RESEARCH ARTICLE

Lifelong learning, well-being, and climate justice activism: Exploring social movement learning among Australia's Knitting Nannas

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Abstract

The participation of older people in social movement learning presents a unique perspective on lifelong learning opportunities and well-aging in later life. Australia's Knitting Nannas Against Gas and Greed exemplifies how older women have challenged the "double jeopardy of old age" embodied in ageist sexism and become well-regarded anti-coal seam gas environmental activists. This article explores how engagement in environmental activism has fostered a learning ecology, which promotes transformative and emancipatory learning dispositions that benefit well-aging. A significant gap exists in transformative environmental adult educational research in relation to the motivation for and engagement of older women in environmentalism. Drawing on my Ph.D. research, I identify how women acquire environmental and ecological literacy, develop activist skills, and cultivate emancipatory learning dispositions. They benefit from being part of a supportive community of older women, enhancing their quality of life. This phenomenon is referred to as "Nannagogy."

Keywords: Ageist sexism; Critical feminist geragogy; Older learners; Social movement learning; Nannagogy

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1. Introduction

The participation of older people in social movement learning (SML) represents a unique perspective on lifelong learning opportunities and well-aging in later life. Knowledge of older women's environmental activist learning is a lacuna in environmental education, adult learning, and SML. In environmental education, feminists refer to the exclusion of female experience as gender-blind. They argue that gender inclusivity is integral to recognizing the complexity of human and more-than-human relationships, multiple subjectivities, knowledge, and interactions (Gough, 2013; Gough & Whitehouse, 2020). Gender-blindness has contributed to a knowledge gap in older women's SML (Larri, 2021). In addition, Formosa (2021, p. 179) identified a "lack of feminist debate on later-life learning and older women learning," which results in adult educators and educational gerontologists using outdated or "malestream" approaches.

This article fills this gap by presenting a case study of Australia's Knitting Nannas Against Gas and Greed (aka KNAG or the Nannas) as a community of practice (CoP).

It discusses both motivation for learning and the impact of participation on the lives of these older women in KNAG. Drawing on my Ph.D. research, I outline how engagement in environmental activism stimulates a learning ecology that promotes transformative and emancipatory learning dispositions and benefits for well-aging. I refer to this as "Nannagogy." The Nannas have demonstrated how older women challenge the "double jeopardy of old age" embodied in ageist sexism (Formosa, 2005, as cited in Findsen & Formosa, 2011, p. 95) to become well-regarded anti-coal seam gas (CSG) environmental activists.

The research posed the following question: "What educational processes enable older women to experience personal transformation that leads them to become environmental champions actively contributing to the transition to a low-carbon economy?" Two specific subquestions framed the research.

The first subquestion was, "What have the older women learned about starting and growing their movement to become 40 or so groups in just 4 years, from 2012 to 2016?" This question was designed to understand the motivations and learning processes that led to the development of the older women's environmental activist identity. The initial inspiration behind the movement laid the foundation for subsequent learning. Understanding why older women were attracted to KNAG and identifying their pre-existing capabilities that predisposed their involvement, referred to as their learner entry behaviors, was central to addressing this question.

The second subquestion was, "What learning processes have enabled older women to sustain motivation and ongoing engagement in activism supporting the transition to a low-carbon future?" This inquiry investigated the learning processes that facilitate the maintenance and sustainability of engagement and commitment to the KNAG causes, transitioning from fossil fuels and protecting the environment for future generations.

This article primarily focuses on findings from the first subquestion to provide the reader with an indication of the nature of the findings and analysis undertaken.

In a manner similar to how theories of education segment learner needs and styles based on age and stage, I initially coined the portmanteau of "Nannagogy" to differentiate KNAG learning processes from other established and formalized learning systems such as pedagogy (childhood teaching and learning in schooling), andragogy (adult teaching and learning, such as vocational or higher education), and later-life learning (post-retirement learning, for example, University of the Third Age). Through the research, I developed this conceptual segmentation of KNAG learning processes to focus on gender and identity by combining "Nanna" (older woman) with "*agogy*" (derived from the Greek "I lead" meaning "learning"). Nannagogy is, thus, a concept of older women's learning, which is explored as a hypothetical construct.

This article continues with theory and a literature review of ageist sexism in relation to older women's learning, with reference to critical feminist geragogy and provides a brief overview of older women's environmental and climate justice SML. Subsequent sections cover research methods, results, and discussion.

1.1. Theory and literature review

Older adulthood is a phase within the continuum of aging through adulthood. The terms "elder" or "the eldest" refer specifically to individuals, while "older" or "the oldest" refers to both individuals and objects. Throughout this article, these terms are used interchangeably (Merriam-Webster, 2021).

An increasing demographic in Australia and worldwide, older women are categorized into three age groups: young-old (65 – 74), old-old (75 – 84), and oldest-old (85 and beyond) (APA Dictionary of Psychology, n.d.). Older women live within two interweaving culturally based systems of oppression: ageism and sexism (Wilińska, 2016). Breaking the nexus of these oppressions enables agency, activism, and active aging for those who choose it.

