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| RESEARCH ARTICLE

Symbiotic Governance in the Silver Economy: Integrating Vocational Education and Geriatric Learning in a Symbiotic Education Initiative in Guangzhou

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| ABSTRACT
China's rapid population aging has increased demand for high-quality eldercare and exposed weaknesses in education and training. Vocational colleges that prepare the care workforce and universities for the aged that promote active aging have developed on separate tracks, creating a split system in which youth programs stress technical skills and elder programs focus on leisure. This article analyzes an integrated experiment in Guangzhou, the Symbiotic Education for Aging Initiative, and proposes symbiotic governance to reconnect these subsystems. Drawing on Structural Functionalism, Situated Learning Theory, the Intergroup Contact Hypothesis, and Activity Theory, the study uses an embedded single-case design, combining policy and program documents with institutional data on certification, employment, older adults' participation, and employer feedback. It first identifies three main problems in the current system (curriculum split, scenario isolation, faculty gaps), then reconstructs the initiative as an ecosystem of institutional permeability, youth–silver co-learning, and spatial–digital extension, and finally presents indicative improvements in student outcomes, older adults' agency, and industry alignment. Conceptually, the article advances the ideas of symbiotic education, institutionalized empathy, and a possible third demographic dividend, where intergenerational learning turns older adults' time and experience into renewed human and social capital.

| KEYWORDS

Intergenerational Learning, Vocational Education,; Universities for the Aged, Symbiotic Governance

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1. Introduction

Population aging is reshaping social and economic life across the world (Ismail et al., 2021). China is going through one of the fastest and largest demographic transitions in history. The share of citizens aged 60 and above is rising quickly and is expected to stay high for decades (Su et al., 2025). This shift raises questions not only about pensions and health spending, but also about how labor, knowledge, and education should be organized in the growing Silver Economy.

Two education subsystems are especially important in this context. The first is vocational education and training in eldercare, social work, and related services. These programs are expected to prepare a workforce able to deliver person-centered, community-based care to diverse older populations. The second is universities for the aged and other forms of geriatric education, which aim to support lifelong learning, cultural participation, and psychological well-being for older adults themselves (Peng, 2023). Both

subsystems have expanded under policies that stress "education for all" and "active aging", but they have grown mostly in parallel, not together.

The result is a fragmented institutional landscape. On the vocational side, curricula often focus on clinical procedures, basic nursing operations, safety rules, and regulatory compliance. These components are necessary, but they offer limited coverage of the social, cultural, and emotional sides of aging. On the geriatric education side, many universities for the aged give priority to leisure courses such as calligraphy, dance, singing, and tourism, instead of content that would help older adults take part more fully in community governance, digital life, or intergenerational projects (Zhang et al., 2025). The two subsystems rarely interact in a structured way, and there is little formal role for older adults in training the next generation of care workers.

This separation has several consequences. First, in terms of human capital, students are not well prepared for the complex relational and communication demands of real-world care work. They may operate equipment and follow procedures well, but struggle with dialects, family dynamics, cognitive decline, or the emotional work of end-of-life care. Second, older adults are treated mainly as service users or consumers of recreational education, rather than as co-educators, mentors, knowledge holders, or community actors. Third, from a governance perspective, the lack of connection between youth training and older adult learning weakens the Silver Economy's ability to use intergenerational strengths and to turn aging into a resource rather than only a cost (Zhang et al., 2024).

This article responds to these challenges by proposing the concept of symbiotic governance in the Silver Economy and examining an experiment in Guangzhou as a concrete example. The Symbiotic Education for Aging Initiative in Guangzhou is a partnership between a vocational college specializing in foreign languages and business, a municipal university for the aged, and several eldercare institutions and community organizations. It aims to build an integrated ecosystem where vocational students and older adults share learning spaces, community projects, and digital platforms, and where institutions co-develop curricula, assessments, and community teaching points.

The study addresses three research questions:

1. How does the current separation between vocational education and older adult education create systemic inefficiencies and blind spots in the context of rapid population aging?
2. How does the symbiotic education initiative in Guangzhou reshape institutional boundaries, learning scenarios, and faculty roles to integrate youth training and geriatric learning into a symbiotic governance framework?
3. What evidence from institutional records and stakeholder feedback suggests that this integrated model improves student preparedness, strengthens older adults' agency, and better matches industry needs?

2. Theoretical Framework and Literature Review

This section introduces the theoretical lenses used to analyze the initiative and places the study in existing literature. Four perspectives are central: Structural Functionalism, Situated Learning Theory, the Intergroup Contact Hypothesis, and Activity Theory. Together, they offer a multi-level view of how education systems can be reconfigured in the Silver Economy.

