

RETHINKING LEARNING POTENTIALS: THE BENEFITS OF LEARNING ACROSS THE LIFE SPAN

Denise Calhoun, & Reyna García Ramos

Graduate School of Education & Psychology, Pepperdine University (USA)

Abstract

Is there ever a point in life when it is too late to learn? Researchers are continuously concerned about ways to intervene cognitive and communicative decline in older adults. In fact, many of the symptoms associated with aging seem to resemble early childhood development issues like limited mobility, and poor communication (Matteson, et al., 2007). With this in mind, there are a number of questions about the relationship between early development and later stages in the life span that merit consideration, such as what is the connection between these widely separated stages in life, and could it be possible to use these similarities and differences to raise awareness on the learning potential of older adults specifically? This study, therefore, emphasizes researching the effects of enhancing communicative and cognitive ability during later adulthood, as well as bringing awareness to families, staff, and administrators of elder care homes on methods that support older individuals. This idea gives rise to further queries, such as why the abilities of older adults fluctuate to varying degrees as they age. To answer these questions, a systematic review was conducted to explore the interplay between socio-emotional, environmental, physical health, and nutrition in the development and maintenance of language and cognitive skills. As such, the findings in this study indicated that learning in each of these developmental stages depends on many of the same characteristics. Awareness of these factors may help older adults address loneliness and social isolation in nursing and assisted living facilities. With the expanding focus on multigenerational learning, this work adds to a growing body of research that emphasizes learning across the life span

Keywords: Learning, life span, dementia, cognition, language.

1. Introduction

In view of the current climate of the world healthcare crisis revolving around the invasion of the coronavirus, there's a rising concern for the welfare and safety of our aging population as well as children. The rapid spread of this worldwide pandemic has affected how we work, live, socialize, and function in our daily lives which has impacted the healthcare system in our schools and senior communities (Ellerbeck, 2022). The effects of the pandemic have brought awareness of how the lack of socialization has affected both groups emotionally, physically, and most specifically, cognitively (Ellerbeck, 2022; Guevarra, 2022). This brings attention to the parallels between various theories of learning that have an impact on both ends of the life span spectrum of development which includes the use of engaging activities to improve language and cognition, constructing knowledge from the environment, family involvement, utilizing skills that can only be mastered with guidance, and making connections to prior learning through the use of visual imagery and elaboration.

The emphasis of this study, therefore, is on researching the effects of enhancing communicative and cognitive ability during later adulthood, as well as bringing awareness to families, staff, and administrators of elder care homes on methods that support older individuals. This idea gives rise to further queries, such as why the abilities of older adults fluctuate to varying degrees as they age. What effects do socio-emotional factors, physical fitness, diet, and environment have on the deterioration of cognitive development? Do the same elements influence learning in early childhood and later adulthood? And can older adults continue to learn in later years? To this end, there are a number of factors about the relationship between early development and later stages in the life span that merit consideration, such as what is the connection between these widely separated stages in life, and could it be possible to use these similarities and differences to raise awareness on the learning potential of older adults specifically?

To answer these questions, a systematic review was conducted to explore the interplay between socio-emotional, environmental, physical health, and nutrition in the development and maintenance of language and cognitive skills in both groups. This systematic review begins with examining learning

theories and neuroscience implications, as well as how children and adults learn. Later this review makes connections using implications from the COVID-19 Pandemic and ends with reevaluating the learning potential of older adults in a systematic review of various studies. Future considerations will also be discussed.

2. Learning theories and neuroscience implications

There are a variety of learning theories that warrant attention, but for the purpose of this review, the primary theories discussed will be Vygotsky and Bandura's social cognitive theory as well as Knowles and Tyler's theory on how adults learn. Since many theories originate from early stages of development, this review will begin with discussing the social learning theories of Bandura and Vygotsky (Knowles, Holton, & Swanson, 2011).

Bandura, (1997, 2007) outlines four major sources of self-efficacy; *inactive mastery experience*; *vicarious experience*; *verbal persuasion*; *physiological and affective states*. Inactive mastery are exercises that increase in difficulty. Through vicarious experiences it is suggested that efficacy beliefs are altered through group sharing experiences of accomplishments and competencies. Verbal persuasion is based on the idea that through continuous feedback and encouragement, certain abilities of individuals will be elevated. The fourth source, physiological and affective states, reinforces relaxation techniques to alleviate memory anxiety during stressful times (Bandura, 1997, 2007).

