

DOES AGE MATTER TO INFLUENCE SELF EFFICACY: REVIEW OF RELATED LITERATURE

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Abstract

This article reviews the research that focused on the relationship between age and self-efficacy by reviewing the previous studies carried out in the age and self-efficacy knowledge. Self-efficacy refers to a person's belief in their own abilities to accomplish a specific task and produce results. The main theme of this research is whether there is a difference between older and younger employees in terms of self-efficacy and age. The objective of this review is to identify the influence of age on self-efficacy and to identify the influence of age on the training and computer knowledge of employees. In the methodological part, the researcher considers the effects of training and computer knowledge on the self-efficacy of employees. Although older employees have an age-based experience that encourages their greater productivity, younger employees are more enthusiastic, ambitious, innovative, and involved in their work. The results of the review reveal that age influences self-efficacy. The self-efficacy of older employees can be improved through education, attitudes, appropriate training, work intervention, practices, and experience.

Keywords: Age, Attitudes, Self-Efficacy, Job Performance

Introduction

Self-efficacy is the ability of an individual to achieve performance and results. Naturally, high self-efficacy people less likely to leave work, less excuses and absenteeism, in the contrast of low self-efficacy people tend to avoid difficult tasks, not confident in their abilities and take longer to overcome setbacks or failure, automatically these characteristics lead to low goal attainment and not to overcome obstacles (Gist et al., 1989). Further self-efficacy explained that employees to face challenging idea and facing difficulties. Efficacy employees only seek solutions to sort out the issues than contemplate their inadequacy. Furthermore, Bandura (1982) stated that self-efficacy is a one of the self-evaluation of one's own competence to successfully performing task.

In the today's society, age has become a priority (Aaltio et al., 2014), and it is also a possible reason for individual differences. Most of the individuals have recognized that

cognitive abilities decrease with increasing age. This might have a negative effect on employees' self-efficacy to do effectively with new task demand (Ryan et al., 1993). In line with older employees have found that lower self-efficacy for career related learning (Maurer, 2001).

The main theme of this research identifies the influence of age on younger and older employees of an organization. Especially look into the training and computer knowledge (skills) of employees.

Objectives

The following objectives have been formulated.

- To identify the influence of age on self-efficacy.
- To identify the influence of age on training and computer knowledge of employees in an organization.

Literature Review

The literature review discusses on the self-efficacy, age, attitudes of employees, training and computer knowledge.

Self-efficacy

Human performance is influenced by ability, motivation and situational factors, which also include new dimensions of self-efficacy (Bakar et al., 2016). Individuals use their abilities and skills to perform a task, especially taking into account not only required skills, but they believe their capability support them (Bandura, 1977). Without self-efficacy, the individual gives up trying to achieve goals (Lucas et al., 2005). Particularly strong sense of competence of people with high self-efficacy, those people linked to creativity, better social interaction, better performance and better health (Pajare, 1996). In addition, these people choose to perform more difficult task, willing to face on challenges, explore their environment or create new one (Bandura, 1997). This leads to a wider range of career choices willing to continue their success (Wood et al., 1989). In distinction with low self-efficacy, they may doubt their abilities to adopt to a changing work situation, fearful of interpreting information and comments. These people related to anxiety, depression and helplessness which are led to the person for low self esteem thought about their accomplishment and personal development (Schwarzer et al., 2005). Further, Self-efficacy was positively correlated with persistence and achievement, task effort, training transfer and job performance (Gist et al., 1992; Stajkovic et al., 1998; Colquitt et al., 2000; Molter et al., 2013).

Age

In the notion of age, there is no any universally accepted criterion concerning the definition of the older employees. The definition varies across different industries, cultures, industrial sector and countries (Sterns et al., 1995; Taylor, 2006). In general, in the number of studies mentioned, older employees are between the age of approximately 40 to 65 years old (Czaja et al., 1993; Elias et al., 1987; Gist et al., 1988).