2.1 Structural Functionalism and System Adaptation

Structural Functionalism views society as a system made up of interdependent institutions that must perform key functions, such as socialization, allocation, integration, and adaptation, to remain stable and to respond to change (Izadi et al., 2024). Education has traditionally been seen as socializing younger generations into roles needed by the economy and the state, while institutions such as community centers or voluntary organizations provide meaning, integration, and identity for adults (Liu et al., 2022).

Under population aging, these boundaries blur. Older adults remain workers, volunteers, caregivers, and learners. Their needs cannot be reduced to leisure. At the same time, young people entering care professions need preparation not only for technical tasks but also for the complex social world of older adults. Structural Functionalism pushes us to ask whether the current separation between vocational education and geriatric education still serves the system well or has become dysfunctional. When the system does not adjust its boundaries and linkages in response to demographic change, strain and inefficiency appear, signaling the need for institutional innovation.

In China, this perspective helps explain why a vocational system focused narrowly on technical skills and a geriatric education system focused narrowly on recreation might have made sense in earlier periods, but now together form a structural bottleneck

(Li et al., 2022). The Guangzhou initiative can be seen as an experiment in adaptive reconfiguration, where previously separate subsystems are combined to restore system coherence and function.

2.2 Situated Learning and Communities of Practice

Structural Functionalism offers a macro view and Situated Learning Theory provides a micro view of how professional competence develops. Lave and Wenger argue that learning is a matter of becoming a participant in a community of practice, not just acquiring abstract knowledge (O'Brien & Battista, 2020). Newcomers start with "legitimate peripheral participation" in real tasks under guidance and move gradually toward full participation.

In eldercare, however, learning often takes place in classrooms, simulation labs, and short clinical placements. Simulation labs are valuable for teaching procedures and ensuring safety, but they cannot fully represent the long-term relational, emotional, and communicative sides of care (Tong et al., 2024). Students may learn how to move a patient safely, but not how to respond when an older person expresses grief, fear, or confusion about digital tools. Without sustained contact with the real communities where older adults live, neighborhoods, community centers, family settings, students remain on the margins of authentic communities of practice (Liu et al., 2025).

Situated Learning Theory therefore draws attention to the scenario problem: how to design learning environments that expose students to the complexity of aging "in place" without compromising safety or overburdening institutions. The initiative addresses this by using co-learning activities and community teaching points that embed learning in real-life settings with institutional support.

2.3 Intergroup Contact and Ageism

Intergenerational relations are also shaped by processes described in the Intergroup Contact Hypothesis. Allport proposed that under certain conditions, such as equal status, common goals, cooperation, and institutional support, contact between groups can reduce prejudice. Later studies show that well-designed intergroup contact can reduce ageism among younger people and negative self-stereotypes among older adults (Christian et al., 2014).

In many vocational programs, student contact with older adults takes place mainly in hospitals or care facilities. Relationships there are hierarchical, time-limited, and often tied to illness or crisis. Such settings can reinforce images of frailty and dependence instead of supporting a more nuanced view of aging. Older adults' contact with youth may also be limited to family, where roles and expectations are fixed (Muñoz et al., 2013).

Designing intergenerational learning scenarios that meet the conditions for positive contact, shared tasks, co-learning, mutual respect, and formal recognition, can help reduce age stereotypes and foster intergenerational solidarity (Trujillo-Torres et al., 2023). The initiative's youth–silver co-learning activities are structured to meet these conditions, making contact a regular feature of education rather than a one-off event.

2.4 Activity Theory, the Third Age, and Productive Aging

Activity Theory and the idea of the Third Age challenge views of aging as withdrawal (Pettersson, 2021). They stress that ongoing engagement in meaningful activities, paid work, volunteering, learning, caregiving, supports older adults' well-being and contributes to society's stock of skills and experience. The Third Age concept highlights an active phase after retirement but before frailty, with strong potential for creative and civic contribution (Qin & Lai, 2025).

In practice, institutional settings often fail to use this potential. Universities for the aged may offer enjoyable courses but rarely position older adults as contributors to wider social or economic goals. In vocational education, older adults are seldom recognized as co-educators or mentors (He et al., 2022). Activity Theory prompts us to ask how learning for older adults can be designed not only for personal enjoyment but also for involvement in joint projects such as youth training, community governance, and digital inclusion.

The Guangzhou initiative adopts this perspective by engaging older adults as co-teachers, scenario providers, and community actors. This rethinking underpins the later argument about a possible third demographic dividend, in which older adults' experience and time are mobilized through educational design.

2.5 Intergenerational Learning, Eldercare Education, and the Chinese Silver Economy

Research on intergenerational learning has documented benefits such as better attitudes, transfer of cultural heritage, improved cognitive function, and social inclusion (Batista et al., 2024). Programs linking schools with care homes, or youth with community-dwelling elders, exist in many settings. However, many remain short-term projects or charity-type activities rather than being built into vocational curricula or geriatric systems.