The human rights implications of climate change on aging populations intertwine ageism with multiple intersectionalities and vulnerabilities associated with fundamental well-being (United Nations Human Rights Council [UNHRC], 2021). Despite this, older people are often overlooked in climate-related protections in national and international law. However, it is recognized that "older persons possess enormous knowledge, experience, skills, and resilience," and enabling their "participation in climate action is not only a human rights imperative but also a means of ensuring effective solutions for all people and for the planet" (UNHRC, 2021, p. 16). The UNHRC (2021) recommended strategies to include older persons in policy-making and planning, such as membership of national delegations to the United Nations Framework Convention on Climate Change. In addition, it proposed opportunities for later-life learning to maximize the voice of older persons concerned about the sustainability of their communities in the face of climate change, as well as facilitating intergenerational dialogue around climate change and the environment.

1.2. Critical feminist geragogy overcoming ageist sexism

Older people are negatively affected by ageism, limited by perceptions of the older learner as frail and possessing a reduced capacity for learning. Ageism is defined as "the negative social and cultural construction of old age and a process of systematic stereotyping and discrimination against people just because they are old" (Doron, 2018, p. 33).

Ageist sexism exacerbates the issue, leading to older women being marginalized and disregarded. Anecdotally, women often describe experiencing a sudden onset of invisibility and condescension as they age, particularly as their hair turns grey. Australian writer Helen Garner (2016) attributes this phenomenon to the withdrawal of the erotic gaze, as older women "are no longer, in the eyes of the world, a sexual being." Feminist scholars have taken up this theme. Cecil *et al.* (2021, p. 11) consider the "pervasive and insidious nature" that goes with the "social shaming of older women," depicting them as "little old ladies, as old bags, as useless nobodies."

In relation to later-life learning and older women's SML, the literature does not provide definitive answers. Apart from physiological and psychological barriers, learning continues throughout old age. Certain factors "may even give older learners an edge over younger peers" (Findsen & Formosa, 2011, p. 75), such as the integrity and accumulation of knowledge and abilities acquired throughout one's life (or crystallized intelligence), and an ongoing ability for curiosity and making meaning from new information. Successful later-life learning depends on "a wide repertoire of cognitive resources and brain structures that work on their own as well as interacting with one other" (Findsen & Formosa, 2011, p. 63).

Recent researchers challenge the inherent ageism of the elderly as frail and therefore inconsequential, preferring to replace it with opportunities for agency and dignity (Kydd *et al.*, 2018). Shifting power to older learners through emancipatory education contributes to the sociopolitical transformation of ageist structures.

Older learners are "citizens capable of being reflexive and knowledgeable [who]… critique societal norms and practices" (Beck, 1992 cited in Findsen, 2018, p. 844). Critical geragogy (or educational gerontology) recognizes that ageism is a barrier to the participation of the elderly in work, post-work, and civil society. Conversely, society benefits from the inclusion of all citizens. Being able to draw on and draw out the capabilities of elders as a cohort of active citizenry adds depth to society (Findsen, 2018, p. 844). Society benefits from their life experiences, and "social movements … may provide further opportunities for elders to actively engage in authentic learning to improve their life chances" (Sutherland & Crowther, 2006, cited in Findsen, 2018, p. 844).

Critical feminist geragogy informs older women's learning in a woman-centered social movement where ageist sexism is less likely. It can be distilled into the following three criteria: (i) Cultivating respectful relations that seek empowerment and appreciate women's experiences of oppressions, including ageism, sexism, and their multiple intersectionalities; (ii) valuing each woman's individuality by recognizing her capabilities; (iii) providing enjoyable, engaging, and sufficiently challenging learning opportunities in a milieu that supports and celebrates success.

Learning is a lifelong process. Motivational conditions conducive to older women's learning value individuality and inclusivity in an enjoyable atmosphere of respectful relations, with opportunities for emancipatory personal growth. Older learners are able to integrate significant life experience and analytical, reflective, future-oriented cognitive skills to bear on situations. Older learner activists are generally intrinsically motivated, seeking a legacy of social and intergenerational justice.

1.3. Older women's environmental and climate justice SML

Social movements are educational. Formed from groups of like-minded people, they create cognitive and physical spaces for social learning (Eyerman & Jamison, 1991). Educational anthropologist Niesz (2019, p. 227) agrees that "adult education researchers have argued for years that social movements are educators; not only are they sites of popular education and other forms of non-formal education, they are also important sites of learning through the practice of movement activity." Social learning requires conversation, which is a social process and a "deeper, transformative and reflexive learning whereby people challenge the values and norms of present business-as-usual trajectories" (Kent, 2016, p. 150).

