

## Physical Activity in the Hybrid Culture: Senior Exercise Utilizing Information & Communication Technology\*

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### ABSTRACT

This study explores the culture of physical exercise in a hybrid context formed by the combination of an aging society and Information and Communication technology. Examining the cultural aspects of an aging society and older adults exercise as its focal points, we find that modern society exhibits diverse tendencies, resulting in a hybrid character. Notably, the exercise culture among the older adults is evolving in conjunction with the advancements in Information and Communication technology. This phenomenon, characterized by temporal, spatial, and relational hybridity, enriches older adults exercise practices, providing seniors with more diverse exercise opportunities. Consequently, this research aims to enhance understanding of the hybrid physical culture in an aging society with Information and Communication technology and proposes strategies to offer better exercise environments and experiences for the older adults.

## 1. Introduction

There is no culture that remains ‘pure’ without mixing with other cultures. The world transcends temporal and spatial boundaries, constantly sharing forms and content between different cultures, undergoing change (Kestel & Korkmaz, 2019). However, from a traditional perspective, cultural mixing has been negatively perceived, and the term ‘mixing’ itself has been seen as impure, leading to the devaluation of hybrid culture.

Nevertheless, in modern society, due to the proliferation and transformation of digital technology,

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human lifestyles are evolving, and hybrid cultural phenomena are gaining attention. Hybrid culture refers to the emergence of a new culture through the fusion of seemingly unrelated ideas (Park, 2014).

To understand this, it is crucial to comprehend the contrast between the modernist and postmodernist eras. In the modernist era, concepts such as centralization, subjectivity, and rationalization were considered important, and a unified and singular way of thinking was pursued. However, postmodernism reacted against these concepts, promoting multicultural and deconstructive thinking, leading to the emergence of cross-disciplinary convergence and combination. Hybrid culture is one result of these social changes and represents a network of combinations within the current structural framework.

While postmodernism deconstructed subjects and centers, embracing differences and justifying diverse values, hybrid culture seeks new combinations as a reverse thinking strategy, utilizing these differences as creative energy. This logic of combination challenges conventions, shapes new cultural paradigms, and breaks down temporal and spatial boundaries between cultures, ensuring cultural diversity.

Contemporary society is undergoing rapid changes in the form of human life due to the proliferation and transformation of digital technology. We now have access to various forms of digital solutions and services enabled by IT technology. This digital convergence influences every aspect of our lives, including our lifestyles, communication methods, entertainment, and healthcare. Furthermore, in the digital age, there is a tendency to efficiently combine disparate elements. This digital phenomenon leads to the emergence of new combinations by reassembling dismantled elements. For instance, the combination of traditional culture and modern technology is giving birth to new forms of art and entertainment, illustrating the expansion and development of hybrid culture.

The development of hybrid culture is not only transcending the contrast between modernism and postmodernism but also creating new cultural landscapes, allowing us to experience more diverse and enriched cultural encounters. This cultural blending is also rapidly merging with physical culture.

Moreover, the transition to an aging society is leading to an increase in the elderly population and rising healthcare costs for seniors. Efforts to promote healthy aging are emphasized as a response to this trend, with the promotion of physical activity among the elderly being a significant component. Exercise has a positive impact on the physical health, psychological well-being, and reduction of depressive symptoms in seniors, making it an essential aspect of improving their quality of life.

In relation to this, research on the physiological efficacy of exercise practice in the elderly (Kim & Kim, 2020; Ahn & Lee, 2021) and research on the impact of continuous exercise practice on the emotional stability of the elderly (Son, 2020; Jo & Hong, 2020) have been conducted. However, previous studies mainly focused on the trends related to the factors that sustain and restrict the elderly's exercise, and sufficient exploration of the elderly's exercise practice using IT was not conducted.

This paper aims to present new perspectives and approaches, exploring how the combination of digital convergence and senior exercise practice can enhance the health and quality of life of the elderly.

Among these considerations, the advent of a super-aging society presents new challenges and opportunities for physical culture and senior exercise instruction. Many countries, including South Korea, are experiencing a rapid increase in their elderly populations, leading to a growing interest in ways to spend a healthy old age. However, the reality is that seniors often face difficulties in accessing and adapting to exercise using digital technology.