In China, vocational education in eldercare has expanded in response to policies on eldercare services and the "integration of medical and nursing care" (Lv & Jin, 2025). At the same time, universities for the aged have grown under a national push for a "learning society". Yet strong institutional links between these two spheres are still rare. Most studies treat them separately: vocational education as a response to labor shortages and skill gaps in the care sector, and geriatric education as a tool to improve older adults' quality of life.

This article adds to the literature by treating vocational colleges and universities for the aged as interdependent nodes in the Silver Economy. It builds on work on school–enterprise cooperation and community education but goes further by showing how intergenerational learning can be institutionalized at the intersection of youth training, older adult learning, and industry needs.

3. Methodology

3.1 Research Design

Because the research questions are exploratory and the phenomenon is complex and context-dependent, this study uses an embedded single-case design (Ledford et al., 2023). The symbiotic education initiative in Guangzhou is treated as an "information-rich" case that represents a new approach to integrating vocational and geriatric education in an urban Chinese setting. The design is "embedded" because several units of analysis, student outcomes, older adults' participation, and industry feedback, are studied within the larger case.

The goal is not statistical generalization but analytic generalization: refining concepts and propositions that can support theory building and guide future comparative research. The case can be seen as a "deviant success case": it departs from the usual pattern of institutional separation yet shows promising indicators of effectiveness.

3.2 Case Context and Site Selection

The case is in Guangzhou, a major city in southern China with a rapidly aging population and active policies on community-based eldercare and lifelong learning. The main partnership involves: a vocational college with established programs in foreign languages, business, and service sectors that recently developed an eldercare and service management track; a municipal university for the aged that runs a network of teaching sites across districts; and several community-based eldercare institutions and neighborhood organizations.

Since the early 2020s, these institutions have co-designed an integrated program that combines a youth-oriented eldercare major, a youth–silver co-learning scheme, and community teaching points in residential neighborhoods. The case was selected because it is one of the earliest and most systematic attempts in the region to fuse vocational and geriatric education structurally, not just coordinate them informally.

3.3 Data Sources and Collection

Data comes from three main sources:

Institutional statistics. The vocational college provided internal records for cohorts in the integrated eldercare program over three years. Data include enrollment numbers, professional certificate pass rates, employment outcomes at three and six months after graduation, starting salary ranges, and participation in community-based practice. The university for the aged and the community teaching points provided data on older learners' course registrations, completion rates, and participation in co-learning activities.

Program and policy documents. The team collected and analyzed cooperation agreements, curriculum outlines, teaching plans, assessment rubrics, internal evaluation reports, and municipal policy documents on vocational–community integration and geriatric education. These documents show the design logic, implementation steps, and institutional roles in the initiative.

Stakeholder feedback and evaluations. The study used summary results from employer feedback surveys conducted by partner eldercare institutions. These surveys rate graduates on technical skills, communication, adaptability, and professionalism. The study also drew reflective notes and reports by teaching staff involved in co-learning, and on qualitative comments from older learners in course evaluations or activity logs. All data were anonymized and aggregated. The study relies on existing institutional data and documents; no new surveys or interviews were collected directly by the research team.

3.4 Data Analysis

Data analysis followed the three main steps of the article. First, policy and program documents and relevant literature were analyzed to identify structural features of the existing system, curriculum content, scenario design, staffing patterns, that might be problematic under aging.

Second, documents and activity descriptions from the initiative were examined to reconstruct three main integration mechanisms: institutional permeability, youth–silver co-learning, and spatial–digital extension. The analysis focused on how these mechanisms respond to each part of the structural problem.

Third, institutional statistics and stakeholder feedback were analyzed descriptively to see whether, and how, the integrated model appears linked to positive outcomes. Rather than using complex statistical methods on small, context-specific datasets, the analysis looks at patterns and contrasts that matter for theory and governance, for example, changes in certification pass rates before and after integration, or high rates of positive employer evaluations in key skill areas.

3.5 Limitations

This approach has several limitations. Using a single case in one city limits how far the findings can be generalized; the same structural issues may look different elsewhere. The quantitative data are produced by institutions rather than by independent surveys or experiments, so there may be questions about measurement and bias. The article also does not include direct interviews with students, older adults, or employers, which would give richer insight into lived experiences.

These limits are partly offset by the depth of contextual detail and by the explicit use of theory, which supports analytic rather than statistical generalization. Even so, future work should add multi-case comparisons, long-term tracking, and mixed methods.

4. Diagnostic Analysis: A Three-Part Structural Problem

Before examining the initiative, it is important to clarify the problems it tries to solve. Drawing on the theoretical framework and existing policy and program documents, this section outlines a three-part structural problem: a curriculum split between technocratic training and leisure-based learning; scenario isolation between institutional settings and community life; and gaps in faculty capabilities and collaboration.