SML draws from adult learning and social movement theories and is inherently situated in transformative and emancipatory experiences (Larri & Whitehouse, 2019). Different forms of SML involve communities of practice where individuals and groups learn in a range of ways, including: instrumental skill-based cognitive learning (peaceful protest strategies, social media use); meta-cognitive development of critical consciousness through conscientization, critical reflection, questioning insight, and productive problem-solving; and epistemic or axiological shifts in worldviews through reconceptualizing hegemonic power structures (Branagan & Boughton, 2003;

Curnow, 2013; Ollis, 2011; Scandrett *et al.*, 2010). Similarly, drawing on Habermas's three kinds of knowledge (Cranton, 2002), Moyer & Sinclair (2020) identify instrumental, communicative, and personal transformation as domains of transformative learning theory. Ideally, personal transformation leads to action, which can be categorized as individual, interpersonal, or collective, as seen in social movements. Transformative environmental adult education combines ecological and environmental literacy with activist skills and transformative or emancipatory learning dispositions (Hall *et al.*, 2006; Riedy *et al.*, 2018).

SML is learning by persons who are part of a social movement and learning by persons outside of a social movement affected by becoming aware of the existence of a movement (Hall & Clover, 2005; Hall *et al.*, 2006). Learning within social movements can be informal, incidental, or planned. Social movements develop as people interact and dynamically co-construct meaning from being drawn together to make sense of a common conflict, a process referred to as frame alignment (Della Porta & Diani, 2006). As shared understandings grow, identity formation toward "shared collective identity" also strengthens (Della Porta & Diani, 2006, pp. 20-25). Ollis & Hamel-Green (2015) described adult education in the context of CSG protests (in Gippsland, Victoria, Australia), describing it as informal, incidental, often emotionally charged, holistic, purposeful, transformative, and involving individual and collective social learning.

When individuals join together in a specific context, building rapport, sharing experiences, and learning from one another's insights over time, a CoP is likely to emerge. Curnow (2013, p. 837) succinctly captures this concept, stating that "the group, not the individual, is the source of knowledge, and meaning derives from participation in the community. It is through participation in the collective activity that meaning is negotiated, identities are formed, and the CoP coalesces." Lave & Wenger (1991) developed the concept based on two premises: (i) that learning is a social process situated within a cultural and historical context; and (ii) that a CoP can occur in any area of human endeavor (Farnsworth *et al.*, 2016).

When interviewed by Farnsworth *et al.* (2016), Wenger considered that CoPs are learning partnerships related to a domain of practice in which they have the legitimacy to define competence. Identity in CoPs is formed on two levels: (i) Through the individual's negotiation of their identity within the CoP, determined by their participation and recognized competence, and (ii) through how the individual's identity within the CoP reflects in other social contexts.

The process of building one's identity within the CoP is encapsulated in the concept of "legitimate peripheral participation." This refers to the process of knowledge and skill acquisition necessary for "full participation in the sociocultural practices of a community" (Lave & Wenger, 1991, p. 16). While Lave and Wenger mention that learning within CoPs can be affected by power dynamics, they do not expound (Salminen-Karlsson, 2006). Hodges (1998) provides a critique of CoP that exposes legitimate peripheral participation as loaded with hegemonic historical powerlessness and marginalization. Building on critiques from Hodges (1998) and others (Paechter, 2006; Salminen-Karlsson, 2006; Barron, 2007; Hughes *et al.*, 2007), Curnow (2013) further explores the unchallenged reproduction of dominant ideologies and the impact of power and social difference (gender, class, and race) on learners within CoPs.

In her research, Curnow (2013, p. 837) investigated the status of women activists in a student movement advocating for ethical purchasing. She found that the women's transition from the periphery to centrality within the movement was hindered by sexist attitudes among male colleagues. Despite gaining the requisite skills, the women were relegated to performing menial tasks, repetitive and reproductive work that enabled other tasks. When the women compared their experiences with one another, they were able to identify patterns and interpret systemic problems of sexism. Being marginalized, the women developed a sub-CoP and eventually challenged the male privilege that relied on exclusionary leadership styles. Thus, "social movements are sites of situated learning where power dynamics related to socio-historical inequity are reproduced and contested, and their critical consciousness led to political analysis and collective action." (Curnow, 2013, p. 847)

Thus, CoPs are applicable to SML. In both, learning is recognized as a situated, unstructured, informal, and social process where knowledge is collaboratively co-created and shared among members of the community or movement. Through this process, a collective culture, patterns of interaction, and identity emerge (Curnow, 2013; Kluttz &Walter, 2018; Ollis & Hamel-Green, 2015; Scandrett *et al.*, 2010). CoPs were originally conceptualized by Lave & Wenger (1991) as work-based participatory learning through apprenticeship-style enculturation, where people move from novice to full practitioner, contrasting with formal teaching and learning.

CoP theory assumes an existing work culture into which novices progressively integrate from the periphery to the center. Social movements, on the other hand, are emergent forms of grassroots collective action for social change. Social movements are characterized by a "shared collective identity" linked through "dense informal

networks," engaged in "conflictual relations with clearly identified opponents" over significant time periods, thus becoming a collective force (Della Porta & Diani, 2006, p. 20-25).