A paper that combines digital convergence and physical culture to more effectively promote senior exercise and enhance the quality of life in old age holds significant importance. By forming such hybrid culture, the fusion of emotion and technology can provide seniors with new motivation and enjoyment.

Furthermore, the concept of high-concept emphasizes the ability to generate and realize new ideas. Through the combination of digital convergence and senior exercise instruction, creativity and originality can be further enhanced. High culture and high concept stimulate various cultural experiments and the birth of new ideas, diversifying the cultural landscape.

The theory of hybrid culture is a crucial tool for understanding the phenomenon of forming a new form of physical culture by combining contemporary society's culture with digital convergence. The purpose of this study is to support the physical activity of the elderly in a super-aging society by observing and analyzing the application of IT technology-based senior exercise practice through participant observation.

## **2. Methods**

### *2.1 Research scope*

In this study, we examine the emergence of digital convergence phenomena in contemporary society and the hybridization of cultural elements from multiple perspectives. We then extract the characteristics of a new form of physical culture based on these features. Using these characteristics as a foundation, we investigate aspects such as aging culture, the utilization of IT in physical activities, and changes in physical culture. This paper focuses on researching two aspects of diverse physical culture occurring in contemporary society: 1) cultural aspects (aging society) and 2) hybridized physical activities through the utilization of digital convergence and Information and communication technology.

### *2.2 Data collection and exploration*

This research provided empirical data on both cultural (aging society) and digital convergence through the use of Information and Communication technology to enhance hybrid physical activities, aiming to strengthen the theoretical foundation of hybrid culture. Quantitative data collection was carried out in parallel to support the study's theoretical perspective.

As there were no prior cases of research on physical culture based on hybrid culture, data were collected from various sources such as previous studies in other fields, relevant literature, internet articles, and participant observations to facilitate an easy understanding of the new theoretical perspective. Applied cases were presented using the collected data.

Participants in this study were selected from individuals aged 65 and older residing in City Y, Korea, who could participate continuously for at least three months in physical activities utilizing IT technology (S Company's fitness app). The snowball sampling method was used to identify

participants. The researcher introduced and guided the exercise experience utilizing IT technology at K University's fitness center GX room and Senior Experience Hall and observed their participation for 12 weeks. To ensure the accuracy and reliability of data collection, the researcher thoroughly explained the research purpose, interview process, and their rights to all participants and obtained voluntary signatures on the informed consent form. As a result, participants' involvement was documented through audio recordings and photographs. From April 2023 to August 2023, a total of 16 participants engaged in physical activities utilizing IT technology (S Company's fitness app) (see Table 1).

The concept of spatial hybridity, initially proposed by Kim and Yoon (2010), served as a foundational framework for this study. Building upon their work, we tailored and expanded this concept to better align with the specific context of our research on senior citizens' exercise practices using IT technology. The adapted framework allowed us to analyze the hybrid aspects inherent in seniors' physical activities, considering temporality, spatiality, and relationships as key dimensions.

To explore these characteristics further, we posed the following questions to our study participants:

1. "What advantages have you found in using IT devices for your exercise routine?"
2. "What spatial advantages have you experienced with IT-based exercise?"
3. "How has IT-based exercise affected your social connections and relationships?"

These questions guided our data collection process and enabled us to delve into the temporal, spatial, and relational dimensions of the hybrid exercise experience among senior citizens using Information and Communication Technology.

**Table 1.** General characteristics of subjects included for analysis at baseline

N	Participant	Age	Sex
1	D	72	W
2	S	78	W
3	A	79	W
4	E	68	W
5	L	74	W
6	O	72	W
7	Y	71	W
8	O	73	W
9	U	85	W
10	C	79	W
11	N	68	M
12	I	74	M
13	A	72	M
14	O	71	M
15	N	73	M
16	E	85	M

### 3. Results and Discussion

This study aimed to explore and understand how senior exercise culture is being shaped through the hybridization of culture and Information and Communication technology. The theory of hybrid culture is an important framework for addressing the hybridization of culture and digital convergence. It was applied to physical culture and senior exercise practices to introduce a novel perspective and gain insights into the phenomenon.