Age plays the major role for individual differences, it affects an individual's perception and work outcomes (Morris et al.,

2005). In this junction, age related experiences are the most impactful factor regards to the self-efficacy. Perception of self-efficacy is predicted based on their attitudes, which helps them achieve stability. The age factor is one of the obstacles for older employees to engage in work activities in an organization (Davey, 2014) and also has a great risk as well (Hernstein, 1990). Moreover, the negative effects are poor performance, cardiovascular, stress among the employees and lower self-efficacy (Levy et al., 1999). Further, indicated that age discrimination was linked to organizational productivity, such as lower job involvement, organizational commitment, job satisfaction, wellbeing and performance (Orpen, 1995; Zaniboni, 2015).

When the increasing age of employees, it has the positive effects are increase in knowledge, experience (Ackerman, 1996), positive attitudes, less negative emotions. And also, they create a more favorable working environment than younger employees (Kim et al., 2017; Luchman et al., 2012), although the negative consequences are loss of fluid intellectual abilities (Wechsler, 1944) some personality changes (Jones et al., 1996) affect emotions (Charles et al., 2001), negative impact on health, effect on work moderation and work-related outcomes (Wegge et al., 2012).

Attitudes of Employees

Attitudes is about feeling how employees perceive their environment, commit the actions and ultimate behavior. Job attitudes indicates that individual and organization objectives are achieved through performance.

Most of the circumstances, attitudes develop through first-hand experiences (Doll et al., 1992). Examine the belief in self-efficacy of older employees, more stable employees than younger, malleable and easily influenced employees (Alwin et al., 1991). These people encourage the younger generation through their support and promotion (Erikson, 1963; McAdams et al., 1992) ready to transfer their knowledge to youngster (Arnold et al., 2015; Mor Barak, 1995). And they have a stronger career identity and job engagement to work than younger employees (Kim et al., 2017).

As age increased, the consequences are changes in the cognitive process such as decreased memory capacity, lower speed and reduced concentration (Hertzeg et al., 2008). Consequently, the characteristics of these people are less motivated, less creative, perceived as harder & slower to learn, less productive, less physically powerful, less adaptable, less flexible to change, difficult to learn the new tasks, more resistance to change, uninterested in training (Posthuma et al., 2009; Warr, 1944,2001), decrease the citizenship behavior, spend more time worrying about their own work (Mumtaz, 2010) and etc. And also observe the other factors during the working days more often sick and absenteeism from work, increased organizational cost and outdated technological knowledge (Goldberg et al., 2005; Guest et al., 2005; Markos, 2005, Newton et al., 2005). These traits are not common to all the times, they are perceived as more positive than younger worker in terms of stability, commitment and job satisfaction (Rosen et al., 1976; Craft et al., 1976; Hassell et al., 1995). Moreover, older employees seeking solutions to the problems from traditional way, on the other hand, younger workers are more independent on the use of technology for job accomplishment.

Attitudes of younger employees, author Maslow,1970 mentioned that these people look into the economic security and success. Thus, they are more likely to demand a fair instrumental exchange return for their loyalty and their involvement in the organization. And also, their main consideration of the working relationship is safety (Hall et al., 1968). Younger employees at the start of their careers are more inclined to test their expectation of organizational life, while expectations are fulfilled, their engagement is increased, which in turn leads to better performance (Buchanan,1974; Grusky, 1966). In addition, young recruiters focus on issues of instrumental equity related to distributive justice. They expect to receive results that meet their economic security needs. It influences on their emotions, cognition and behavior (Cohen et al., 2001).

When considering young workers have both positive and negative characteristics. Positive factors are ambitious, motivated by work, able to learn quickly, more considerable their social life, innovative, energetic, quickly learn new

technology. Apart from the positive factors, the negative factors are less emotional, less faithful, unreliability, immaturity, change jobs quickly, etc. (Newton, 2005; Gibson et al., 1993; Rosen et al., 1976).

Common view in organization, negative attitudes towards older employees (Harwood et al., 2001), it is linked to decreased mental and physical capabilities.

Age and training

Training has become the most demanding investment for managers and the organization to enhance organizational productivity. From this training, employees improve their knowledge, skills, abilities, aptitudes and attitudes. It supports employees resolve critical issues. This competency creates the competitive advantage for survival (Chiaburu et al., 2008). The investment of training brings satisfaction to employees and increase capabilities (Bages et al., 2012).