The process of social movement germination is itself a CoP in identity generation rather than merely a place of integration and adaptation. Eventually, as a movement grows, it is likely to take on the need for enculturation processes or identity reproduction (Della Porta & Diani, 2006, p. 105-113; Lave & Wenger, 1991;). The consciousness-raising groups of the 1970s women's liberation movement are considered a form of CoP in which women shared personal experiences, leading to a transformative collective understanding of patriarchal power structures in society (Curnow, 2013, p. 839).

There is limited research into older women's environmental activism and learning, with Canada's Raging Grannies being an exception. Much literature exists on the Raging Grannies in relation to their role as social change agents, educating others, and countering ageist sexism (Caissie, 2006; McHugh, 2012; Pedersen, 2010; Roy, 2003; 2007; Sawchuk, 2009, 2013; Schmitz, 2009). Only one scholar, Narushima (2004), has researched the implications for later-life learning of older women's social activism within this movement. Narushima (2004) concludes that the "social and collective learning environment" enabled significant personal benefits, such as "self-help, self-acceptance, liberation, and the realization of their capacity to become an agent for change." The women experienced ongoing self-actualization in later life, along with "creativity, critical thinking, a sense of self-liberation, and well-being in late adulthood" (Narushima [2004], pp. 38-41).

A common thread of women's environmental activism is strategic essentialism. Essentialism refers to the practice of assuming that the nature of things is fixed rather than culturally defined. Women are often essentialized as being close to nature, depicted as earth mothers and nurturers, and therefore more likely to be concerned with environmental issues and planetary well-being (Bartlett, 2013; Murray, 2010). However, this portrayal is "descriptively false in that it denies the real diversity of women's lives and social situations" (Stone, 2004, p. 142). Sexism and ageism are examples of the negative effects of essentializing (McHugh, 2012).

While numerous feminist scholars look at the intersection of motherhood and activism, fewer have extended this analysis to include grandmotherhood and activism (Chazan & Baldwin, 2016; Chazan & Kittmer, 2016). Sawchuk (2009) critiques the ageist and sexist narratives of grandmotherhood; finding the Raging Grannies' "strategic deployment" (Sawchuk, 2009, p. 173) of the grandmother identity is disarming and efficacious. Police were reluctant to move them on or arrest them, as they found it easier to get their message across using humor and parodying the image of essentialized older women (Sawchuk, 2009, p. 180-181). The Grannies have used strategic essentialism and humorous performative activism as their identity brand to engage and educate audiences in understanding a myriad of issues, including the toxic impacts of CSG. In Ecuador, antimining women drew on their Pachamama (Mother Earth Inca goddess) mythology to "present a more cohesive identity and narrative around their activism." (Jenkins, 2015, p. 453).

2. Methods

2.1. Researcher positionality

This inquiry was framed within the context of post-structuralist feminist research. Inspired by Haug's "feminist social constructionist method" (Onyx & Small, 2001 p. 775), my research cast the researcher and subjects as equal "coresearchers," drawing on everyday experience as a valid process of knowledge creation. Davies & Gannon (2005, p. 315) describe this approach as demonstrating respect for the other through "post-structural ethics" and "mutual embeddedness in discourse and relations of power." The researcher is thus obliged to understand both the subjects and herself as they grow and change. Therefore, the methodology involved planning for both proposed and emergent aspects. Learnings from field observation, ongoing review of new research, and data analyses were incorporated into other phases.

Social movement research has often failed to sufficiently address gender and activism (Maddison & Shaw, 2014). The inexplicable interstices, glaring silences, and omissions in SML research are explained by a feminist theory, which challenges the rationalist presumption that knowledge production is "value neutral," instead recognizing that "knowledge and the production of knowledge are inherently gendered" (Maddison & Shaw, 2014, p. 417). This perspective enables feminist researchers to represent human diversity by developing research methods "designed to reveal the gender problematic through prioritizing women's lived experience of the social telling in their own voice" (Byrne & Lentin, 2000, in Maddison & Shaw, 2014, p. 416).

A transdisciplinary approach was deemed necessary to integrate the complexity, interdependence, and intersections of multiple disciplines (Nicolescu, 2014). This approach encompassed various fields, including social movement theory, adult learning theory, environmental education, gender, critical feminist geragogy, media studies, environmental climate activism, and craftivism.

2.2. Case study methodology

Constituted by a number of groups in approximately 40 locations, KNAG is a "multisite bounded system" (Merriam, 2014, p. 49). A mixed-method descriptive case study of their network was conducted to understand the women's informal learning processes. This approach has proven effective in educational research involving complex social elements, multiple variables, and a need for rich description (Merriam, 2014). Learning within social movements is characterized by complex, dynamic, and "messy" processes that constantly shift between the individual and the collective (Kluttz & Walter, 2018, p. 96-97). It is "multi-site" because the network is comprised of a membership of older women within a range of geographically located subgroups known as loops. All research participants were active members of the KNAG at the time of the research.