#### *3.1 Perception of the hybridization of culture (Aging Society) and information and communication technology*

##### *3.1.1 Concept of hybrid culture*

The concept of hybrid culture is formed through the convergence of various cultural influences and digital technologies. Unlike in the past, cultural boundaries and distinctions are now blurred, and various cultural elements interact and merge to create new forms of culture. This trend emphasizes diversity and hybridity as diverse cultural elements interact and blend to create new cultures. Digital technology is closely related to the formation of hybrid culture. Digital technology transforms cultural experiences, triggers new cultural phenomena, and, through the interaction of culture and technology, leads to the emergence of new cultural phenomena (Martínez-Caro, Cegarra-Navarro, & Alfonso-Ruiz, 2020).

Lastly, hybrid culture encourages cultural diversity and fusion. By embracing various cultural elements and merging them, it generates new cultural phenomena. This process signifies the formation of new values and ideas while respecting the diversity of culture.

The concept of hybrid culture serves as an important tool to understand and analyze various cultural phenomena in contemporary society. It contributes to exploring new creative possibilities through the interaction of culture and digital technology. This understanding provides important guidance for research and creative activities in various fields, including culture, arts, media, and technology.

##### *3.1.2 Cultural trends in the 21st century society*

The 21st century is witnessing the emergence of various cultural trends in tandem with the transition to an aging society. Many countries, including South Korea, are experiencing a notable increase in the proportion of older adults populations, resulting in prominent societal and cultural changes (Mannheim et al., 2019). These changes are characterized by three key features: increased cultural diversity in an aging society, greater involvement of the older adults in digital technology, and the expansion of cultural and sports programs tailored for the older adults, collectively driving cultural transformations in the era of aging.

The increased cultural diversity in an aging society is a direct consequence of the growing older adults population. This has led to enhanced interactions and cultural exchanges between different generations, facilitating the sharing of wisdom and experiences between older adults and younger

generations. Furthermore, the advancement of digital technology has empowered older adults individuals to actively access information, utilize digital devices, and engage in cultural activities and entertainment. Such interactions and cultural exchanges are fostering the generation of new values and ideas.

Moreover, an array of cultural and sports programs designed specifically for the older adults are being offered to enhance their quality of life. These programs are designed with the goals of promoting health, increasing social participation, and enhancing cultural satisfaction among the older adults. They contribute to enriching the lives of older adults.

These trends reflect the cultural changes in the era of aging and play a crucial role in promoting a better quality of life for the older adults and strengthening social integration. In the future development of societal and cultural aspects, it is essential to consistently consider and encourage these trends, fostering diverse and enriched cultural ecosystems by facilitating interactions between older adults and different generations.

### 3.1.3 High culture

High culture has traditionally been considered a form of culture supported and shaped by the elite or educated classes. It has been used to refer to high-end arts and cultural activities such as classical music, fine art, and classical literature. High culture has been attributed with unique value and importance, often serving to distinguish elite culture from popular culture (DiMaggio, 1992).

However, the concept of high culture has evolved and expanded over time in response to societal and cultural changes. In modern society, high culture is increasingly viewed as a culture open to a wider range of social strata and not limited to the elite. This shift is becoming more pronounced with the rise of cultural diversity and hybrid cultures. For example, there is a growing trend of combining or mixing popular music and media with classical music and traditional high culture (Hybrid Culture Research Institute, 2014).

Furthermore, advancements in digital technology and the widespread access to the internet have made high culture more accessible. Nowadays, anyone can easily access classical music, art pieces, literary works, and more through online platforms, allowing individuals to develop and express their unique cultural preferences.

High culture is no longer strictly defined by rigid boundaries between elite and popular culture. Instead, high culture is evolving as a space where various cultural elements interact and blend. This emphasizes cultural diversity and open accessibility, providing opportunities for individuals to form their own cultural identities and enjoy rich cultural experiences.

