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Debunking Myths of Older Age:

How Interactive Technology Solves Engagement & Staffing Challenges



Executive Synopsis

Overview:

This white paper, authored by world-renowned physical therapist Dr. Mike Studer, addresses the "Epidemic of Aging" and the critical need for scalable, technology-driven solutions in senior care. As the global population of adults over 60 is projected to reach 2.1 billion by 2050, the healthcare industry faces a dual crisis: a massive increase in patients and a severe shortage of qualified staff.

The Science of Dual-Tasking:

The core of the paper focuses on "Dual-Tasking"—the simultaneous execution of motor and cognitive tasks. Dr. Studer highlights that traditional, repetitive exercises often fail because they lack engagement and don't reflect real-world complexity. Interactive technology, specifically the EyeClick (Obie) platform, triggers neuroplasticity by combining physical movement with cognitive challenges (Gamification). This synergy improves balance, reduces fall risks, and mitigates the effects of social isolation.

Key Value Propositions:

Combatting "Social Death": The platform transforms isolated physical therapy into a social, playful experience, addressing the cognitive decline associated with loneliness.

Operational Efficiency: By providing an intuitive, "always-on" engagement tool, facilities can maintain high levels of resident activity even during staffing shortages.

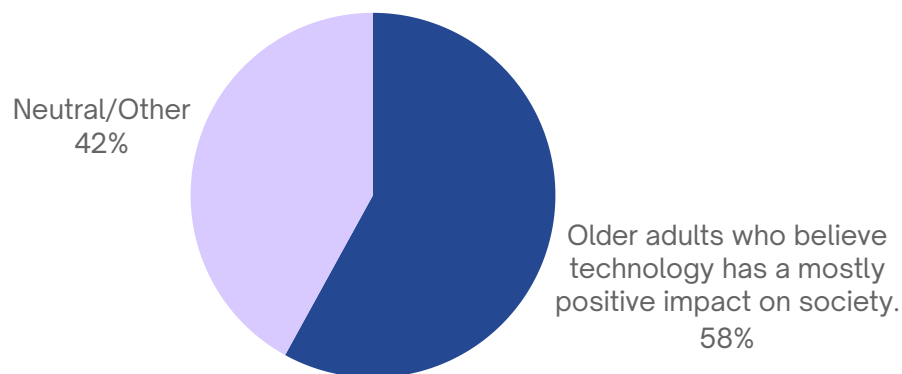
Overcoming Kinesiophobia: Through immersive projection, residents become so engaged in the game that they overcome their fear of falling, performing movements they wouldn't normally attempt in a clinical setting.

Conclusion:

Interactive projection technology is not just a recreational tool; it is a clinical necessity that bridges the gap between staffing limitations and the rising demand for high-quality, dignified senior care.

Debunking Myths of Older Age

Recent research reveals that a majority of older adults want to use technology for their current health and future wellness. Over 58% of adults aged 65 and above say technology has had a mostly positive impact on society, while roughly three-quarters of internet-using seniors say they go online on a daily basis.¹



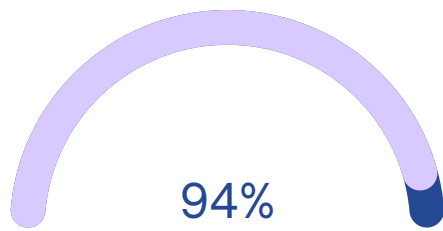
Older adults are no different than younger individuals, they are more likely to adopt new terms, technology, habits and routines if these are:

- Easy to learn, yet challenging in a beneficial way (stimulating, compelling)
- Inviting and engaging
- For their benefit (providing recreation or saving resources (time, finances))

In this white paper, the reader will be reminded that we have an epidemic of aging, yet also informed as to the awakening to the influence and power of lifestyle to impact both disease and “the process” once thought obligatory, of aging. Technology is being incorporated rapidly in healthcare to address the scale of people to be served and the opportunity to significantly impact disability. In this paper, we will detail this dilemma, the science and application-opportunities. The principles revealed in this paper will apply to many of these technologies, while featuring a seminal example, The EyeClick Interactive Projection Platforms as this is one of the few options in this sector that have been proven to meet these essential criteria: intuitive, engaging and beneficial.