Results of previous research have indicated this relationship with age, training outcome and job performance (Beier et al., 2005; Colquitt et al., 2000; Waldman et al., 1986). Self-efficacy is positively related to task effort, persistence, achievement (Gist et al., 1992) job performance (Stajkovic et al., 1998) and training transfer (Colquitt et al., 2000; Molter et al., 2013). Further, during the training period, self-efficacy improves (Bandura et al., 1991; Gist et al., 1988; Wood et al., 1989). In this junction, individuals are overestimated and underestimate their capabilities, if the learner underestimates competence, the results become positive training experience and enhance the self-efficacy, sometimes if the learner perceive overestimate and the task is more demand than they previously thought, they may lower capabilities leads to negative self-efficacy. Age is one of the factor of the learner that determines learning competence and training outcome (Schulz et al., 2010).

Take older employees into account in the training concept, learning progress slowly, less motivated, less effort and perform more poorly than younger employees (Kubeck et al., 1996). They reduce self-efficacy for training & development and self-efficacy for learning as well (Maurer, 2001; Touron et al., 2004). Older workers face difficulty during training to

compare younger workers, their ability to acquire new computer skills is diminished and they need more time to complete the training program (Czaja et al., 1989; Elias et al., 1987; Gist et al., 1988; Gomez et al., 1986; Kubeck et al., 1996; Baldi, 1997; Hartley et al., 1984). The correlation between increasing age tends to improve performance (Waldman et al., 1986), hence training outcome have a negative relationship (Kubeck et al., 1996). Successful training influences on self-efficacy and led to job performance (Bandura, 1986; Sitzmann et al., 2008; Sonntag et al., 2007; Stajkovic et al., 1998). In support of these findings, self-efficacy has a strong predictor of training & development and performance (Kraut et al., 2016). And also, the training design includes the requirement of the older learner (Maurer, 2001). Companies tend to invest less in training or innovative input for older employees (Verworn et al., 2009). Look at the success of training, it has the measure of the training instrument, it differs from age and training (Warr et al., 1999).

Age and Computer Knowledge

Ageism contributes to the self-efficacy of older workers and decreases the rates of computer and internet use among older employees (McDonough, 2016). The results mentioned above are supported by the Czaja & Colleagues in 2006. Older workers face struggle to use computer technology. The age factor may inhibit workers' abilities to use computer technology and also less exposure, less experience may have lower workers performance in computer technology (Dyck et al., 1994; Garfein et al., 1993; Westerman et al., 1995). Research results of older employees feel computer anxiety, adverse attitudinal and resistance to the use of computer technology, some other factors also influence age differences, such as cognitive process, memory and learning style. In addition, older people have less use of information and communication technology in their work (Czaja et al., 2006; Gelderblom, 2006).

Self-efficacy plays the significant role with the part of user acceptance of new technology (computer) (Fagan et al., 2003). Computer self-efficacy having a relation to the computer training programme, it included the computer skill acquisition, computer experience and attitudes of people (Hassan et al., 2004). Older

workers underestimate their actual computer knowledge (Marquie et al., 2002). One of the researches finding Czaja et al., 2006 proved that older employees have a significant relationship with computer skills. Go into an in-depth analysis of their research, it shown that the sample consists of healthy and fairly educated people. The educational factor influences and shows the mediation of the relationship between age and performance (Ardila et al., 2000). Some organization limit the allocation of funds to development opportunities for older workers (Maurer et al., 2001). These people don't always like to change jobs, as they gain more job-specific experience in the current job.

The past research shows that there is a negative relationship between older employees and computer performance (Czaja et al., 1989; Dyck et al., 1996; Elias et al., 1987; Gist et al., 1988; Gomez et al., 1986; Hartley, 1983; Ansley et al., 1988). People behave in different ways to acquire the new technological changes, reasons for whether they perceive the changes as an opportunity or threat (Hunhtanen et al., 1992). In addition, learning new computer skills requires a change in their knowledge and abilities.

In the overview of some research results, the results of older employees more worries to acquire new skills and feeling insecure in their jobs than younger workers (Mullan et al., 1972), reason for psychological barriers (Bailey et al., 1995).

There is a relationship between age, computer self-efficacy and computer skills acquisition/performance (Reed et al., 2005). Older and younger employees have different reasons for accepting or rejecting technological change. This technology is not inherently good or bad. It depends on the user attitudes and its value.