The combination of high culture and IT-based older adults exercise, in itself, represents an extension and fusion of these concepts (see the figure 1). IT-based older adults exercise involves the use of digital technology by the older adults to maintain their health and enhance their quality of life in an aging society. This form of exercise combines traditional physical activities with digital technology to offer new experiences and possibilities for the older adults.

For example, seniors can manage exercise programs and monitor their health through smartphone

apps. Additionally, exercise environments using virtual reality (VR) technology provide realistic and engaging workout experiences, helping seniors maintain their health and participate in social activities. The fusion of high culture and IT-based older adults exercise reflects cultural trends in an aging society and offers older adults individuals a hybrid experience of culture and physical activity. This phenomenon plays a crucial role in improving the health and quality of life of the older adults, making it even more essential in the future of aging societies.

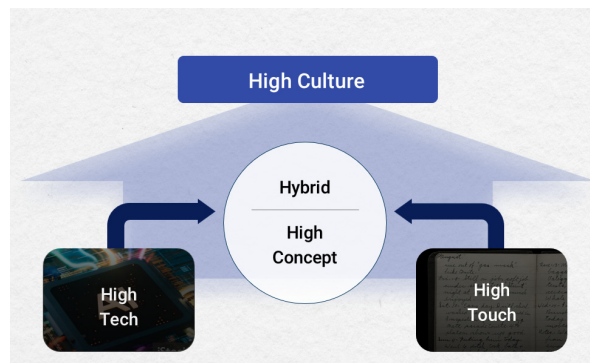


Fig. 1. High culture

#### 4. Physical Activity Hybrid Phenomenon through Digital Convergence

The use of Information and Communication technology in hybrid physical activities is evolving and interacting with media technologies, leading to various forms of hybrid phenomena. These phenomena encompass various aspects of temporal, spatial, and relational hybridity.

##### 4.1 Temporal hybridization

Temporal hybridity was evident as participants described their ability to engage in exercise routines at flexible times that suited their schedules. The use of online exercise platforms allowed them to transcend the constraints of traditional gym hours or class schedules. This flexibility was particularly appreciated during the COVID-19 pandemic, where lockdowns and restrictions disrupted normal routines. The convenience of accessing exercise content at any time contributed to the continued engagement of seniors in physical activities, even during challenging times.

*“With IT-based exercise, I can choose when to work out, which means I don’t have to stick to rigid class schedules. It’s so flexible that I can easily integrate exercise into my daily routine.” - Participant, 1*

*“I’ve really appreciated the ability to track my progress over time. IT devices allow me to monitor how long and how intensely I’ve been working out. This feature motivates me to stay consistent and set achievable fitness goals.” - Participant, 2*

The integration of digital technology into physical activities offers a concept known as temporal hybridity, marked by enhanced flexibility in exercise timing. For instance, individuals can access online exercise videos and engage in workouts at their convenience, aligning their physical activities with their busy schedules. Moreover, the utilization of smartwatches and fitness apps empowers individuals to manage their exercise schedules efficiently and document their workout outcomes, thus creating opportunities for continuous improvement. This temporal flexibility is especially valuable in our fast-paced society, making physical activities more convenient and accessible to people of all age groups, including seniors.

Many elderly participants underscored the convenience of IT-based exercise as a significant advantage. They emphasized that this approach allowed them to engage in physical activities at their preferred times, eliminating the necessity of adhering to rigid class schedules. This flexibility seamlessly integrated exercise into their daily routines, making it more manageable.

Another temporal benefit highlighted by the participants was the capability to track their exercise progress systematically over time. IT devices provided them with the means to monitor various aspects of their workouts, including duration, intensity, and frequency. This comprehensive tracking system motivated them to maintain consistency in their exercise routines and set realistic fitness goals that they could work towards achieving.

#### 4.2 Spatial hybridization

Spatial hybridity emerged as participants engaged in exercise activities that transcended physical boundaries. They were able to virtually explore exercise classes, instructors, and fellow participants from different geographical locations. Online exercise communities fostered a sense of global connection, as seniors interacted with like-minded individuals from diverse cultural backgrounds. This spatial hybridity not only expanded their horizons but also added a novel dimension to their exercise experiences.

