

HOW CAN BEHAVIORAL SYNCHRONY FOSTER GREATER COHERENCE IN A SENIOR LIVING COMMUNITY

Michael C. Patterson, June 2021

This MINDRAMP White Paper explores the topic of “behavioral synchrony” and how it can be leveraged to enhance both interpersonal relations and community cohesion.

My company, MINDRAMP is a pioneer in the field of applied brain health. We define our mission as promoting “Qualongevity,” which is a contraction of two core concepts: longevity and quality-of-life. Our goal is to translate cutting-edge scientific research into practical programs that help people live long and live well.

Our reading of the current science is that behavioral and lifestyle interventions continue to be the most effective ways to slow the aging process, strengthen brains and keep minds sharp.

We cluster the evidence about behavior and lifestyle choices into eight key areas that we call the eight Essential CogWheels of Brain Health. Each “CogWheel,” such as physical exercise or social engagement, has inherent risks and inherent protections. Getting more physical exercise, for example, is protective whereas leading a sedentary life increases your risk of premature aging and accelerated cognitive decline.

In this paper we will focus on the CogWheel of Positive Social Engagement and explore how activities that promote behavioral synchrony lead to better interpersonal relationships and greater community coherence.

HUMANS ARE SOCIAL BEINGS

It should be no surprise that social relationships are one of MINDRAMP’s eight essentials Cogwheels of brain health.¹ Human beings are a highly social species.² From the moment we are born until the point of our death we are reliant on the support and cooperation of other people.

We prosper when we are nurtured by loving individuals and accepted and supported by significant social groups. Our lives have meaning and purpose when we can contribute to the wellbeing of others. Positive social relationships, group cohesion and cooperation, therefore, are protective factors. They promote health, happiness, and prosperity, supporting not only individual needs but the welfare of the larger society.

Conversely, negative social interactions are painful and contribute to disease, depression, and debility. We suffer psychological and physiological pain when isolated or ostracized from important social groups. We feel marginalized when forced to swim away from the main currents of society. Much of the social strife that afflicts the world is caused by IN group and OUT group dynamics. We protect and love those deemed part of our IN group and vilify, demonize and - at our worst - try to destroy those deemed part of the OUT group.

To promote general wellbeing, we must be constantly vigilant to champion behaviors and activities that promote positive social interactions and to shun those that contribute to negative and abusive social interactions. Can we find evidence-based approaches to promote positive social interaction and pro-social behaviors?

We think that the body of research around “behavioral synchrony” holds important clues to crafting the type of interactions that can promote social bonding and social cohesion.

WHAT IS BEHAVIORAL SYNCHRONY?

Behavioral synchrony, also known as entrainment, is a process of bonding that happens between two people, or even large groups of people, when they engage in synchronized behaviors. It is characterized by spontaneous rhythmic coordination of actions, emotions, thoughts, and physiological processes.³

Adam Baimel, the lead author of the study on behavioral synchrony from British Columbia, points out that music, dance, and drill (i.e., people marching in sync with each other) are found in all cultures throughout the anthropological and historical records.⁴ These activities are examples of complex human activities that evoke coordinated activity and synchronous behavior, especially when ritualized. Music, dance, and drill have a striking power to synchronize people's physical movements as well as, importantly, their mental states.

Baimel and his team hypothesize that behavioral synchrony automatically creates empathy for the other participants because each person experiences the same feelings and responds with similar behaviors. When the crowd all around us is behaving in the same way that we are we assume that everyone is thinking and feeling just what we are thinking and feeling. We bond with our fellow audience members (sports fans, marching corps) because they are just like us.

Synchronization can occur on many levels. A group clapping their hands together or stamping their feet to the same rhythm are examples of behavioral synchrony. So are dancing, choral singing, or marching to the beat of military music. Often, behavioral synchrony leads to physiological synchrony.