A recent survey of users and caregivers has revealed that the gaming projector is shown to have had positive effects on communication, social skills, mental dexterity, and overall mental health in the vast majority of senior residents. Caregivers report that the technology made a difference with 94% of

respondents seeing improvements in their residents of at least 4 on a 5-point scale when they began using The EyeClick Solution.



of caregivers reported
a significant improvement
in resident well-being

*Based on the EyeClick specific case study cited in the paper.

Neuroplasticity What is it and Why Do We All Need “it”?

While this data (tech adoption) and these features (engaging, intuitive, scientifically proven to be beneficial) are encouraging, this is merely a first (albeit essential) step to promote neuroplasticity. New connections, ease of connection, blood supply and efficiency at synaptic junctions are all processes involved in neuroplasticity. To promote neuroplasticity, a stimulus needs to be:

- Intense
- Repetitive
- Task specific
- Salient

These are four of the most often cited principles of neuroplasticity among the list of 10 principles first proposed in the seminal paper by Kleim and Jones (2008).² Neuroplasticity is the essential process that underpins all forms of learning. new facts (semantic memories), events (episodic memories) and skilled or functional movements to be automatized (procedural memories) - all of these require learning. Meaning, creating new memories of any type requires neuroplasticity. In the years since this seminal 2008 paper, we have learned more about what is “required” to promote neuroplasticity. While the EyeClick Interactive Projection Platforms satisfy these four principles listed above, the programs additionally leverage some of the more contemporary principles of healthspan, behavioral economics and neuroscience are also represented:

- Engaging (inviting through an easy-to-learn and hard to master attribute, as noted above)
- Person-specific (precision-wellness)
- Motor learning (allowing for errors and invoking the near-miss effect)
- Gamification (providing a game-like opportunity to compete)
- Varied experiences – multimodal (using many senses)
- Novelty and divergent thinking (stimulating new problem-solving in deduction and induction)
- Social connection – providing opportunities to engage with others in common bond

In 1973, Nolan Bushnell, the founder of Atari summed this up well in his famous quote, “The best games will be easy to learn and hard to master.”. This is a universal theme that spans both cultures and the lifespan, often evidenced in complex dance crazes, new adoptions to language, as well as technology. Notably, George Parker (of the board-games company Parker Brothers) has been quoted with similar sentiment.³

Why is Cognitive Health Important in Aging AND...at Any Age?

If today’s existing healthcare providers were only treating people with diagnosed cognitive decline and imbalance, they could not keep up with the worldwide needs of individuals that have been diagnosed with these impairments.

Population aging has been a pervasive, incremental phenomenon of the modern times, worldwide, with few exceptions. According to the United Nations predictions, the rate of population aging in the 21st century will exceed that of the 20th century. The number of people aged 60 or over has tripled since 1950, and may reach 2.1 billion by 2050.⁴ There are more people turning 65 than there are healthcare providers graduating per year across the world. So, we see that scaling successful strategies is key because of the aging-nature of our population, summarizing:

- World populations are aging rapidly
- Prevention is often more effective than treatment of a condition

Yet, a counter-point may arise, “Aren’t these “just” videogames?” How is this different from a “Dance Dance Revolution” or a “Wi” game? How is the EyeClick Solution superior to working on a crossword puzzle?

More Than Games - This *is* the Science of Preventative Health

The sector of companies focused on prevention of cognitive decline has exploded over the past 20 years.⁵ Simultaneously and not unrelated, governments and health care providers alike have focused prevention of injurious falls.⁶ Each condition has received significant attention and funding across the world. Many technologies have been developed to work on each of these problems separately. Few technologies have been developed to work on both – at the same time. While everything that you have ever heard about “multi-tasking” is correct, scientists exploring these two health conditions – cognitive function and balance, have discovered the power of dual tasking. Dual tasking (DT) is defined by dividing attention between a cognitive task and motor task, simultaneously.^{5,7} DT has received so much “attention” (research and investment) because this intervention:⁵⁻³⁴

- Has been proven to be not only *as effective as* cognitive intervention, but *superior to* these efforts for outcomes of cognitive function
- Can be more engaging than “practicing balance exercises” alone. Engagement is essential for learning (neuroplasticity)³⁵
- Can be measured for performance, and subsequently gamified
- Can be “leveled” to match the skill of the learner
- Is time and resource efficient, working on BOTH problems at the same time

As a healthcare provider for more than 35 years, I understand all too well that an ounce of prevention is worth more than a pound of cure in the arenas of cognition and balance. The EyeClick Solution provides a scalable platform (addressing the population dilemma) that does not require real-time oversight in a one-to-one relationship from provider to patient. It is this type of scalability that when combined with evidence leveraging an engaging and prevention-based platform that truly delivers hope in our efforts to reverse the trends of dementia and injurious falls that are plaguing people, families, and economies.