4.1 Curriculum Split: Technocratic Training and Leisure-Based Learning

On the vocational side, eldercare programs are often built by borrowing from clinical and nursing models. Course lists and program descriptions show strong emphasis on anatomy, basic nursing operations, disease knowledge, hygiene procedures, medication management, and safety protocols. This content is essential but tends to occupy most credit hours. Courses on communication with older adults, ethics in long-term care, family systems, community resources, or cultural aspects of aging are compressed into single modules or absent.

This technocratic focus is reinforced by assessment systems that rely on standardized skills tests and checklists. Students are evaluated on whether they can complete a procedure within a set time or reproduce a sequence of steps with few errors. They have fewer chances to reflect on the meaning of care, handle ambiguity, or learn how to work with cultural and linguistic diversity among older adults.

On the geriatric education side, universities for the aged often foreground leisure and cultural enrichment. Common courses include calligraphy, painting, choir, dancing, photography, and tourism. These activities support quality of life and social ties but rarely cover issues central to active and productive aging today: digital literacy, rights awareness, self-management of health, participation in community governance, and intergenerational communication.

Together, these patterns create a curriculum split. Vocational programs socialize young people into a narrow technical view of care, while geriatric education reinforces the image of older adults mainly as consumers of culture rather than co-producers of social value. The potential for curricula designed to connect youth and older adults' learning remains largely unused.

4.2 Scenario Isolation: Simulated Skills Without Community Embedding

The second problem concerns learning scenarios. Vocational students mostly learn in classrooms, simulation labs, and short clinical rotations. Simulation labs with mannequins and standardized cases allow repeated practice of tasks such as bathing, feeding, transfers, and vital sign checks. These settings are controlled and support skills and safety, but they do not capture the full complexity of older adults' lives, including chronic conditions, emotions, family relationships, and social networks.

Clinical placements are often short and fragmented. Students may rotate through hospitals, nursing homes, or community centers with limited responsibility and time. They meet older adults as "patients" rather than as people based in communities. Staff workload and risk management priorities can also make deeper engagement difficult.

On the geriatric side, universities for the aged typically rely on classroom-based teaching in dedicated buildings or community culture centers. Even when lessons are in neighborhoods, the focus is usually on activities, not on building links to community governance or care provision. Different generations rarely share the same structured learning tasks. These patterns create scenarios of isolation: young people and older adults live and learn in separate worlds. Even when they are physically close, they do not engage in shared educational tasks. This weakens both situated learning and meaningful intergroup contact.

4.3 Faculty Capability Gaps: Double Blindness

The third problem concerns human resources. Faculty in vocational colleges often hold degrees in nursing, rehabilitation, psychology, or social work. Many have worked in hospitals or institutions, but fewer have long-term experience in community-based or home-based care. Very few have training in intergenerational learning design or in co-learning methods that give older adults real voice.

Teachers in universities for the aged come from diverse backgrounds. Some are retired professionals or volunteers with strong expertise in music, art, or local history; others are staff of community or cultural centers. Many are skilled at creating welcoming environments, but they often lack training in competency-based curriculum design, assessment, or educational research. Opportunities for systematic collaboration with vocational educators are limited.

This situation creates double blindness. Vocational educators have assessment and accreditation expertise but limited experience with older adults as active educational partners. Geriatric educators have deep experience with older learners but few ways to shape vocational curricula. Without structures that encourage cross-fertilization, each group remains largely unaware of the other's potential contributions.

4.4 Interactions and Consequences

These three problems reinforce one another. A technocratic curriculum pushes vocational programs toward simulation labs and procedural assessments, which distance students from the real social world of aging. Scenario isolation prevents communities of practice that include both youth and older adults from forming. Faculty gaps reduce the chances that educators will design and push for integrated solutions, since they are themselves shaped by separate institutional logic.

The effects show up in workforce and service outcomes: high turnover among young care workers, dissatisfaction among older adults with impersonal care, and wasted potential of older adults. Addressing these connected problems requires a model that rethinks curriculum, scenarios, and faculty roles together. The symbiotic education initiative in Guangzhou is one such model.