Both qualitative and quantitative data were collected through primary sources, including written (online) survey data, interviews, and document analysis of social media in the public domain (Facebook posts, digital videos, emails, and e-news bulletins). The research was approved by the Human Research Ethics Committee at James Cook University.

To obtain ethics approval from the university, I ensured that all participants surveyed or interviewed were deidentified. Each woman signed a consent form, which included agreement of the following terms:

> "The information collected will be specially coded so that you cannot be personally identified. Your responses and contact details will be strictly confidential. The data and any visual or audio recordings from the study will be used for data analysis only. The results of the study will be used for academic purposes such as research publications and conference presentations. You will not be identified in any way in these publications unless you specifically agree."

Survey respondents are referred to as "S," followed by their unique respondent number. Each interviewee chose a pseudonym based on women they admired, which I have consistently used throughout my writings.

The content analysis of social media in the public domain from 2012 to 2020 included Facebook posts, digital videos, emails, and e-news bulletins. The collection and analysis focused on confirming, challenging, and triangulating findings from all sources. The Association of Internet Researchers (Markham & Buchanan, 2012) provided the ethical guidelines for conducting social media research, and quotes from Facebook and other social media were anonymized.

2.3. Research strategies: A sequential mixed methods case study with a developmental design

The research strategy used a sequential mixed methods study with a developmental design, where "analysis of preliminary data informs and/or initiates the development of a subsequent data collection" (Bazeley, 2018, p. 73; Onghena *et al.*, 2019).). The study started with a quantitative and qualitative survey, which was then expanded on through purposive sampling of interviewees and social media data.

An initial draft questionnaire was developed based on analysis of the documentary *Knitting Nannas* (Larri & Newlands, 2017; O'Keefe & Brown, 2014), the KNAG website, and researcher observation of KNAG members at the 2016 KNAG Annual Conference (Chinchilla, August 26–28, 2016). Getting to know KNAG culture contributed to the construction of interview and survey questions in ways meaningful to the Nannas themselves.

2.3.1. Mixed methods

There has been substantive literature addressing the incompatibility of mixing quantitative and qualitative research methods. This contention stems from the different ontological and epistemological traditions inherent in each method, which led to the "paradigm wars" of the late 1980s and early 1990s (Bazeley, 2018, p. 5). Mixed methods have since gained acceptance as "a third major approach to social science research" (Bazeley, 2018, p. 5). Aligning with the objective of a descriptive case study, Onghena *et al.* (2019, p. 463) promote mixed methods for researchers aiming for a rich narrative case study that integrates qualitative case study with statistical analysis, thus adding "narrative flesh." Bazeley (2018) contends that there is no universally agreed-upon definition of mixed methods research. Methodological and temporal triangulation was employed through the use of multiple data methods from 2017 to 2020. Validity and reliability were ensured within each data collection strategy to the extent possible. Validity or legitimation in mixed methods research (Check & Schutt, 2011; Cohe*n et al.*, 2011) was enhanced by: (i) Sample integration using the same sample to enable high quality inferences from data, such as selecting interviewees from the original survey sample; (ii) multiple strategies to ensure validity within each type of quantitative and qualitative data gathered; and (iii) cross-referencing details from survey findings with interviewees, referring between interviewees, and asking interviewees to reflect on the practices of others, drawing from their experiences.

The research approach drew on a post-positivist framework, using objective data triangulated with descriptive phenomenology gained from the subjective

reality of survey respondents and interviewees. These were further combined with an interpretive phenomenology drawn from a feminist poststructuralist researcher positionality to derive a model for conceptualizing the Knitting Nannas SML CoP, referred to as "Nannagogy."

2.3.2. Data collection and analysis strategies

Before designing the data collection instruments, a data matrix was devised, linking the research questions to the data collection instruments. Data were collected through primary sources, including a written online survey ($n = 67$ in 2017), interviews ($n = 10$, 2018 – 2020), and document analysis of social media in the public domain (a purposive sample of Facebook posts, digital videos, e-mails, and e-news bulletins, spanning from 2012 – 2020). Analysis using NVivo 11 involved thematic coding and triangulation of multiple data sources. Critical feminist geragogy was one of the analytical lenses applied to the data to ascertain whether Nannagogy could achieve transformative and emancipatory learning in older women.

The survey was designed to elicit both qualitative and quantitative data in response to Research Questions 1 and 2. The purpose of the survey was to gain an overview of the movement after 4 years of its inception and growth. Semistructured interviews were conducted to contribute more detailed data by confirming and complementing findings from the online survey. Thematic content analysis of media supported knowledge about how KNAG learned their activism and online connectivism through the use of Web 2.0 (social media) tools in combination with traditional media, with posts on Facebook being the most used KNAG social media platform.