Why EyeClick Will Work and Does Work

The EyeClick Interactive Projection Platforms are leading the way in this immersive exergaming sector that has focused on divided attention. The EyeClick Solution is differentiated through physical, cognitive *and* mental health benefits without common friction (barriers).

As noted above, we have recognized barriers to reach those in need. Barriers come in the form of access to care (financial, locating a provider, transportation to a qualified provider). Barriers come in the form of energy and motivation on the part of patients and caregivers alike.

The EyeClick Interactive Projection Platforms hurdle these very barriers, consistently. What might an older individual say in efforts to put the platform to the test, using James Clear's principles of habit formation from his 2018 bestseller, "Atomic Habits"?³⁶

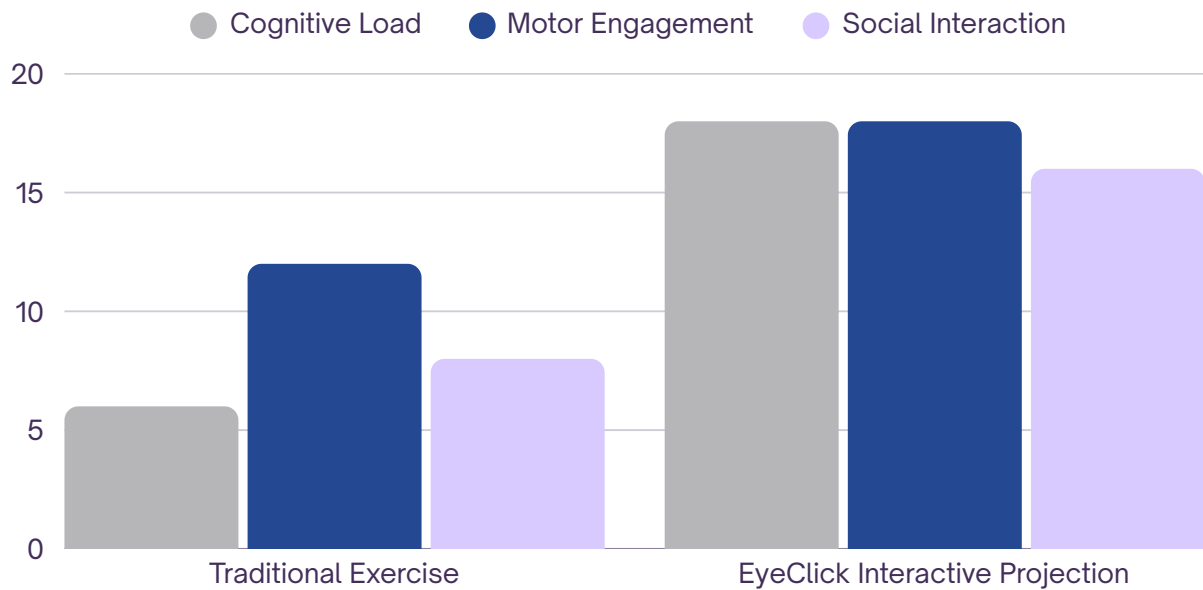
Easy: Do I have the energy, time and resources to get there?
Is it intuitive to learn?

Attractive: Does this feel like fun and beneficial to me?

Satisfying: Do I feel that I am gaining from this? What have other people like me achieved?

Obvious: Clearly, this should make a difference in my (now) current function and (then) healthspan and lifespan

"While other cognitive games are played on computer or tablet screens, this unique and interactive platform is projected on a large physical area. Moving in a real space, across a real floor. As a result, by its very design, The EyeClick Solution enables - more accurately facilitates - both physical action and social interaction as part of cognitive activities. It permits, and in fact encourages, close integration of the three essential components - cognitive, physical, and social...within one activity."



As referenced above, these are unique opportunities afforded to those employing immersive dual task training.

The new platform of games built for agility cover physical and cognitive activity that is not only novel to the industry, but are also affordable, scalable, gamifiable and mentally-healthy:

Physical activity that is occasionally intense, requires reaction speed and accuracy *without* consequence (what if I do not hit the target perfectly, will I fall?) that includes predictable surfaces that are reliable and scalable (can be projected on a large compliant mat) which permits elevated intensity and translatable to our real world.