Table 1. Three-part structural problem in conventional vocational and geriatric education

Dimension	Vocational Eldercare Education	Geriatric Education	System-Level Consequences
Curriculum focus	Technocratic orientation: clinical procedures, safety, and basic nursing operations dominate; limited	Leisure-oriented orientation: emphasis on calligraphy, dance, tourism, and cultural hobbies;	Curriculum split: young people are socialized into narrow technical views of care, while

	attention to ethics, communication, family systems, community resources, or cultural aspects of aging.	limited offerings on digital literacy, rights awareness, health self-management, or community governance.	older adults are positioned mainly as consumers of recreational learning.
Learning scenarios	Classroom instruction and simulation labs, supplemented by short, episodic clinical rotations; interaction with older adults largely in institutional settings.	Campus- or center-based classes with limited outreach to neighborhoods and home-based elders; co-presence and co-learning across generations are rare.	Scenario isolation: youth and elders inhabit separate learning worlds, limiting situated learning and meaningful contact between generations.
Faculty capabilities	Faculty with professional credentials in nursing or social work, but limited experience in community-based, intergenerational facilitation or co-designed learning with elders.	Instructors and volunteers are experienced in cultural activities but often lack training in competency-based curriculum design, assessment, and vocational pedagogy.	Double blindness: vocational educators underutilize elders as educational resources, while geriatric educators rarely contribute to youth training, limiting cross-fertilization.

5. A Symbiotic Education Initiative in Guangzhou: An Ecosystem of Integration

The initiative grew from a series of institutional innovations aimed at tackling the three-part structural problem. Rather than isolated fixes, it combines changes in governance, curriculum, learning spaces, and faculty roles to create an integrated ecosystem of symbiotic education. Three clusters of mechanisms stand out: institutional permeability, youth–silver co-learning, and spatial–digital extension into communities.

5.1 Guiding Vision and Principles

At the conceptual level, the initiative is driven by a vision of mutual reinforcement between youth education and older adult education. The core idea is that vocational students preparing for eldercare and older adults engaged in learning are not separate policy targets but potential partners in shared educational processes. This vision is operationalized through four mutually reinforcing principles. First, synergy of strengths calls for deliberate alignment of institutional capacities in curriculum design, community networking and experiential knowledge. Additionally, reciprocity requires that learning arrangements generate meaningful benefits for both students and older adults, who participate as co-learners and co-educators rather than symbolic beneficiaries. Community embedding further situates teaching and practice in the neighborhoods, community centers and care institutions where older adults live. Digital integration uses online platforms to bridge distance, support resource sharing and sustain ongoing interaction. Together these principles provide the design logic for the mechanisms discussed below.

5.2 Institutional Permeability: Linking Vocational Colleges and Universities for the Aged

The first mechanism cluster concerns institutional permeability. The vocational college and the university for the aged set up a joint steering committee with administrators, program directors, and faculty. This committee coordinates curriculum development, teaching arrangements, assessment standards, and community partnerships.

Curricular permeability takes several forms. Some modules originally created for older adults, such as local cultural history, community governance, or digital literacy, are opened as electives for vocational students. Conversely, selected vocational modules such as basic health management, communication in care, rights and responsibilities in elder services, are adapted for older learners at the university for the aged. Some courses are designed from the start for mixed-age, intergenerational participation.

Staffing also reflects permeability. Faculty from the vocational college regularly teach or co-teach at the university for the aged, especially in areas requiring technical knowledge or structured instruction. Older adults with relevant professional backgrounds, such as retired nurses, social workers, teachers, or community leaders, are invited to co-teach in vocational courses or act as mentors and guest speakers. In this way, knowledge and experience move across institutional boundaries.

5.3 Youth–Silver Co-Learning: Designing intergenerational Scenarios

The second cluster focuses on youth–silver co-learning that makes intergenerational interaction a core part of teaching and learning rather than an add-on. One example is a series of digital literacy workshops. Mixed groups of vocational students and older adults work together on tasks such as setting up smartphone functions, using health apps, accessing government services online, and spotting digital fraud. Students act as facilitators and technical support, while older adults bring real-life questions and constraints. Tasks require cooperation: elders explain their needs, and students translate technical language into accessible terms. Workshops end with joint presentations or digital stories that document results, reinforcing shared achievement.

A second example is community storytelling and memory projects. intergenerational teams collect life histories and local stories from older adults, then turn them into written accounts, short videos, or small exhibitions. These activities link to vocational modules on communication, documentation, and cultural competence. Older participants contribute content and perspectives; students contribute interviewing, editing, and presentation skills; faculty assist with ethics and methods. This deepens students' understanding of older adults' biographies and supports mutual recognition.

In some skills labs, older adults act as "standardized participants" rather than observers. Students under supervision carry out assessments or care routines with consenting older adults, focusing on communication and comfort as well as technical correctness. Elders then give feedback on how they felt regarding whether they were respected, understood, and at ease. This feedback is built into assessment rubrics, giving older adults a formal role in evaluating student performance.

