and provide them with ICT (Grimes, 2000).

Legislation directed at delaying retirement

In the United States, delaying retirement among older workers by changing into less physically demanding jobs, such as blended work, might be facilitated if Congress acted to eliminate the "retirement earnings test" (RET) and "adjustment of the reduction factor" (ARF). The former withholds social security benefits to workers under the age of 66 if they earn too much, while the latter is a social security earning's penalty if a worker between 62 and 66 years of age earns too much. Eliminating the RET and ARF might encourage older workers to remain employed (Kotlikoff & Pozen, 2015). Congress could also eliminate the 12% social security payroll tax to employees over 70 years of age. The social security payroll tax adversely affects employees and employers; eliminating it may persuade older adults to remain working and provide incentives for employers to keep older workers employed (Kotlikoff & Pozen, 2015).

Highlighting benefits of employing older workers

Governments in industrialized countries are mindful of delaying retirement among potential retirees through blended work. For example, the United Kingdom has commissioned intervention studies on blended work, examining factors such as the extent, nature, and effects of blended work at individual and organizational levels (DiMartino & Wirth, 1990). Findings suggest that blended work could lead to new work opportunities for the un- or underemployed older worker and cost savings for businesses.

Seminars conducted by government could inform employers about research findings that focus on performance and the older worker. For example, studies suggest there is often little association among performance, age, and occupation, after accounting for knowledge, experience, and cognitive ability (Sharit et al. 2008; Warr, 1992). Information and awareness workshops by government could involve all stakeholders on future blended work scenarios and the suitability of various combinations of technology to promote blended work in older workers (DiMartino & Wirth, 1990). National forums could showcase success stories of competent older workers completing assignments and satisfying their employers (Gillespie, Richardson, & Cornford, 1995). Education at federal, state, and local government levels are needed to inform employers about the myths surrounding older workers and to implement policies to offset forced retirement (Burke & Ng, 2006).

RESEARCH QUESTION 4. WHAT ARE THE EFFECTS OF THE ADEA AND ADA ON BLENDED WORK?

The ADEA, ADA, and Blended Work

The Age Discrimination in Employment Act at the workplace is designed to prohibit age discrimination against qualified employees 40 years or older with respect to hiring, advancement, termination, compensation, and job training (United States Office of Personnel Management, 2009). The American with Disabilities Act is a civil rights law that prohibits discrimination against individuals with disabilities in all areas of public life, including jobs (United States Equal Employment Opportunity Commission, 2014). The applicability of the ADEA to blended work could exist if the older worker has a disability and is discriminated against because of that disability. This raises the issue of how to quantify disability and to what extent employers must reasonably accommodate disabled blended workers. Based on the ADA, a disability is a physical or mental impairment that limits an individual's major life activities, such as work. To prove a limitation exists, the individual must show restrictions in the ability to perform a range of work tasks or have a medical or work record of impairment. For blended workers to establish the need for ADA protection, they must be able to perform the "essential functions" of home-based work with reasonable accommodations and prove they require reasonable accommodations (Gabel & Mansfield, 2001; Sullenger, 2006). For example, if a blended worker's vision impairment prevents her from driving and she is only able to perform computer work with embossed Braille (converts computer generated text into Braille), the blended worker could be entitled to ADA protection. Conversely, if this blended worker requests home-based work, but the employer insists that workplace presence is essential, she may be unable to prove she can perform all of her essential work functions (Sullenger, 2006). Similarly, employers are not required to offer a blended work option if there are no similar employees who blend work (Baker, Moon, & Ward, 2006)

Difficulties in characterizing a work-related "reasonable accommodation"

While court decisions have varied from a strong presumption against blended work to a case-by-case, fact-specific approach (Sullenger, 2006), courts often question the applicability of the ADA's reasonable accommodation provision to the blended workplace (Gabel & Mansfield, 2001). For example, one provision of the ADA states that a reasonable accommodation provision requires employers to change the work environment. To comply, however, it remains unclear which type of change—constructing accessible facilities, restructuring jobs, modifying work schedules and equipment, reassigning jobs or tasks, or developing alternative training materials—the employer should provide (Gabel & Mansfield, 2001).