An interpretive model was developed to conceptualize the elements of Nannagogy, enabling the synthesis of all data sources. Nannagogy was framed as an Australian CoP in older women's environmental activism. The collected research data revealed similarities with elements of the SML theory frameworks proposed by Branagan & Boughton (2003), based on Newman's taxonomy, Scandrett *et al.* (2010), and Kluttz & Walter (2018). Using existing frameworks assisted in summarizing the key findings of this research and indicating their application to the KNAG CoP.

The model includes an additional element to the previous frameworks to recognize the influence of learners' entry behaviors and prior capabilities on their motivation in relation to activist skill acquisition. The three levels (micro, meso, and macro) drawn from Scandrett *et al.* (2010) and Kluttz & Walter (2018) are reinterpreted as distinct elements. Instead of being viewed as levels, they are couched in terms of learning cognition. In the presented model, these are: (i) *Cognitive – Instrumental learning*; (2) *Metacognitive – Interpretive learning*; and (3) *Epistemic and axiological – Emancipatory critical learning* (Larri, 2021).

My interpretive model is presented in Figure 1. In this model, drawing from Kluttz & Walter (2018), learning can occur across a continuum of two distinct vectors. The first vector, from left to right, recognizes the different ways learning can be structured, ranging from unstructured, informal, and unplanned to structured, formal, and planned. The second vector, from top to bottom, acknowledges that learning can comprise inquiry directed by the self (individual), the loop (group), and the collective (whole movement). Numbered boxes are placed within the model to demonstrate the evidence of an element, the structure of learning, and whether it involves individuals or different-sized groups. The placement of each number within each box aims to locate the nature of learning. For example, in Figure 2, regarding the formation phase, Box 2 is located within both cognitive and metacognitive learning domains. It is semistructured in format and occurs within the group setting of the Gasfield Free Northern Rivers (GFNR) CoP.

3. Results

The findings presented here pertain to answering the first subquestion regarding what older women learned in starting and growing their movement, which is referred to as the "Formation Phase." In terms of the initial motivation to create the movement, the majority of the Nannas were identified as circumstantial activists (described by Ollis, 2012; Ollis & Hamel-Green, 2015; Ollis, 2020) and novice campaigners who were intrinsically motivated to establish and join KNAG due to their pre-existing mobilization and commitment to fighting CSG in the Northern Rivers region of New South Wales. These findings are encapsulated in Figure 2.

Age, gender, and purposeful retirement were significant contributing factors to both intrinsic motivation and frame alignment. A pre-existing interest in knitting or crafting was found to be peripheral. Qualitative analysis of responses to the survey question, "What motivated you to join the Nannas?" identified three key themes ($n = 63$): (i) wanting to be part of anti-CSG campaigning (37 mentions); (ii) already being concerned for the environment (35 mentions); and (iii) being attracted to an older woman-centered movement (34 mentions). Comments related to active aging were mentioned 19 times. Knitting or other forms of crafting were not mentioned as motivators but rather as useful skills that a number of women did not have.