Another concept developed by Bandura (1976), is the *Social Learning Theory*. The assumption of this theory implies that individuals learn from observing others around them. Individuals in this context are models of different genders and personalities who can be influential family members, friends, peer groups or teachers. Bandura (1976), however, makes a distinction between simply emulating and imitating a behavior and identifying with a behavior.

Vygotsky's research, in contrast, is on how language and culture shape the development of thought in individuals. He further contends that language is perceived as an influential device for thinking (Wertsch, 2008). Vygotsky's research is also in the area of developmental psychology, education, and psychopathology. In this respect his assumptions are aligned with other social cultural theorists. Many of these theorists believe that historical events, the nature of societies, and different generational influences, are possibly related to how individuals think (Alwin, 2008)

A unique feature of Vygotsky's theory is *the zone of proximal development* which suggests that some learning and tasks can only be accomplished with the guidance of a facilitator or a mentor (Wertsch, 1985). This element warrants consideration when assessing the learning potential of early childhood development as well as later adulthood. Mentors, according to Wertsch (1985), enhance growth in learning by generating trust, empathy, and engaging interactions leading to increased plasticity in the brain. Through dialogue within social interactions, Johnson (2006), in fact, argues that mentors contribute to the development of the brain. Moreover, through discourse, mentors have the ability to comprehend one's thoughts and raise questions that have the potential to increase neuronal processes of reflection. Due to its potential to create connections, reflection is equally as relevant as experience in the learning process (Johnson, 2006).

Knowles, Holton, & Swanson (2011), contend that adults are motivated to learn through experiential needs and interests that learning will satisfy. Tyler (1969), on the other hand stresses general learning principles, such as the principle of practice, the range of possibility, and the concept of producing several outcomes from the same learning experience. There is a consensus with all, however, on the benefits of connecting prior knowledge for optimum learning and desired outcomes (Knowles et al., 2011 & Tyler, 1969). Tyler (1969) further posits that connecting prior knowledge to desired outcomes creates interests.

Besides creating interest, the incorporation of thought into learning theories inspired Bandura (1985) to modify his theory to be referred to as the *Social Cognitive Theory* (SCT). The major cognitive roles in psychosocial functioning include self-reflective and self-regulatory processes (Bandura, 1985). In this respect, research in cognitive roles in psychosocial functioning include neuroscience associations.

Neuroscience implications involve examining a variety of elements that affect cognitive processes in the brain. Findings in studies are leaning to the conclusion that the brain is a social organ and acquires information through shared experiences (Cozolino & Sprokay, 2006). The authors, Cozolino and Sprokay (2006) have further concluded that the brain develops best in the context of interactive discovery and narratives or stories that support memory. Keeping this in mind, Wolfe (2006) claims that the brain functions best when meaning and emotion are displayed.

Another type of neuroscience explored in this review is social cognitive neuroscience. Through using tools like functional magnetic imaging, Lieberman (2013) has found notable results on how the brain responds to the social world. In particular, Cozolino and Sprokay (2006) concur that the brain

thrives best within the context of social engagement. To this end, the aforementioned social cognitive theories reinforce the conjecture that social interaction and meaningful engagement are conducive to learning for both ends of the life span spectrum.

3. How children learn

While children's development is unique to each child, several developmental milestones indicate a child is on pace to meet those milestones successfully. A consensus is that categories in the areas of physical, language, cognitive and psychosocial development are key to understanding a child's whole growth (Papalia & Martorell, 2015). Between the ages of 3-6 years, there is rapid growth in each developmental category. Factors, including socioeconomic status can impact the growth and opportunities for later learning such as access to high-quality preschool in the early years (Reynolds, 2012). As children grow and transition from the toddler stage into the early elementary age, the work of Vygotsky and Piaget has provided a framework for the need to give children many opportunities to interact with others of the same age and also with varied adults, including grandparents (Papalia & Martorell, 2015; Slavin, 2018). Additionally, if you consider the research on Intergenerational Learning (IGL), it is clear, that concepts related to learning across the lifespan and from nontraditional settings in family and community create what Fitzpatrick (2019) calls the "promise" as a way to "deliver meaningful and transformative learning environments for both young and old." IGL is a growing body of work that is gaining prominence at the research, policy, and practice levels (Fitzpatrick, 2019).