Methodology

Consider the design of the research, this research is desk research. All relevant information extracted from reputed journals, conference proceeding & abstract, thesis and etc. It mainly focuses on two concepts; training and computer knowledge. Look especially in the population of younger and older employees.

Discussion

The discussion part consists of the relationship between age & performance and age & self-efficacy.

Employee performance is a vital term in the human resource management and the behavior of an organization. There is no any construct define the term performance. It is multidimensional concept, difficult to define. Therefore, the authors define that employee performance or job performance is an achievement and contribution of an individual in practical and quantifiable terms (Austin et al., 1992; Campbell et al., 1993; McConnell, 2003).

A discussion of past research has indicated that length of experience is a better predictor of job performance as a function of age (Avolio, 1990). In particular, some research results have expressed that there is a negative relationship between age and performance (Mumtaz, 2010), the reason is that the modern work organization needs the active performance of employees and also aging workers who lack personal initiative/proactive behavior (Warr et al., 2001; Sommentag et al., 2002; Vanvelhoven et al., 2008). Other research results have described that there is no correlation between these variables (Warr,1994). In addition, no significance difference between age and younger & older workers in terms of performing essential tasks (Ng et al., 2008), in some cases older employees perform better than younger workers (Peterson et al., 2005). Considerably age has a negative relationship with the performance of a stable work environment has been tested with several meta-analysis, however, the results didn't confirm the proposed negative relationship between age and performance (Waldman et al., 1986; McEvoy et al., 1987; Sturman, 2003; Ng et al., 202028). The recent discovery indicated that there is virtually no research examining the validity of these variables and future research should explore whether this is true (Posthuma et al., 2009).

Researcher have found that performance of employees (younger and older workers) determine not only age, other factors also influence (skill, knowledge, attitudes and etc). Next part of the discussion regarding age and self-efficacy. Self-efficacy means that people

believe that they have the skills and abilities to perform the task successfully. When the age increases, people realize that their cognitive abilities will decrease, these mental attitudes lead to a low level of self-efficacy between age and self-efficacy.

Look at the organization; the age, attitude and behavior of employees at work have shown a relatively high level of employee satisfaction (Rhodes, 1983). As employees age, they acquire knowledge and skills that allow them to perform tasks quickly and efficiently (French et al., 1989; Hesketh et al., 1989). Some authors have found a moderate relationship between age and self-efficacy (Artistico et al., 2003; Schulz et al., 2010). Results of previous research have indicated a negative relationship between age and self-efficacy (Salthours et al., 1996) and age has a negative association with the ability and willingness to learn (Kubeck et al., 1996; Warr et al., 1998; Colquitt et al., 2000; Yeatts et al., 2000; Warr, 2001; Maurer, 2001; Kanfer et al., 2004) as well as older workers reported lower self-efficacy for career-related learning (Maurer, 2001). Some are mentioned that the decline in cognitive abilities is the reason for the negative impact on self-efficacy (Kanfer et al., 2004; Ryan et al., 1993). The empirical finding revealed that there was no significant effect on age and self-efficacy (Beier et al., 2005; Peterson et al., 2005; O'Connell et al., 2008).

Conclusions

A crucial factor is how older and younger employees build their relationship and how they work together. For employees at work, impressions of self and others are important in the relationship building process. From a work organization perspective, older managers normally treat older and younger employees alike, although younger managers give more opportunity and priority to younger employees for their development (Shore et al., 2003).

Certainly, self-efficacy increases the competence of every employee in an organization. This efficacy can be improved through the training program and computer skills, it depends on the nature of job category. In the conclusion of this research, attitudes are the vital factor for both type of employees, the way employees perceive their work and environment. Self-efficacy gives support to

enhance their performance of employees. In the training part, when the organization prepares the training plan for employees, should take into account the training requirements and needs of older workers. Meanwhile, training success is determined by age, training program and training success measurement. Second part of acquiring computer knowledge, it depends purely on changes in attitude. The age and acceptance of change (older and younger employees) depends on whether the technology is accepted or rejected. Furthermore, its value and influence depend on the attitudes of the user of the technology. Therefore, age influence on self-efficacy. The older employees' self-efficacy can be improved through education, attitudes, appropriate training, work intervention, practices, experiences and etc.