The desire to be an effective activist against CSG and its impacts on climate was a strong motivator for Nannas, as expressed by S.13, "I believe it is one of the most effective non-violent protests ever. I am strongly against CSG and concerned about climate change".
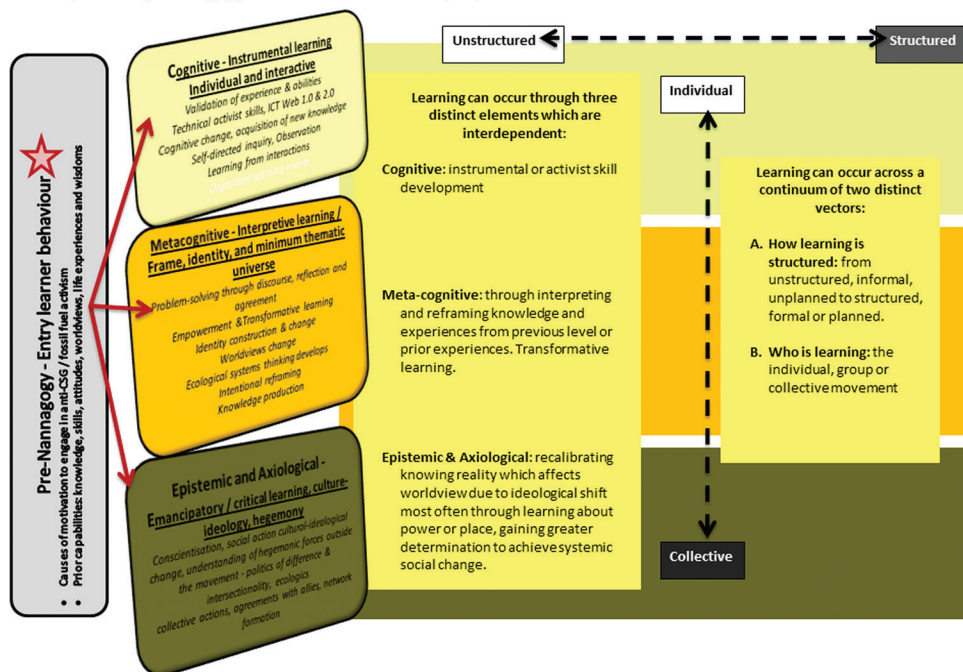
Figure 1. Conceptualizing Nannagogy: An Australian community of practice in older women's eco-activism – Framework.
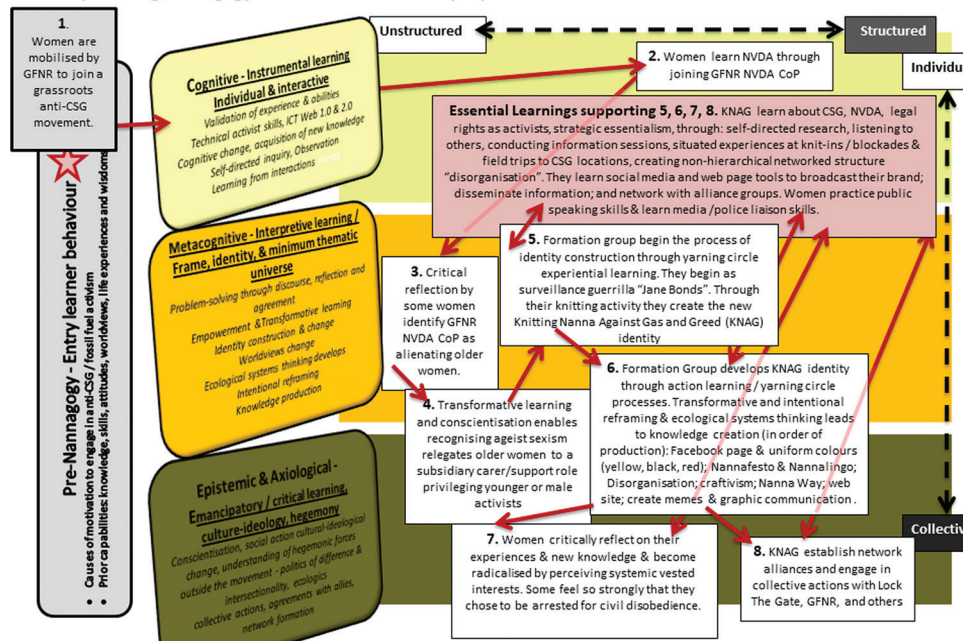

Figure 2. Conceptualizing Nannagogy: An Australian community of practice in older women's eco-activism – Phase 1 Formation.

3.1. Frame alignment

Drawing from social movement theory (Della Porta & Diani, 2006; Snow *et al.*, 2014), the Nannas' pre-existing frame alignment and key motivation were a strong emotional commitment to protecting environmental values for future generations and seeking a legacy of social and intergenerational justice.

Nanna Evelyn (pseudonym), a member of the first loop, joined KNAG after initially encountering them when she was part of local anti-CSG protests at Shannon Brook ponds

in 2012 and hearing how well-respected they were even at that early stage. She remembered feeling comfortable with their effective, non-confrontational approach that aligned with her values. She said:

> "I just felt like I didn't want to be a part of a very loud and angry group of people. I've got no problem with people protesting, but when they get aggressive and abusive, I just didn't want to take part in that. So Nannas were an option that I felt much more aligned with and comfortable with and I thought I could get my voice heard in a much more calm way."

While few Nannas had a background as feminist activists, they possessed an awareness of sexism in their lives as "everyday feminists" (Schuster, 2017, p. 651), which explains their attraction to KNAG. Survey data demonstrate that motivation to join KNAG was not influenced by the views of their significant others, such as family members. The need these older women felt for an activist culture that appreciated their experiences of oppression, engendering respectful, empowering relations in place of denigration, illuminates the claims of critical feminist geragogy (Garner, 1999; Findsen & Formosa, 2011; Schuster, 2017). This finding contributes to the under-researched and recurring theme of sexism in social movements (McHugh, 2012; Jenkins, 2015; Roy, 2003; Tosh & Gislason, 2016; Velásquez, 2017) and begins to address gender blindness by adding the intersectional dimensions of gender and age into frame alignment.

This extract from Respondent S.61 encapsulates these values of frame alignment, emphasizing the importance of meeting "amazing" women with whom she hoped to build longstanding friendships. Other respondents also referred to the value of this aspect of "sisterhood":

> "I think people see that KNAG is a way to 'protest' that is not confronting to you. Obviously, some people want to be a Nanna because they see the popularity of the Nannahood. My kids thought I was crazy at first, but now they love it. My partner is very supportive. My dear old mum still thinks I'm going to get arrested. Some of my friends say they could never do it. KNAG is great. It has given me the opportunity to meet some amazing women who I'm sure I'll be friends with for a very long time."

Interpreted in terms of adult learning motivation, the Nannas' identity aligned with older women's worldviews by offering respectful inclusion, fostering involvement, and colearning (Wlodkowski & Ginsberg, 2017). An older women's form of non-confrontational social action, which values each woman's individuality and capabilities, was appealing. This blend of cognitive and metacognitive elements was identified when the women initially sought empowerment as anti-CSG activists.