People who move to the same beat or experience the same kind of sensory inputs will find that their heart rate is in sync with each other. People's breathing patterns will match up when they perform synchronous activities together. Behavioral synchrony even has the power to alter brain waves and the expression of hormones. It is thought that synchronized brain waves help an individual to block out the neural "noise" of multiple inputs and to focus exclusively on the most relevant information.⁵

Behavioral synchrony has been studied most extensively in dyads, meaning among two people, like a mother and infant, or lovers or close friends. It has been found that the brain wave rhythms of bonded pairs will synchronize around a nice steady and calming rhythm. And often, both members of the pair will experience a similar surge of the so-called bonding hormone oxytocin.

THE BENEFITS OF SOCIAL BONDING

For our purposes, the core point about behavioral synchronization is that it forges new bonds between people. People who engage in behavioral synchrony feel closer to the other person than they did before the synchronized activity. They feel safer, warmer, more affectionate and trusting. Behavioral synchrony is capable, therefore, of cultivating friendships and fostering group cohesion.

This is a great outcome all by itself. As we age, we often lose our connections with loved ones and friends and find it hard to make connections with new people. Older adults who downsize or move into congregate living communities must adjust to an entirely new social environment. Feelings of loneliness and isolation are painful and can be as harmful to health as smoking or obesity.⁶ Any activity, therefore, that can help them make friends and feel a part of the larger community is extremely valuable.

Loneliness can be contagious.⁷ When people feel estranged from one another, social engagement is difficult and is often avoided, leading to further estrangement. This can lead to a downward spiral of isolation and an increased risk of depression. Behavioral synchrony may be able to interrupt this downward spiral because it has the reverse effect of creating bonds. This has a multiplier effect. As rapport builds between individuals

and groups, they are more likely to want to do things together. Friends and integrated communities will, in other words, want to engage in more synchronous activities that will further strengthen their bonds.

John Cacioppo, one of the world's experts on loneliness, has searched for effective interventions to counter isolation, ostracization and loneliness. Many of the standard approaches, (such as bringing people together, teaching social skills and providing social support) have proven to be largely ineffective. The approach with the most promise focused on developing the skills of theory of mind, our ability to understand what is going on in other people's minds.

"We retrained people," Cacioppo said, "in reciprocity in communication: how do you read voices, how do you read eyes, how do you read posture."⁸

There is reason to believe that behavioral synchronicity would support this process of reciprocity in communication. Synchronized activities encourage participants to carefully observe the behavior of others and to mimic the sounds, movements, and sentiments of others in the group. This harmonized group behavior diminishes the sense of Us vs Them. Group bonding thus diminishing the dynamics of social ostracization and isolation.

The prosocial benefits of synchrony have been shown to activate mirror neuron and reward systems in the brain.⁹ Mirror neurons give us the ability to feel empathy for others because our brains actually "mirror" the feelings we see other people experiencing. When I say, "I feel your pain," there is a literal truth to the statement. My brain registered a pain reaction that mirrors yours. Reward systems encourage us to behave in ways that reactivate the positive rewards. We want, in other words, to reactivate the good feeling of positive bonding with others.

Behavioral synchrony not only fosters social cohesion and better understanding of others, it also is good for our health. Synchrony has consistently been linked with improved stress management. People who do a better job of coordinating positive social interactions have reduced stress and increased brain resilience.¹⁰

Behavioral synchrony is thought to support group efficiency and creative thinking. The mechanism for these benefits has to do with the synchronization of similar brain networks in the members of a group that have bonded. In popular parlance, we say that we were "of one mind," with the group, or that we did a "mind meld" with our creative partner. When minds are working in sync, they are more efficient and less protective. There is robust evidence that group cohesion contributes to greater performance, productivity, and behavior change.¹¹

PURPOSEFUL SYNCHRONY

Here's an important point, noted in an article called, *Synchrony As A Mechanism for Social Understanding*.¹² Artificially created synchrony appears to yield the same effects as synchrony that occurs naturally. Two researchers (Wiltermuth and Heath, 2009)¹³ conducted several experiences to test this effect. They reported that participants made to act synchronously (physically and vocally) performed more cooperatively, felt more connected with their counterparts, and trusted their counterparts more than those who acted non-synchronously.

This point raises the encouraging possibility that activities designed specifically to increase behavioral synchrony could, in turn, promote improved one-on-one relationships between, for example, residents and staff of a senior living community. Further, such activities could foster greater coherence among residents, their families, and staff and contribute and greater contributions in support of the greater good of the community.