References

- Abraham, J.D., & Hansson, R.O. (1995). Successful aging at work: An applied study of selection, optimization, and compensation through impression management. *Journal of Gerontology*
- Adio, Gboyega, & Popoola, S.O. (2010). Demographic Variables and Self-efficacy as Factors Influencing Career Commitment of Librarians in Federal University Libraries in Nigeria. *Library Philosophy and Practice*(e-journal).
<https://digitalcommons.unl.edu/libphilprac/329>
- Agarwal, R., Sambamurthy, V. & Stair, R. M. (2000). The evolving relationship between general and specific computer self-efficacy: An empirical assessment. *Information Systems Research*, 11(4), 418-430.
- Ansley, J., & Erber, J.T. (1988). Computer interaction: Effects on attitudes and performance in older adults. *Educational Gerontology*, 14(2), 107-119.
- Ardila, A., Ostrosky-Solis, F., Rosselli, M., & Gomez, C. (2000). Age-Related Cognitive Decline During Normal Aging: The Complex Effect of Education. *Archives of Clinical Neuropsychology*, 15(6), 495–513.
- Armstrong-Stassen, M. & Templer, A. (2005). Adapting training for older employees. *Journal of Management Development*, 24(1), 57–67.
- Artistico, D., Cervone, D., & Pezzuti, L. (2003). Perceived self-efficacy and everyday problem solving among young and older adults. *Psychology and Aging*, 18(1), 68-79.
- Avolio, B.J., & Barrett, G.V. (1987). Effects of age stereotyping in a simulated interview. *Psychology and Aging*
- Avolio, B.J., Waldman, D.A., & McDaniel, M.A. (1990). Age and work performance in nonmanagerial jobs: The effects of experience and occupational type. *Academy of Management Journal*
- Baltes, B.B., Rudolph, C.W., & Bal, A.C. (2012), A review of aging theories and modern work perspectives, in Hedge, J.W. & Borman, W.C. (Eds), *The Oxford Handbook of Work and Aging*, Oxford Library of Psychology, Oxford, pp. 117-136.
- Baltes, P.B. and Baltes, M.M. (1990), Psychological perspectives on successful aging: the model of selective optimization with compensation, in Baltes, P.B. and Baltes, M.M. (Eds), *Successful Aging: Perspectives from the Behavioral Sciences*, Cambridge University Press, Cambridge, pp. 1-34.
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122-147.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1989). Regulation of cognitive processes through perceived self-efficacy. *Developmental Psychology*, 25(5), 729-735.

- Bandura, A. (1994). Self-efficacy, Encyclopedia of Human behavior. New York: Academic Press.
- Bandura, A. (1997). Self-efficacy: The exercise of control. New York: Freeman.
- Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*, 9(3), 75-78.
- Bandura, A. & Jourden, F. J. (1991). Self-regulatory mechanisms governing the impact of social comparison on complex decision making. *Journal of Personality and Social Psychology*, 60(6), 941-951.
- Barling, J. & Beattie, R. (1983). Self-efficacy beliefs and sales performance. *Journal of Organizational Behavior Management*, 5(1), 41-51.
- Barnard, Y., Bradley, M.D., Hodgson, F., & Lloyd, A.D. (2013), Learning to use new technologies by older adults: perceived difficulties, experimentation behaviour and usability, *Computers in Human Behavior*, Vol. 29 No. 4, pp. 1715-1724.
- Bertolino, M., M.Truxillo, D., & Fraccaroli, F.(2013).Age effects on perceived personality and job performance, *Journal of Managerial Psychology*.
- Broady, T., Chan, A. & Caputi, P. (2010). Comparison of older and younger adults' attitudes towards and abilities with computers: Implications for training and learning. *British Journal of Educational Technology*, 41(3), 473-485.
- Brown, K. G. (2001). Using computers to deliver training: which employees learn and why? *Personnel Psychology*, 54(2), 271-296.
- Bosma, H., VanBoxtel, M.P.J., Ponds, R.W.H.M., Houx, P.J.H., & Jolles, J. (2003), Education and age-related cognitive decline. The contribution of mental workload, *Educational Gerontology*, Vol. 29 No. 2, pp. 165-173.
- Brussels. Fisher, G.G., Chaffee, D.S., Tetrick, L.E., Davalos, D.B. and Potter, G.G. (2017), Cognitive functioning, aging, and work: a review and recommendations for research and practice, *Journal of Occupational Health Psychology*, 22(3), 314-339.
- Campbell, R. J. (2004). Older women and the Internet. *Journal of Women and Aging*, 16(1-2), 161-174.
- Chen, X., Hertzog, C., & Park, D.C. (2017), Cognitive predictors of everyday problem solving across the lifespan, *Gerontology*, 63(4), 372-384.
- Chu, R. J. C. (2010). How family support and Internet self-efficacy influence the effects of e-learning among higher aged adults: Analyses of gender and age differences. *Computer & Education*, 55(1), 255-264.
- Compeau, D.R., & Higgins, C.A. (1995), Application of social cognitive theory to training for computer skills, *Information Systems Research*, 6(2), 118-143.
- Czaja, S. J., Charness, N., Fisk, A. D., Hertzog, C., Nair, S. N., Rogers, W. A., & Sharit, J. (2006). Factors predicting the use of technology: Findings from the Center for Research and Education on Aging and Technology Enhancement (CREATE). *Psychology and Aging*, 21(2), 333-352.
- Czaja, S. J., Hammond, K., Blascovich, J. J., & Swede, H. (1989). Age related differences in learning to use a text-editing system. *Behaviour and Information Technology*, 8(4), 309-319.
- Czaja, S. J. & Sharit, J. (1993). Age differences in the performance of computer-based work. *Psychology and Aging*, 8(1), 59-67.
- Desrichard, O. & Kopetz, C. (2005). A threat in the elder: The impact of task instructions, self-efficacy and performance expectations on memory performance in the elderly. *European Journal of Social Psychology*, 35(4), 537-552.