4. How adults learn

Lindeman (1926) concurs with Knowles et al. (2006) that experience is the most persuasive motivator for adult learning. In other words, the needs, interests, life situations, experiences, self-concepts, and individual differences need to be considered in adult learning. In this regard, interests, according to Tyler (1969) are connected to attitudes which are driven by behavior. Understanding attitudes is needed when speaking to adult learners. Attitudes are defined by Tyler (1969) as a tendency to react when a reaction doesn't actually take place (e.g., an individual may be frustrated with a staff member, but doesn't express it verbally). Attitudes are significant because they influence behavior and a change in behavior can suggest learning. The reaction, however, must be positive or satisfying for learning to occur (Tyler, 1969). To this end, learning for adults is heightened when desirable attitudes are promoted.

When considering engagement, this review relies on two major themes based on gerontology research, a *sense of control* and *social engagement*. Avlund, Damsgaard, & Holstein (1998), and Bennett (2002), suggest that adults project positive health outcomes when they participate in meaningful social engagement with others. Similarly, studies have shown positive outcomes when older adults experience a sense of self-efficacy (Rodin, 1989). To this end, a *sense of control* and *social engagement* appear to be important within the context of promoting communicative interaction and learning for adults. In fact, researchers, such as Castel (2019); Lieberman (2013); and Seifert (2006) have conducted studies illustrating a positive correlation between social interaction and cognition.

Another factor to consider in adult learning is plasticity which refers to the brain's ability to change, meaning its malleability. The question is, however, to what degree of plasticity affects cognitive aging. To answer this, one must think in terms of biological effects and environmental influences, the same as when assessing children's ability to learn and process information (Hertzog, 2009). One must according to Hertzog (2009) consider a person's lifestyle, such as the advantages of practicing good nutritional habits, regularly participating in physical exercise, and interacting socially, all of which affect cognitive functioning, as well as one's level of cognitive reserve. Similarly, these practices are also linked to the learning potential and psychosocial development of children (Ellerbeck, 2022).

5. Making connections: Implications of the COVID-19 pandemic

After examining the many factors connected to learning on both ends of the life span spectrum, it is no wonder that children and older adults experienced many of the same issues during the pandemic. It is, in fact, becoming more apparent that both groups suffered similar consequences due to mandatory restrictions limiting socialization among families, friends, peers, and most specifically interacting within large groups (Brooke & Jackson, 2020). Social isolation is not a new concern for our older population. It is an occurrence that many have experienced from time to time due to life transitions such as the death of a loved one, a divorce or a move to a new place (Rokach, 1990; Rokach et al.). Moreover, there has been increasing evidence indicating that social isolation and loneliness are connected to high blood

pressure, heart disease, obesity, a weakened immune system, anxiety, depression, cognitive decline, and an increased risk of developing Alzheimer's Disease (Wu, 2020). Consequently, due to the coronavirus, the risks of social isolation and loneliness have been magnified leading to concerns involving mental health issues for both groups.

Moreover, it is also becoming evident that older adults in care homes were dying indirectly from COVID-19 due to compromised mental and physical health issues resulting from social distancing. Khimm (2020) reported in an NBC News press release that lockdowns and visitor restrictions failed miserably to protect nursing home residents. To this end, children were also affected by lack of socialization, but in a different way.

Restrictions regulating interactions among large groups during the pandemic severely disrupted traditional education. Children were forced to participate in distance/online learning nationwide. This shift in learning resulted in digital inequality as well as inaccessibility to the Internet, (McElrath, 2020). The impact of being cut off from school, friends, and teachers has been devastating for many, especially the vulnerable, those experiencing food and housing insecurities, and/or learning disabilities. These children most specifically have endured the greatest loss, widening the learning gap in our educational system (Ellerbeck, 2022).