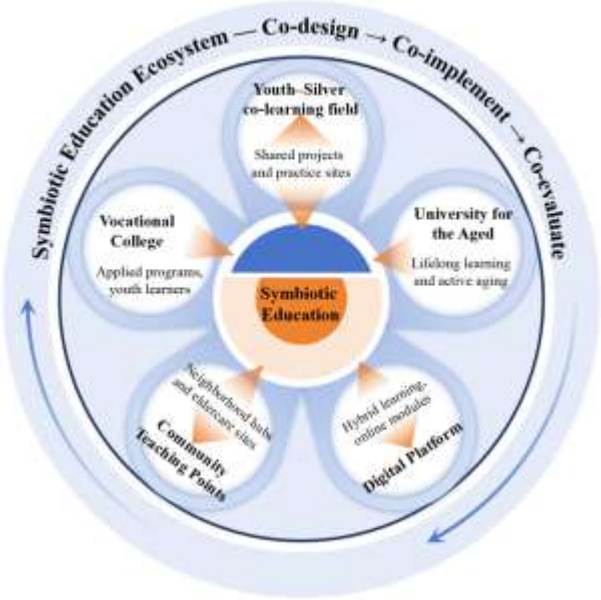

Figure 1: Ecosystem of the symbiotic education

5.4 Spatial–Digital Extension into Communities

The third cluster involves spatial–digital extension that embeds symbiotic education in the daily spaces of aging. The vocational college and the university for the aged jointly run community teaching points in neighborhoods with many older residents. These sites host co-learning activities, consultation sessions, and outreach events.

Vocational students complete supervised practice at these teaching points, supporting health promotion, fall-prevention workshops, digital help desks, and cultural events. Older adults participate as learners, volunteers, or peer educators. Regular presence in the community helps build trust and allows institutions to spot concrete needs that can feed back into curriculum design.

Digital platforms extend this work. Online courses and micro-modules for older adults are made available to vocational students, while student-produced materials (e.g., instructional videos, digital stories) are posted on platforms used by older adults. Some co-learning activities run in hybrid format, so home-based can join. Digital tools also support ongoing communication between students and older adults beyond specific courses.

5.5 Interim Synthesis

Together, institutional permeability, youth–silver co-learning, and spatial–digital extension forms an integrated ecosystem that responds directly to the three-part structural problem. Curricula are reworked to soften the split between technocratic training and leisure by adding humanistic and participatory elements for both youth and elders. Scenarios expand from labs and classrooms to community settings. Faculty roles are broadened and linked across institutions, tackling capability gaps and double blindness. The next section reviews the evidence associated with this model.

Table 2. Symbiotic Education Mechanisms, Structural Problems Addressed, and Theoretical Anchors

Structural Problem Addressed	Symbiotic Mechanism in Guangzhou Initiative	Concrete Example	Primary Theoretical Anchor(s)
Curriculum split	Institutional permeability	Joint steering committee; cross-listing of modules between the vocational college and the university for the aged; adapted digital literacy and health-management courses for both students and older adults.	Structural Functionalism (system adaptation); Activity Theory (productive aging).
Scenario isolation	Youth–silver co-learning	Intergenerational digital literacy workshops; community storytelling projects; older adults acting as "standardized participants" in skills labs and giving feedback on communication.	Situated Learning Theory; Intergroup Contact Hypothesis.
Faculty capability gaps	Cross-institutional staffing and development	Vocational faculty co-teaching at the university for the aged; retired professionals and older volunteers serving as mentors and co-teachers in vocational courses; joint training workshops.	Structural Functionalism (role recombination); Activity Theory (older adults as co-educators).
All three combined	Spatial–digital extension into communities	Community teaching points where students and older adults co-organize activities; hybrid online–offline platforms that host student-generated materials and older adult learning modules.	Situated Learning Theory; Third Age / productive aging.

6. Empirical Evidence: Student, Elder, and Industry Dimensions

The data available do not allow a full causal impact evaluation, but they do provide indicative evidence along three dimensions: student outcomes, older adults' agency and participation, and industry alignment.

6.1 Student Outcomes: Certification, Retention, and Professional Readiness

Records from the vocational college show that cohorts in the integrated eldercare program under the initiative have high certification rates. Over the early years, first-attempt pass rates for key eldercare certificates have exceeded 90 percent. While direct comparison with other schools is limited, this rate is high for the sector.

Employment data indicate that many graduates find jobs in eldercare institutions or community-based services within three months of graduation and that short-term retention is relatively strong. Internal figures suggest that the share of graduates still in

care roles three months after entry is noticeably higher than in earlier cohorts trained in conventional programs. Average starting salaries are higher than the local minimum wage, with signs of a wage premium over some other service jobs.

Qualitative reflections by students and faculty support these patterns. Students report better communication skills, stronger intergenerational understanding, and more confidence when handling complex situations. They feel more ready to manage emotional conversations, family disputes, and ethical dilemmas, and to adjust their language for older adults with different dialects or literacy levels. Faculty note improved engagement and maturity during placements, which they link partly to earlier co-learning experience with elders (Cortés-Rodríguez et al., 2024).