Based on the ADA, the Equal Employment Opportunity Commission considers that blended work and home modifications are reasonable accommodations for workers with limited mobility (United States Office of Personnel Management, 2009). They indicate that blended work is no different than any other reasonable accommodation, thus requiring an employer to offer a work-at-home option unless it imposes an undue hardship on the employer. As noted above, some courts agree that employers must consider work-at-home equally, while other courts reject workers' claims that a disability entitles them to a work-at-home accommodation, citing most jobs require supervision and teamwork (Gabel & Mansfield, 2001). Sullenger (2006) suggests that allowing broad statutory interpretations and examining blended work cases on an individual basis might ensure that the ADA remains useful for older disabled workers. How the ADEA and ADA affect blended work and the older worker is an evolving issue.

Mainstream inclusion versus social exclusion

For the impaired older worker, the implementation of blended work may clash with the objectives of mainstream inclusion and accessibility, based on the mandates of the ADA and Rehabilitation Act. Some authors note that the uncritical adoption of computer-mediated communication and communication and information technologies (ICT), which makes blended work possible, could endanger certain goals of the ADA, such as social inclusion and the elimination of architectural and transportation barriers, by substituting them for "virtual accessibility" (Moon, Linden, Bricout, & Baker, 2014). Light (2001) notes that if short-term economic benefits of ICT lead to the reduction in long-term physical planning for disabled individuals, the introduction of ICT could exacerbate the problem it was designed to solve. Similarly, the Rehabilitation Engineering Research Center on Workplace Accommodations found that the physical absence of blended workers from traditional workplaces and the potential loss of social capital and participation could lead to social exclusion for workers with disabilities (Moon & Baker, 2010).

LIMITATIONS

We did not explore certain risks and barriers of blended work and the older worker, such as what effect professional isolation has on the health of the older worker. In addition, we were unable to locate literature addressing structured "Needs Assessments" with respect to which industries would most benefit from blended work. Moreover, while potential costs to business were addressed, equally or perhaps more important financial issues comprising "profit-centric thinking" were not discussed, as we were unable to find original research on this domain for blended work and the older worker.

Lastly, the review primarily focused on population aging and blended work in the United States, although other Western industrialized nations are experiencing similar phenomena. While beyond the scope of this review, cross-national comparisons could assess how different countries approach, implement, and address challenges to blended work and the older worker. Comparing and contrasting these strategies among countries have the potential to allow individual nations to choose novel blended work interventions and policies that best fit their structure, resources, and goals.

CONCLUSIONS

The article contributes to the literature by identifying the feasibility of blended work in older workers at individual- and organizational-levels, cites interventions and policies that might lead to its implementation, and discusses the impact the ADEA and ADA may have on blended work. While blended work can be applied to other age groups, the population aging phenomenon requires different approaches to employment and, in particular, to bridge employment, for older workers. Based on its benefits (e.g., reduced fatigue from less travel), and the potential for fewer risks and barriers in the older adult (e.g., greater preference for work–home integration), the fit between blended work and the older worker might be advantageous at individual- and organizational-levels.

The literature suggests that specific subgroups of workers are more likely to blend work. Well-paid, older white collar professionals with good technological and computer skills, older workers who require little work structure and work–home separation, and older workers who are self-reliant, motivated, and can work independently comprise some of the subgroups who would best fit a blended worker profile.

Understanding linkages among cognitive abilities, aging, and technology are central to understanding why older workers perform at different levels than younger workers. One future research approach could involve conducting task analyses of actual blended work, followed by simulation scenarios in controlled environments. Such research should examine how technological advances in complex software and multimedia modalities, which can improve communication and interaction of blended work teams, affect psychomotor and cognitive performance among different age groups. These technologies differ in their information carrying ability and how accessible the information is for a given technology. These factors could affect an older worker to a greater extent than a younger worker due to an aging biological system. As our understanding evolves about how technological advances affect older workers, the likelihood of blended work as a successful bridge between traditional employment and retirement in older workers should improve.

Ultimately, for blended work to be successful among older workers, the "perfect storm" may be required: federal or state standards and legislation, organizational incentives and policies structured to support blended work, and managements' willingness to employ older workers in blended work and provide them with appropriate equipment.

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