6. Reevaluating the learning potential of older adults

To illustrate how the human brain is wired to connect and is related to the social world, Lieberman (2013) claims that studies have shown how mammals are disconnected from other vertebrates due to their capacity to feel social pains and pleasures linking well-being to social connectedness. This need for connectedness is also displayed in infants. Awareness of these discoveries warrants revisiting Maslow's hierarchy of needs theory. Maslow (2013) contends that individuals move up the pyramid of needs beginning with basic physiological demands and end with a maximum psychological need of self-regulation. Conversely, Lieberman's (2013) study suggests that infant mammals need a committed caregiver at birth to make sure biological needs are met which implies that food, water, and shelter are not basic needs for infants. To this end, being socially connected and cared for seem to take precedence over all other needs. In view of these implications, the learning potential of older adults living in nursing homes could be affected by a lack of love and a sense of belonging.

An additional point worth mentioning in Lieberman's (2013) study is his discussion of mental pain versus physical pain. His study equates physical pain to social pain, inferring that the brain responds to both pains in the same manner. Maclean (1993) concurs, implying that there is a sense of separation that causes pain for mammals. This doesn't, however, mean that social and physical pain are identical, it simply suggests that social pain is a bona fide pain the same as bodily pain (Lieberman, 2013). This concept is demonstrated in Bowlby's (1969) attachment theory. The relentless crying and distress of a child due to the absence of his/her mother according to Bowlby (1969) is linked to pain. Moreover, other studies have shown how children under the age of five who are separated for long periods of time developed deficits in literacy and behavior (Lieberman, 2013). Awareness of these findings could have implications for deficits in cognitive functioning for older adults separated from loved ones while living in nursing or assisted living homes.

Another study by Erickson, et al. (2007) suggests that in later life, the brain only loses a part of its ability to function indicating that the types of activities older adults engage in appear to be instrumental in its development. This was a randomized study consisting of a group of 34 older adults from 55 to 80 with a mean age of 66.11. Data was also collected on 31 younger adults participating in both the training and control group. The study examined interventions that could have an impact on reversing age-related cognitive declines. Findings indicated that a certain amount of plasticity is retained well into later adulthood and the types of activities conducive to learning depend on elements that involve effective information processing attributes such as thinking, memory, and attention (Bauer, 2009).

7. Conclusion

After researching several studies on how children and older adults learn, the analysis of this systematic review was narrowed down to three studies including a discussion of several related peer reviewed articles. Considering the repercussions of the 2020 pandemic on the mental and cognitive functioning of both groups, the lack of social interaction appears to be a key element affecting the learning potential of individuals. Other notable factors included one's lifestyle practices consisting of an enriched and healthy environment (e.g., good nutrition, physical, and engaging activities, as well as relying on prior knowledge and participating in meaningful interactions). To this end, future considerations should include implementing learning strategies that involve reinforcing meaningful and more challenging activities to sustain the independence of older adults as well as to help them remain connected to society. Their welfare should be preserved the same as we care for our children.