6.2 Elder Agency and Digital Participation

For older participants, the initiative creates new meaningful roles. Data from the university for the aged show that older adults enrolled in co-learning modules have higher completion rates than those in stand-alone leisure courses. In digital literacy workshops, about two-thirds of participants complete all tasks and report higher confidence in using smartphones, health apps, and online public services. This is much higher than in earlier digital classes without student involvement (Miller et al., 2024).

Feedback from older learners highlights the value of intergenerational contact. Many elders appreciate students' patience and respect and say they feel "younger" or "more connected" when working with them. Some continue to volunteer at community teaching points or agree to act as long-term resource people. This supports a shift from a consumption model of elder education to a participation model, where older adults also contribute (Sen et al., 2024).

Older adults involved in storytelling projects also report benefits. Sharing their life histories and seeing them turned into written or audiovisual products gives them a sense of recognition and legacy. Some say the projects helped them communicate better with their own children and grandchildren by giving them new ways to tell their stories and values.

6.3 Industry Alignment and Employer Feedback

Partner eldercare institutions and community organizations report that the initiative improves graduate readiness and reduces orientation burdens. Employer surveys show high satisfaction with graduates' communication, adaptability, and professionalism. In one internal survey, over 90 percent of responses rated graduates as "satisfactory" or "excellent" in interacting with older clients, working with colleagues, and adapting to community-based work (Alonso-Cortés Fradejas et al., 2025).

Supervisors note that graduates from the integrated program often need fewer weeks of orientation before handling routine tasks on their own. They also show more sensitivity to older clients' preferences and dignity and are better at explaining procedures in simple language. These skills likely draw on prior teaching and co-learning experience with older adults. Industry partners value the program's community focus. Because students already have experience in community teaching points and with elders outside formal institutions, they are more familiar with the realities of home- and community-based care. This helps reduce "reality shock" and supports smoother school-to-work transitions.

Overall, the evidence suggests that the symbiotic education initiative in Guangzhou is linked to positive outcomes for students, older adults, and industry partners. While we cannot definitively prove causality with a single case and descriptive data, the fit between the initiative's design and the observed patterns contributes to the relationship being plausible. These findings provide a grounded basis for the broader concepts of symbiotic education, institutionalized empathy, and demographic dividends discussed next.

7. Discussion

The symbiotic education initiative in Guangzhou offers a rich case for thinking about how education systems can adapt to population aging (Ismail et al., 2021; Peng, 2023). This section discusses three main conceptual contributions: symbiotic education as a governance paradigm, institutionalized empathy as a design principle, and a third demographic dividend to rethink the value of aging populations (Lv & Jin, 2025).

7.1 Symbiotic Education as a Governance Paradigm in the Silver Economy

The first contribution is the idea of symbiotic education. Policy discussions usually treat vocational education, geriatric education, and industry practice as separate domains. Vocational education is supposed to produce skilled workers, universities for the aged

to enrich older adults' lives and industry to provide services. Links among them are framed as "cooperation" or "coordination", not as core interdependence (Liu et al., 2022; Zhang et al., 2024).

The initiative points to a different view. Vocational colleges, universities for the aged, and care institutions can be understood as parts of one ecosystem that together produce care capacity, social cohesion, and active aging (He et al., 2022). In this system, education for youth and older adults is intertwined, not parallel. Older adults become co-educators and co-learners; students become facilitators and community actors; institutions share governance structures and physical and digital spaces.

Symbiotic education refers to settings where the goals, resources, and activities of different educational subsystems are intentionally aligned to create joint value. It goes beyond simple "integration" by seeking to align not only curricula and placements but also identities, roles, and recognition. For policy and research, this paradigm invites a rethink of boundaries and responsibilities in the Silver Economy and stresses the importance of designing systems that build interdependence rather than mere coexistence (Izadi et al., 2024; Li et al., 2022).

7.2 Institutionalized Empathy Through intergenerational Design

Another contribution is the concept of institutionalized empathy. Empathy is often seen as a personal trait or emotional ability. In education, it is sometimes treated as a matter of exhortation or as something learned through one-off volunteer experiences. The initiative shows another path. Empathy is built into curricula, assessments, and learning environments. Youth–silver co-learning workshops, storytelling projects, and intergenerational skills labs are designed so that students must pay attention to older adults' perspectives and feelings to complete tasks successfully. Older adults' feedback is formally included in evaluation. Participation is not optional; it is part of how students earn credits and show competence (Alonso-Cortés Fradejas et al., 2025; Miller et al., 2024).