*“One great thing about IT-based exercise is that I can do it right at home. I don’t need to go to a gym or fitness center, which saves me time and eliminates any discomfort associated with public exercise spaces.”- Participant, 3*

*“Using IT for exercise gives me a sense of safety and familiarity. I feel more secure working out in my own home, which reduces the risk of accidents or injuries that can happen in outdoor or unfamiliar settings.” – Participant, 4*

Information and Communication Technology (ICT) plays a crucial role in enabling spatial hybridity within physical activities. For instance, Virtual Reality (VR) technology offers an alternative reality distinct from the physical world, granting seniors the opportunity to immerse themselves in novel environments. Through this technology, seniors can stroll through virtual natural landscapes or engage with the virtual realm through interactive VR games. These hybrid experiences inject a sense of novelty into exercise routines, making them more captivating and consequently encouraging greater



physical activity among seniors.

In addition to VR technology, online exercise communities and social media platforms have emerged as facilitators of spatial hybridity. These platforms transcend geographical boundaries, enabling seniors to partake in exercise sessions with individuals from various parts of the globe. This newfound spatial expansion allows seniors to diversify their physical activity experiences, ultimately contributing to enhanced physical activity levels and the pursuit of a healthier aging process.

Moreover, many seniors find the advantage of home-based exercise to be particularly appealing. Exercising in the familiar surroundings of their own homes eliminates the need for travel to gyms or fitness centers, saving valuable time and sparing them from any potential discomfort associated with public exercise spaces. Furthermore, IT-based exercise instills a sense of security and comfort, as seniors feel safer engaging in workouts within their familiar home environments, mitigating the risk of accidents or injuries often encountered in outdoor or unfamiliar workout settings.

#### 4.3 Relational hybridization

Relational hybridity played a crucial role in maintaining and forming new social connections among elderly participants. Virtual group exercise classes and social media platforms allowed them to interact with peers, instructors, and family members, promoting a sense of community. Many seniors reported a reduced sense of social isolation, which was particularly important during periods of physical distancing caused by the pandemic. Moreover, intergenerational bonding emerged as a significant relational advantage, as some interviewees shared the experience of IT-based exercise with their younger family members, strengthening family ties and promoting healthy lifestyles.

*“IT-based exercise has been fantastic for maintaining social connections. I can join virtual group exercise classes and interact with peers and instructors. It really helps me feel connected to a community, especially during the COVID-19 pandemic.” -Participant, 5*

*“One unexpected advantage is the opportunity for intergenerational bonding. I’ve started doing IT-based exercise with my grandchildren, and it’s been a wonderful way to strengthen our family ties while staying healthy together.”- Participant, 6*

Media convergence and the use of Information and Communication technology in physical activities foster relational hybridity. Online exercise communities promote interaction among people who enjoy exercising and create relationships that transcend geographical and cultural boundaries. Additionally, they provide opportunities for individuals to exercise online with family, friends, and colleagues, strengthening social relationships through physical activity. Media and Digital technology facilitate communication and collaboration through exercise, extending relationships formed through physical activity.

These temporal, spatial, and relational hybridities play a crucial role in offering a hybrid experience in physical activities using Information and Communication technology. They provide diverse options tailored to an individual’s exercise style and preferences. Furthermore, these hybridities make physical

activities more engaging and effective, presenting new possibilities for the future of physical culture.

Regarding relational hybridity, social media platforms using digital technology facilitate communication and collaboration among seniors. Seniors can form exercise groups or share exercise experiences online, enabling them to build social relationships. This is a significant aspect as it reduces seniors' social isolation and makes exercise more enjoyable.

In terms of relational advantages, some elderly participants highlighted the relational advantage of IT-based exercise in maintaining social connections. Virtual group exercise classes allowed them to interact with peers and instructors, fostering a sense of community and reducing feelings of isolation, especially during the COVID-19 pandemic. Additionally, another relational advantage mentioned was the opportunity for intergenerational bonding. A few interviewees reported engaging in IT-based exercise with their grandchildren or younger family members, strengthening family ties while promoting a healthy lifestyle.