Cognitive activity that is novel, requires decision making, innovation and accuracy

Mentally healthy by giving users the opportunity to see themselves investing in their physical and cognitive health – “I am investing in myself” and not “giving in” to my perception of aging.

Mental health by connecting and playing with others in a collaborative fashion. Social connectivity.

Mental and cognitive health through gamification: Tracking and competing against my prior scores.

Mental health by practicing in an environment of play to subtly reduce the sense of fear associated with movement

To be maximally therapeutically effective, a suite of games must combine several features. It has to be (a) cognitively challenging and target a wide range of cognitive functions; (b) aesthetically attractive and interesting to ensure the participants' ongoing engagement; (c) include a physical mobility component; (d) enable and encourage social interaction.^{8,37}

The EyeClick Solution includes practical training environments that represent the features from above. For example, "Puppy Park" targets gait speed manipulation, eccentric control, and reaction time. The program known as "Cosmic Trails" encourages visual search, sequencing, cognitive flexibility, and spatial neglect. Each can be measured, competed, leveled – affording the user the opportunity to gain physical fitness, cognitive function, mental health.

Recall what you have now read, in summary, from one platform that is fully differentiated from competitors in the immersive dual-task sector. Users find that the EyeClick Solution provides:

Dual task

scoring cognitive and motor performance, prioritizing each

Easy to learn

intuitive games that can be leveled to skill

Challenging

programs that can be leveled-up according to performance

Variety

Giving the learner the best opportunity to be adaptable in a diverse environment

Engaging

Gamification, play and novelty

Neuroplastic

Principles of repetitions, intensity, challenge within task-specific programs

Preventative

Programs with high ceilings for learners to build reserve

Scalable

Multi-player, space-efficient, diverse (meeting a wide range of interests), low administrator-burden

Affordable

A cost-effective solution that maximizes value while minimizing overall resource investment.



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About the Author:

Dr. Mike Studer is a doctor of physical therapy with advanced training and certification in neurologic rehabilitation. He is additionally certified as an expert in the aging adult, stroke rehabilitation and balance/fall-prevention provider. Mike has been a PT since 1991, a board certified in neurologic PT since 1995 (4x recertified), and a private practice owner since 2005. Dr. Studer has been an invited speaker covering all 50 states, 17 countries, and 6 continents speaking on topics ranging from cognition and psychology in rehabilitation, aging, stroke, motor learning, motivation in rehabilitation, balance, dizziness, neuropathy and Parkinson Disease. Dr. Studer was the founder and operator of Northwest Rehabilitation Associates in Oregon for 18 years and is now a co-founder and co-owner of Spark Rehabilitation and Wellness in Bend, OR. He is an adjunct professor at Touro University with an additional appointment at UNLV. Dr. Studer assists the USC-led national network of neurologic PT residencies (Neuroconsortium) and holds the distinction of being the only PT in the US to be recognized as Clinician of the Year in the Neurologic and the Geriatric Academies of the APTA. He received the highest honor available in PT in 2020, being distinguished as a Catherine Worthingham Fellow of the APTA, joining a group of under 300 persons at the time for the history of the profession. Mike's honors additionally reflect his service for Vice Presidency of the Academy of Neurologic PT, the Mercedes Weiss award for service to the Oregon chapter of APTA. He holds a trademark in dual task rehabilitation and has a patent pending on the same. Over his career, Mike has authored over 50 articles, 8 book chapters, delivered a TED talk on neuroplasticity and authored two books on healthspan and self-help. Dr. Studer has been the principal investigator for research projects in balance, dual task and stroke recovery and routinely has clinical research projects in affiliation with one of many universities. He is a consultant to professional athletes including Major League Baseball players, competitive divers, and some of the most prolific climbers in world history. As a very fun and lighthearted note, Mike is the four time and current WR holder for the fastest underwater treadmill marathon, a mark that was set most recently in January 2022. Most recently, Mike authored ***The Brain That Chooses Itself: Personalized***

Strategies to Extend Your Healthspan, a practical and applications-based guide to increasing both healthspan and lifespan for laypersons and medical professionals alike. Dr. Studer followed this by authoring ***My FaceBook: Looking Beyond What the Mirror Tells Us in Crisis***.



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