This approach fits with the Intergroup Contact Hypothesis and Situated Learning Theory. By creating repeated, structured, cooperative contact under supportive conditions, the model raises the chances that positive intergroup attitudes (Sen et al., 2024) and empathetic dispositions will develop and last. Empathy becomes less an individual moral quality and more a product of well-designed learning arrangements. Institutionalized empathy captures how educational governance can shape not just knowledge and skills but also students' ways of relating to older adults and aging (O'Brien & Battista, 2020).

7.3 The Third Demographic Dividend: From Burden to Resource

The third contribution is the idea of a third demographic dividend. The first demographic dividend refers to gains from a large working-age population relative to dependents; the second to gains from higher savings and human capital as society's age. Both are often seen as fading in rapidly aging countries such as China (Su et al., 2025).

The initiative suggests another possible dividend if aging populations are engaged through symbiotic education. Older adults bring time, experience, networks, and cultural capital. Through co-learning, mentoring, volunteering, and community teaching, they support youth skill formation, improve service quality, and strengthen community life. Their involvement can improve system performance and may reduce costs by lowering turnover among care workers and improving the quality of care (He et al., 2022; Qin & Lai, 2025).

This third dividend does not appear on its own, and it depends on intentional institutional design. Without systems that invite, support, and recognize older adults' contributions, their potential remains latent (Li et al., 2022; Liu et al., 2022). By linking vocational education and geriatric learning, the Guangzhou initiative shows one way this dividend might be realized at the institutional level. Future studies could examine similar models in other settings and explore their broader economic and social effects.

7.4 Implications for Theory and Practice

For theory, the study shows the value of combining Structural Functionalism, Situated Learning Theory, the Intergroup Contact Hypothesis, and Activity Theory to analyze responses to population aging. Structural Functionalism highlights system linkages (Izadi et al., 2024; Li et al., 2022). Situated Learning emphasizes authentic communities of practice (O'Brien & Battista, 2020); Intergroup Contact focuses on the design of intergenerational encounters (Christian et al., 2014; Sen et al., 2024); Activity Theory stresses the productive potential of Third Age (Pettersson, 2021; Qin & Lai, 2025). Together, they offer a rich framework Third standing and designing symbiotic governance in the Silver Economy.

For practice, the findings suggest that eldercare education reform should go beyond small curriculum updates in vocational colleges or incremental expansion of leisure programs in universities for the aged. Reforms need to rework relationships among institutions, age groups, and communities. This implies new approaches to accreditation, funding, and governance so that symbiotic arrangements become part of normal operation rather than exceptional pilots. Existing work on vocational eldercare training, elderly care enterprises, and intergenerational and digital learning provides practical reference points for this shift (Cortés-Rodríguez et al., 2024; Li et al., 2022; Lv & Jin, 2025; Miller et al., 2024; Tong et al., 2024).

8. Conclusion

This article examined how the structural separation between vocational education and geriatric learning in China contributes to inefficiencies and blind spots in the context of rapid population aging, and how a symbiotic education initiative in Guangzhou offers one way to address these problems through symbiotic governance. Using a multi-theory framework, it identified a three-part structural problem, such as curriculum split, scenario isolation, and faculty gaps, and reconstructed the initiative as an ecosystem of institutional permeability, youth–silver co-learning, and spatial–digital extension into communities. Institutional statistics and stakeholder feedback suggest that the initiative is linked to high certification rates, better student preparedness, stronger digital participation and agency among older adults, and positive employer evaluations.

The article advances three key concepts: symbiotic education as a governance paradigm in the Silver Economy; institutionalized empathy as a design principle for intergenerational learning; and a third demographic dividend made possible by engaging older adults as co-educators and community actors.

These ideas carry several policy implications across different levels of the system. At the national level, regulatory frameworks should formally recognize integrated arrangements between vocational colleges and universities for the aged, with measures such as guidelines for joint curriculum development, co-accreditation of intergenerational modules, and funding schemes that reward cross-institutional collaboration in eldercare and geriatric education. Municipal and provincial governments can promote community teaching points that connect vocational students, older adults, and industry partners through subsidies for community-based learning spaces, recognition for institutions that build symbiotic education models, and the inclusion of intergenerational learning in broader strategies for community governance and digital inclusion. Institutions themselves should invest in joint faculty development, cross-appointments, and co-teaching, create channels for older adults to serve as co-educators, mentors, and evaluators, and design assessment systems that incorporate their feedback into judgments of student competence. For the research community, the study highlights the need for comparative and longitudinal work that examines variations of symbiotic education across regions and settings, using mixed methods to capture both outcomes and processes and to clarify which design features are most effective and scalable.

In short, the symbiotic education initiative in Guangzhou shows that population aging, often treated only as a looming crisis, can also drive educational innovation and governance reform. By linking the learning paths of youth and older adults and by rethinking institutional relationships, symbiotic governance in the Silver Economy can help turn aging from a perceived burden into a source of renewed human and social capital.

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