#### 4.4 Integrating senior exercise culture with information and communication technology in physical activities

In the context of this study, we explore various application cases of hybrid senior exercise, blending culture and Information and Communication technology in physical activities. This hybrid approach involves both tangible and intangible elements, resulting in an innovative fusion of physical culture and digital technology (see Table 2). The tangible aspects include the integration of smart healthcare solutions and the creation of smart home environments, facilitating senior exercise through smart devices. Meanwhile, intangible elements involve the hybridization of lifestyle choices and the incorporation of physical activity elements, enhancing the overall senior exercise experience. These hybrid components utilize Information and Communication technology to offer practical exercise routines and educational functions for the senior, contributing to a holistic approach to senior wellness.


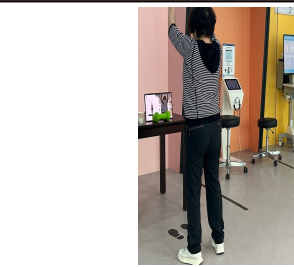
Furthermore, the application of Information and Communication technology in hybrid senior exercise encompasses various media and technology types such as tablets, streaming media, social networks, and mobile apps. These technological tools play a pivotal role in delivering tailored exercise programs, monitoring progress, and fostering social interactions among older adults participants (see Table 3). Overall, this study sheds light on the multifaceted nature of hybrid senior exercise, highlighting its potential to improve the quality of life for older adults through the convergence of culture and digital technology.

**Table 2.** Characteristics of hybridization of senior exercise and information and communication technology

Characteristic of hybridization	Features of hybridization	Application technology
Tangible element	<ul style="list-style-type: none"> <li>Hybrid culture in physical activity (Smart healthcare)</li> </ul>	<ul style="list-style-type: none"> <li>Smart home</li> <li>Smart healthcare</li> </ul>
An intangible element	<ul style="list-style-type: none"> <li>Hybridization of life-style</li> <li>Hybridization of physical activity variables</li> </ul>	
Element of hybrid	<ul style="list-style-type: none"> <li>Function of senior exercise applying IT technology</li> <li>Function of senior physical activity education applying IT technology</li> </ul>	

**Table 3.** Case

Applying hybridization of senior exercise (Culture) and IT technology in physical activities

Image						
Type of technology	<ul style="list-style-type: none"> <li>• Tablets</li> <li>• Streaming media</li> <li>• Social networks</li> <li>• Mobile apps</li> </ul>					
Characteristic of hybridization	<ul style="list-style-type: none"> <li>• Combination of IT technology and cultural aspect of an aging society</li> </ul>					
Features of hybridization	Time	Life style	Culture	Space	Relation	Physics
	●	●	●	●	●	●

## 5. Conclusion and Recommendations

In the context of an aging society and the hybrid culture facilitated by digital technology, modern society is often described as an era of information and high technology, characterized by its diverse and multifaceted nature, making it difficult to provide a single unified definition. These social changes exhibit a hybrid character across various fields.

When considering the cultural aspect of an aging society, the culture of physical activity among older adults plays a significant role. Older adults engage in physical activities to maintain a healthy lifestyle, improve their quality of life, and enhance their social participation. Additionally, the advancement of digital technology has played a substantial role in shaping hybrid culture. Older adults utilize Information and communication technology to engage in physical activities more effectively, thereby enabling them to enjoy a wide range of cultural experiences.

Furthermore, the temporal, spatial, and relational hybridity within the context of this hybrid culture significantly impacts the combination of culture and digital technology. Older adults can engage in physical activities anytime, anywhere, using digital technology, and they can communicate and compete with exercise companions through social media. This temporal, spatial, and relational hybridity enriches the practice of physical activity among older adults, encouraging more individuals to participate in the culture of exercise among older adults.

In conclusion, an aging society and the use of Information and Communication technology to create a hybrid culture are crucial aspects shaping the future of our society. To adapt to these changes and support the rich exercise experiences of older adults, collaboration among governments, businesses, and society as a whole is essential. Additionally, actively utilizing the temporal, spatial,

and relational hybridity within this context is crucial to support older adults in their exercise practices and advance the culture of exercise among the older adults.

## Conflicts of Interest

The authors declare that they have no conflict of interest.

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