PHOTAVIA V-CLIPS

To examine how an activity can promote behavioral synchrony we will use the example of PHOTAVIA V-Clips.¹⁴ Here's how they describe their service

PHOTAVIA® creates time relevant, all-inclusive media experiences via art, part video experience, part education, with a strong and developing neuroscience focus premised on how pleasant thoughts invoked by visual memory triggers can be of therapeutic benefit to individuals and families dealing with dementia, Alzheimer's, and PTSD, among others.

PHOTAVIA provides senior living communities and other congregate living communities for older adults with an entertaining and educational experience built around several iconic photo collections including the LIFE Magazine archives.

What opportunities for behavioral synchrony are inherent within the PHOTAVIA V-Clips? Further, how could activity directors or other caregivers enhance the synchronizing effect of the V-Clips through creative facilitation. How might activity directors use the V-Clips, in other words, to enhance interpersonal relationships and to promote group bonding and community cohesion?

Consider this famous photo of **VJ-Day in Times Square**, which is the centerpiece of one Photavia V-Clip. It seems like everyone in America has seen the photo at one point in their lives. PHOTAVIA displays this photo on a screen, using the so-called Ken Burns effect of a slow pan across the still photo or a zoom in to one salient aspect of the image.

In addition to the photos, the V-Clip provides written information about the photographer who took the photo as well as researched background information on the context of the photo.

Each two-minute V-Clip focuses on one photo supplemented with its written backstory that is read by a voice over narration and a musical accompaniment. The "centerpiece" of each V-Clip is a 20-second close-up pan of the image that, when appropriate, will include sound effects for an enhanced auditory experience. PHOTAVIA will soon have over 260 V-Clips in their catalog.



IMAGE LICENSED BY GETTY IMAGES THROUGH PHOTAVIA

HOW DO PHOTAVIA V-CLIPS PROMOTE BEHAVIORAL SYNCHRONY?

Attentional Synchrony

Perhaps the most important synchronization is that of attention. Attention has a profound effect on what we experience and, therefore, on what we think, feel, and do. Synchronized activities tend to focus everyone's attention on the same event. Everyone in a theater or movie house watch the same thing and form a bond. Everyone in a choir sings the same song, which forms a bond. Upon entering a room where the V-Clips are playing, eyes and ears will be drawn to the movement, the sound, and the content. Since the V-Clips are positive and uplifting images, the shared attention is focused on positive aspects of life and should promote positive moods.

Synchronized Sensory Experiences - The Photavia V-Clips provide the opportunity for synchronous sensory experiences among the viewers. As above, the V-Clips provide a single source of visual and auditory stimulation. Participants' attention is drawn to a single iconic photograph and to the accompanying text. The visual content is complemented and augmented by a voice-over recording as well as a musical background and the occasional sound effect.

Following the "use-it-or-lose-it" principle, brain regions that are stimulated receive resources and remain healthy. Conversely, brain regions that are neglected receive reduced resources and tend to atrophy from lack of stimulation. The visual and auditory sensory systems are significant processing systems in the human brain and are distributed broadly across the territory of the brain.

Synchronized Memory Recall – The use of iconic photographs in the Photavia V-Clips increases the chances that viewer's minds will travel back to the time of the event. While each person will have their own unique memories, the overall affect will tend to be shared by the group. Furthermore, members of a group may learn of similar experiences between each other, thus creating a relatable experience on a more personal level. Take the photo of the kiss in Times Square. The basic memory is the end of WW II and the joy everyone felt.

Emotional Synchrony – The shared memories of the iconic photos will stimulate shared emotional responses. Again, each person will have their own personal emotional response to the picture, but all will share in the joy of peace and the pride of being an American. Further, anyone who has been in love, or otherwise overcome by an impulse to bond, can relate to the impulse to embrace as the couple did in Times Square.

