Intergenerational Climate Change Education in Metropolitan China: Case Studies of Jing'an Elderly University and Nanhui New City University for Senior Citizens within the Shanghai Education for Sustainable Development (ESD) Ecosystem

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Abstract

This study addresses the urgent need for effective climate change education in urban China examining how intergenerational learning within Shanghai's Education for Sustainable Development ecosystem can enhance climate literacy and social cohesion. The study conducted case studies of Jing'an Elderly University and Nanhui New City University for Senior Citizens, analysing their place-based curricula (industrial heritage/renewable energy workshops in Jing'an; smart-city infrastructure in Nanhui) through participatory activities, field trips, and community workshops. Both institutions successfully embedded climate education in intergenerational settings: Jing'an linked industrial heritage with green technology workshops, while Nanhui integrated smart-city infrastructure with traditional ecological knowledge exchange. These approaches demonstrably enhanced climate literacy and strengthened cross-generational social bonds. The findings provide actionable theoretical and practical insights for scaling culturally rooted, age-inclusive climate education models in metropolitan China and comparable urban contexts.

Key words: Intergenerational Learning, Place-based ESD, Climate Literacy, Community Resilience

Introduction

Shanghai has emerged as a pioneering city in advancing Education for Sustainable Development (ESD) by integrating climate change education with local cultural heritage and intergenerational collaboration. Notably, two institutions; the Jing'an Elderly University and the Nanhui New City University for Senior Citizens, illustrate how ESD initiatives can be deeply rooted in local identity while fostering community resilience and environmental responsibility across generations.

Jing'an Elderly University: Merging Heritage with Innovation

Located in one of Shanghai's most historic urban districts, Jing'an Elderly University has developed a model of intergenerational learning that combines environmental education with cultural preservation. Through partnerships with local schools, community centres, and NGOs, the university organises a wide range of participatory activities designed to connect seniors and youth in meaningful dialogue and shared learning experiences around climate change (Senjooti Roy, 2022). One standout initiative involves joint field trips to the Suzhou Creek Industrial Civilisation Museum. Here, university students act as guides for elderly participants, prompting intergenerational reflection on Shanghai's industrial legacy and its evolving approach to environmental governance. This historical context becomes a springboard for critical discussions on the impacts of urbanization and the importance of sustainable futures.

Another layer of engagement is provided through creative, hands-on workshops such as building simple solar water heaters and capturing the natural beauty of Suzhou Creek through photography. These projects emphasise the blending of traditional craftsmanship with contemporary green technology, making sustainability tangible and personally relevant. In a further integration of innovation, participants are introduced to artificial intelligence tools to create digital art inspired by local landscapes — a practice that bridges generational gaps while celebrating both heritage and forward-thinking solutions (Sarah-Mae Nelson et el., 2022).

Figure 1 University students are helping the elderly make simple solar water heaters

Nanhui New City University for Senior Citizens: Building Localised Green Hubs for Sustainable Development

In the rapidly developing Lingang New Area, Nanhui New City University for Senior Citizens has positioned itself as a community-cantered hub for environmental learning and action. Its programs are rooted in the unique urban transformation of the area, emphasising the role of both elders and youth in shaping a smart, sustainable city.

Collaborating with industry partners and local organisations, the university organises field visits to renewable energy and waste management facilities, offering participants a firsthand look at the systems underpinning sustainable urban life. These visits are contextualised within Lingang's vision of green modernisation, providing a sense of place and purpose to climate education.

Crucially, the university promotes intergenerational knowledge exchange. Older adults share time-tested environmental practices such as traditional water conservation methods, while younger participants contribute insights into emerging technology and digital solutions for climate resilience (Pillemer Karl, 2022). This reciprocal learning not only honours the wisdom of elders but also empowers all participants to take shared responsibility for sustainability challenges.

Figure 2 Learn about the Nuclear Power
at Shanghai Electric Nuclear Power Group Company

Conclusion

In historic Jing'an, the elderly university curates place-based programmes that fuse climate literacy with cultural memory. Joint excursions to the Suzhou Creek Industrial Civilization Museum frame Shanghai's industrial past as a living case study in urban sustainability. University student-guides and senior participants co-produce narratives that link yesterday's smokestacks to today's decarbonisation goals. Subsequent maker labs—building low-cost solar water heaters, photographing riparian recovery, and co-creating AI-generated art from local landscapes—translate those narratives into tactile, forward-looking action. By embedding green technologies within vernacular crafts and storytelling, the initiative widens climate knowledge, deepens intergenerational trust, and seeds a resilient, heritage-rich civic identity transferable to any historic urban core.

Amid Lingang's rapid eco-modernisation, Nanhui New City University re-purposes the district's renewable-energy plants and smart-waste systems as open-air classrooms. Multi-age teams tour these infrastructures, then reconvene in community studios where elders share traditional water-conservation techniques and youth reciprocate with digital

monitoring tools and climate-simulation apps. The co-designed outputs—citizen data dashboards, bilingual zines of ancestral eco-practices, and neighbourhood micro-projects—are immediately re-integrated into city planning consultations. This reciprocal praxis converts technical systems into shared cultural artefacts, amplifying both climate competence and social cohesion while offering a scalable template for smart-city districts seeking culturally rooted, age-inclusive sustainability pathways.

The initiatives at Jing'an Elderly University and Nanhui New City University for Senior Citizens exemplify how local culture, history, and intergenerational collaboration can enhance climate change education. By embedding ESD (Education for Sustainable Development) within community life and promoting mutual learning between generations, these programs not only foster environmental awareness but also strengthen social cohesion and civic engagement. As Shanghai continues to evolve, such models offer valuable inspiration for cities worldwide seeking to localise sustainable development through inclusive, culturally grounded education.

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