- Echt, K., Morrell, R., & Park, D. (1998). Effects of age and training formats on basic computer skill acquisition in older adults. *Educational Gerontology*, 24(1), 3-25.
- Elias, P. K., Elias, M. F., Robbins, M. A., & Gage, P. (1987). Acquisition of word-processing skills by younger, middle-age, and older adults. *Psychology and Aging*, 2(4), 340-348.
- Ellis, R. D. & Allaire, J. C. (1999). Modeling computer interest in older adults: The role of age, education, Computer knowledge, and computer anxiety. *Human Factors*, 41(3), 345-355.
- Gilsdorf, J. (1992). The new generation: Older workers. *Training and Development*, 46(3), 77-79.
- Gist, M. (1987). Self-efficacy: implications for organizational behavior and human resource management. *Academy of Management Review*, 12, 472-485.
- Gist, M. E. & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review*, 17(2), 183-211
- Gist, M., Rosen, B., & Schwoerer, C. (1988). The influence of training method and trainee age on the acquisition of computer skills. *Personnel Psychology*, 41(2), 255-265.
- Gist, M., Schwoerer, C., & Rosen, B. (1989). Effects of alternative training methods on self-efficacy and performance in computer software training. *Journal of Applied Psychology*, 74(6), 884-891.
- Hill, T., Smith, N., & Mann, M. (1987). Role of efficacy expectations in predicting the decision to use advanced technologies: The case of computers. *Journal of Applied Psychology*, 72(2), 307-313.
- Hill, R., Beynon-Davies, P., & Williams, M.D. (2008). Older people and internet engagement: acknowledging social moderators of internet adoption, access and use, *Information Technology & People*, 21 (3), 244-266.
- Judge, T. A., Jackson, C. L., Shaw, J. C., Scott, B. A. & Rich, B. L. (2007). Self-efficacy and work-related performance: The integral role of individual differences. *Journal of Applied Psychology*, 92(1), 107-127.
- Kanfer, R., & Ackerman, P. L. (2004). Aging, adult development, and work motivation. *Academy of Management Review*
- Kooij, D.T.A.M., DeLange, A.H., Jansen, P.G.W. and Dijkers, J.S.E. (2008), Older workers' motivation to continue to work: five meanings of age, *Journal of Managerial Psychology*, 23(4), 364-394.
- Kubeck, J. E., Delp, N. D., Haslett, T. K., & McDaniel, M. A. (1996). Does job related training performance decline with age? *Psychology and Aging*, 11(1), 92-107.
- Kunze, F., Boehm, S., & Bruch, H. (2013). Age, resistance to change, and job performance. *Journal of Managerial Psychology*
- Levy, B. (1996). Improving memory in old age through implicit self-stereotyping. *Journal of Personality and Social Psychology*, 71(6), 1092-1107.
- Marquie, J. C., Jourdan-Boddaert, L., & Huet, N. (2002). Do older adults underestimate their actual computer knowledge? *Behaviour & Information Technology*, 21(4), 273-280.
- Maurer, T. J. (2001). Career-relevant learning and development, worker age, and beliefs about self-efficacy for development. *Journal of Management*, 27(2), 123-140.
- McDonald, T. & Siegall, M. (1992). The effects of technological self-efficacy and job focus on job performance, attitudes, and withdrawal behaviors. *Journal of Psychology* 126(5), 465-475.
- McDougall, G. J. (1995). Memory self-efficacy and strategy use in successful elders. *Educational Gerontology*, 21(4), 357-373.