References

- Alwin, D. F. (2008). Social structure and cognitive change. In S. M. Hofer, & D. F. Alwin (Eds.), *Handbook of cognitive aging: Interdisciplinary perspectives* (pp. 418-444) Sage publications.
- Avlund, K., Damsgaard, M. T., & Holstein, E. E. (1998). Social relations and mortality: An eleven-year follow-up study of 70-year-old men and women in Denmark. *Social Science & Medicine*, 47, 635-643.
- Bandura, A. (1976). *Social learning theory*. New Jersey: Prentice-Hall.
- Bandura, A. (1985). *Action: A social cognitive theory*. New Jersey: Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman and Company.
- Bandura, A. (2007). Self-efficacy. *International encyclopedia of organization studies*.
- Bauer, P. J. (2009). Learning and memory: Like a horse and carriage. In A. Needham & A. Woodward (Eds.), *Learning and the infant mind* (pp. 3-28). Oxford University Press.
- Bennett, K. M. (2002). Low level social engagement as a precursor of mortality among people in later life. *Age and Ageing*, 31, 165-168
- Bowlby, J. (1969). *Attachment and loss, volume i: Attachment*. New York: Basic Books
- Brooke, J., & Jackson, D. (2020). Older people and COVID-19: Isolation, risk and ageism. *Journal of Clinical Nursing*, 29(13-14), 2044-2046.
- Castel, A. (2019). *Better with age: The psychology of successful aging*. Oxford University Press.
- Cozolino, L., & Sprokay, S. (2006). Neuroscience and Adult Learning. In Johnson & Taylor (Eds.), *The neuroscience of adult learning, number 110* (pp. 11-18). California: Jossey-Bass.
- Ellerbeck, H. (2022). Educating children remotely: a focus on socio-emotional learning. The Institute for Human Development and Social Change.
- Erickson, K. L., Colcombe, S. J., Wadhwa, R., Bherer, L., Peterson, M. S., Paige, E., Scaff, P. E., Kim, J. S., Alvarado, M., & Kramer, A. F. (2007) Training-induced plasticity in older adults: Effects of training on hemispheric asymmetry. *Neurobiology of Aging*, 28, 272-283.
- Fitzpatrick, A. (2019). Towards a Pedagogy of Intergenerational Learning in Intergenerational Learning in Practice: Together Old and Young, Kernan & Cortellesi (eds) London, Routledge 2019.
- Guevara, H. (2022). The impacts of COVID-19 on the social development of young children. Retrieved from First Five Years Fund website: <https://www.ffyf.org/how-has-covid-19-impacted-infants-and-toddlers-social-development/>
- Hertzog, C. (2009) Use it or lose it: An old hypothesis, new evidence, and an ongoing controversy. In H. B. Bosworth & C. Hertzog. (Eds.), *Aging and cognition: Research methodology and empirical advances* (pp.161-179). American Psychological Association
- Johnson, S. (2006). The neuroscience of the mentor-learner relationship. In S. Johnson & K. Taylor (Eds.), *Neuroscience of adult learning, number 110*, (pp. 63-69), California: Jossey-Bass.
- Knowles, M. L., Holton, E. F., & Swanson, R. A. (2011). *The Adult Learner*. (7th ed.). Gulf Publishing.
- Lieberman, M. D. (2013). *Social: Why our brains are wired to connect*. Broadway Books.
- Lindeman, E. (1926). *The meaning of adult education*. New York Republic.
- Macleay, P. D. (1993). Introduction: Perspectives on cingulate cortex in the limbic system. *Neurobiology of Cingulate Cortex and Limbic Thalamus: A Comprehensive Handbook* Birkhauser. 1-19.
- Maslow, A. H. (2013). *A theory of human motivation*. (A reprint of 1943 ed.). Martino Fine Books.
- McElrath, K. (2020, August). Nearly 93% of households with school-age children report some form of distance learning during COVID-19. United States Census Bureau.
- Papalia, D. and Martorell, G. (2015). *Experience Human Development* (13th Ed.) New York, NY: McGraw Hill.
- Reynolds, A. J. (2012). *Success in early intervention: The Chicago Child-Parent Centers*. Lincoln: University of Nebraska Press (Reprinted from 2000).
- Rodin, J. (1989). Sense of control: Potentials for intervention. *Annals of the American Academy of Policy and Social Science*, 503, 29-42.
- Rokach, A. (1990). Surviving and coping with loneliness. *The Journal of Psychology*, 124, 217-219.
- Rokach, A., Orzeck, T., & Neto, F. (2004). Coping with loneliness in old age: A cross-cultural comparison. *Current Psychology*, 23(2), 124-137.
- Slavin, R. E. (2018). *Educational Psychology: Theory and Practice*. (13th Ed). New York: Pearson.
- Seifert, K. L. (2006). Cognitive development and the education of young children. In B. Spodek & O. N. Sarancho (Eds.), *Handbook of research on the education of young children* (pp. 9-21). Erbaum.
- Tyler, R.W. (1969). *Basic principles of curriculum and instruction*. The University of Chicago Press.
- Wertsch, J. (2008). From social interactions to higher psychological processes. *Human Development*. 51, 66-79.
- Wolfe, P. (2006). The role of meaning and emotion in learning. In S. Taylor & K. Johnson (Eds.), *The neuroscience of adult learning, number 110* (pp. 35-41). California: Jossey-Bass.
- Wu, B. (2020). Social isolation and loneliness among older adults in the context of COVID-19: A global challenge. *Global Health Research and Policy*. 5(27).