Proprioceptive Synchrony – Because of mirror neurons, our brains have a physical response to the physical shapes taken by the kissing couple. Men will feel the weight of holding the woman as she arches into the kiss. Women will feel the back bend and the surrender to the embrace. These impulses will activate the premotor cortex without going the next step of activating actual movement, but they will be felt, nonetheless. Viewers will share the same physical sensations, which is likely to reinforce the synchronous bonding of the group.

Personal (dyad) Bonding – In addition to stimulating group bonding, the Photavia V-Clips can promote inter-personal bonding between two people, such as two family members, two residents, or a resident and staff. The V-Clips are effective inter-generational conversation starters and allow people to talk about their memories, their feelings, what they were doing at the time and so on.

ENHANCING THE SYNCHRONY OF V-CLIPS

Facilitated Viewing

Behavioral synchrony of the V-Clips can clearly be enhanced when they are experienced by groups of people who enjoy the same experience. Orchestrated, group viewing of the V-Clips, therefore, can enhance the opportunities to bond with the group and to stimulate greater cohesion. Strategic invitations might even serve to create bonds among people or groups who have felt estranged from one another.

Further, a facilitator who can lead group discussions, or engage individuals in discussion, can direct the conversation towards a sharing of thoughts and feelings that can bring people together around their shared humanity.

Memory Mining – One of the techniques MINDRAMP has developed as part of its Cognitive Activity Design approach is called “memory mining.” In short, the idea is to use a variety of techniques to uncover memories that are particularly powerful for a person. Once these powerful memories are identified, specific V-Clips could be selected to evoke these memories and to spur further conversation and greater bonding.

Physical Engagement – The viewing experience is somewhat passive and largely cognitive. The brain health benefits of the Photavia V-Clips would be enhanced if they could include physical activity and movement, such as coordinated viewing with an art class.

IN CONCLUSION

Understanding the dynamics of behavioral synchrony can be extremely useful to caregivers, and activity directors. Older adults are often traumatized when they move to a senior living community. They have been uprooted from their homes and are separated from family and friends. They confront the challenge of integrating themselves into an entirely new web of social networks that have their own (often strained) dynamics.

A major objective of any activity director must be to help individual residents become integrated into the larger community. Further, activity directors are charged with continually improving and enhancing the cohesion of the larger community. These are daunting challenges. These efforts can be eased by learning to leverage the science of behavioral dynamics.

Coordinated activities that synchronize behaviors (movement, vocalization, attention) have a physiological effect on people. Their hearts begin beating to the same rhythm and they begin breathing at the same rate. Behavioral and physiological synchronization, in turn, leads to psychological synchronization.

In other words, people who share activities that have them doing the same thing together (whether it is beating out a rhythm in a drum circle, or discussing the same V-Clip), experience both biological and psychological bonding with one another. They feel part of the same in-group. They feel less lonely, isolated, and ostracized. This dynamic takes place when two individuals share a synchronous activity, and also extends to large groups of people who participate in synchronized, ritualized activities.

Activities, like the viewing of Photavia V-Clips can be an important tool in the activity directors tool kit, especially if they understand how to leverage the inherent opportunities for behavioral synchrony and develop skills for enhancing synchrony through creative facilitation.

MINDRAMP is committed to helping activity directors and caregivers identify and/or create activities that promote “Qualongevity” – living long and living well. We train activity directors and caregivers to use evidence-based approaches that are both fun and effective. Behavioral synchrony is one of the important tools in the Qualongevity Toolkit. Learn more about MINDRAMP’s Cognitive Activity Professional training programs by contacting MINDRAMP at www.mindramp.org



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Michael is co-founder and CEO of MINDRAMP Consulting, LLC. He writes extensively on the topics of brain health and positive aging. He worked at AARP and was a board member of the National Center for Creative Aging. Michael has a Master’s in Liberal Studies degree from Georgetown University and is a certified mentor coach.

“My thinking and imagination have been deeply influenced by the study of neuroscience, evolutionary biology and evolutionary psychology, as well as my early experience in the theater. As director the Staying Sharp brain health program for AARP I learned how to interpret scientific research and how to identify which approaches to brain health work, while others fail. I am committed to translating real science into plain language that can be understood by anyone and to developing effective programs that can be implemented by everyone.”

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