- Mitchell, T. R., Hopper, H., Daniels, D., George-Falvy, J., & James, L. R. (1994). *Journal of Applied Psychology*, 79(4), 506-517.
- Moore, J.E. (2000), One road to turnover: an examination of work exhaustion in technology professionals, *MIS Quarterly*, 24(1), 141-168.
- Myers, C. & Conner, M. (1992). Age differences in skill acquisition and transfer in an implicit learning paradigm. *Applied Cognitive Psychology*, 6(5), 429-442.
- Naurdin, A.M. & Lay Khuan, S. (2011). Organizational justice, age, and performance connection in Malaysia, *International Journal of Commerce and Management*.
- Ng, T. W. H. & Feldman, D. C. (2009). How broadly does education contribute to job performance? *Personnel Psychology*, 62(1), 89-134.
- Ng, T.W.H., & Feldman, D.C. (2012), Evaluating six common stereotypes about older workers with meta-analytical data, *Personnel Psychology*, 65(4), 821-858.
- Ng, T.W.H., & Feldman, D.C. (2013), A meta-analysis of the relationships of age and tenure with innovation-related behaviour, *Journal of Occupational and Organizational Psychology*, 86(4), 585-616.
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, 66(4), 543-578.
- Peterson S. J., & Spiker, B. K. (2005). Establishing the positive contributory value of older workers: A positive psychology perspective. *Organizational Dynamics*.
- Peter Warr.(1994). *Research into the Work Performance of Older Employees. The Geneva Papers on Risk and Insurance*.
- Philips, D.R. and Siu, O. (2012), Global aging and aging workers, in Hedge, J.W. and Borman, W.C. (Eds), *The Oxford Handbook of Work and Aging*, Oxford Library of Psychology, Oxford, 11-32.
- Posthuma, R.A., & Campion, M.A.(2009). Age stereotypes in the workplace: common stereotypes, moderators, and future research directions.
- Reed, K., Doty, D. H., & May, D. G. (2005). The impact of aging on self-efficacy and computer skill acquisition. *Journal of Managerial Issues*, 17(2), 212-228.
- Schwarzer, R., & Warner, L. M. (2013). Perceived self-efficacy and its relationship to resilience. Doi: 10.1007/978-1-4614-4939-3
- Stajkovic, A. D. & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychology Bulletin*, 124(2), 240-261.
- Toomey E.C., & Rudolph C.W. (2017) Age Stereotypes in the Workplace. In: Pachana N.A. (eds) *Encyclopedia of Gero psychology*. Springer, Singapore.
- Truxillo, D.M., Cadiz, D.M., & Hammer, L.B. (2015), Supporting the aging workforce: a review and recommendations for workplace intervention research, *The Annual Review of Organizational Psychology and Organizational Behavior*, 2, 351-381
- Warr, P. (2008). Work values: Some demographic and cultural correlates. *Journal of Occupational and Organizational Psychology*
- Wegge, J., Roth, C., Neubach, B., Schmidt, K.H., & Kanfer, R. (2008), Age and gender diversity as determinants of performance and health in a public organization: the role of task complexity and group size, *Journal of Applied Psychology*, 93(6), 1301-1313.
- Zandri, E. & Charness, N. (1989). Training older and younger adults to use software. *Educational Gerontology*, 15, 615-631.