Interpretive learning (Branagan & Boughton, 2003), involving collaborative critical reflection and creative group problem-solving, occurred as the women began to construct their identities. The pivotal "activating event" (Cranton, 2002, p. 66) of recognizing unanticipated ageist sexism in the GFNR non-violent direct action (NVDA) group was interpreted as stimulating transformative learning by drawing on Freirean conscientization (Mayo, 1994). Nanna Joy described how the older women critically reflected, for the first time as a group, about the dynamics of oppression they were encountering. It set the tone for the core values of the KNAG movement – a determination to be activists, not relegated to insubstantial support roles, with confidence in their own judgment not to ask permission (from men or others) before acting. It was also the first step toward social learning in a women's CoP. Nanna Joy said:

> "… some of the men involved and the NVDA were not treating the women, especially the older women, as if we had any agency. Pretty much putting us in our little pigeonhole … [with] suggestions that we provide catering, tea, and bickies and that we could do paperworkey bits and pieces. Which is certainly not why we joined the NVDA … we were pretty much stereotyped, and there were quite a few sweet little old ladies there; I suppose, they did not expect us to be on the cutting edge. It's a particular type of sexism that suddenly, once you reach menopause, you've never had sex, you've never used your brain, you haven't heard half the words in the English language, and you're deaf. Yeah – and they speak slowly and loudly to you!
> … there was a meeting where some of the men from the Greens and the [forest activists group] kind of picked on us, you know. We were doing things on our own initiative; I think that was one of the biggest things. And so it was particularly targeted, especially targeted toward the women who had shown the most initiative. So after the meeting, we went downstairs, had a coffee, and it was just like, 'What the fuck just happened there?' I guess that happened within the couple of months leading up to the start of the Nannas. We kept going to the NVDA after that and tended to sit in a group and support each other."

This was the moment when the women recognized the patriarchal power differential within the GFNR NVDA CoP. The Nannas made a self-defining emancipatory move as older women who refused to accept this gender and age-based stereotyping from others and preferred to determine

their own form of antifracking activism. Mezirow's concept of a "disorienting dilemma" (Cranton, 2002, p. 66; Merriam & Baumgartner, 2020, pp. 130-131) is applicable here, as is Scandrett *et al.*'s (2010, p. 137) transformative paradigm shifts resulting from "making sense of unexplained experiences …stimulated by discursive encounters." Kluttz & Walter (2018, p. 97) recognized that considering "intersectional and interlocking oppressions" illuminates the transformative effect of adult learning, but their work did not take ageism into account.

Within 20 days of distancing themselves from the broader anti-CSG alliance, the members of the original loop used their "knit-in" alternative to the traditional sit-in to construct their own identity. They learned that the knit-in, as an activity, was conducive to group learning processes toward defining their older women's way of protesting. Thus, it was possible to determine that the formation phase involved the development of a CoP as understood by Lave & Wenger (1991).

The participatory, collaborative creation of the KNAG as an identity was fun, socially engaging, and therefore motivating as the women realized they were getting to know one another through participating in purposeful environmental activism. On Facebook, the Nannas celebrated the early recognition; they gained from the media and other anti-CSG activists as a nascent movement. Being recognized for credibility and visibility as older women activists was another significant emancipatory step that demonstrates McHugh's (2012, p. 288) analysis that older women engaged in activism are both socially active and challenge "cultural constructions of older women" as being digitally inept.

Initially, this group of women cast themselves as fearless "elder Jane Bonds." However, they later realized the subversive and humorous potential of playfully using the stereotype they had originally railed against. The persona of little old ladies stealthily knitting appealed to their collective sense of humor. At this stage, they did not know that the Canadian Raging Grannies (Roy, 2003) had made the same choice some 25 years before. Nanna Joy explained the experience:

> "At the same time that was happening, a few of us went and toured all the gas wells. That's what kind of initiated us, watching Shannon Brook. We had lots of fun playing with the word Nanna. And also we were pushing ourselves to the other activists as being kind of like fearless old ladies. Because we first started this as a surveillance group, we were pushing the thing that we were little old Jane Bonds … we had spoken about the Knitting Nannas before as a stealth kind of group. I guess it was a bit of a joke among us. So we decided to take our knitting and our cups of tea."

These older women discovered collective creativity that engendered positivity in overcoming the challenges of activism and aging within a supportive and inclusive learning environment, consistent with adult learning motivational conditions (Wlodkowski & Ginsberg, 2017) and critical feminist geragogy (Findsen & Formosa, 2011). It was a liberating, collective, negotiated learning enterprise that recognized the extensive life experience of older women. Similar to Curnow's (2013) case study, women shared personal experiences that led to a transformative collective understanding of patriarchal power structures in society.

3.2. Enablers of learning

Data about the capabilities these older women brought with them, in terms of knowledge, skills, attitudes, and world views, were important in understanding what enabled their activist learning. By applying learner entry behavior analysis (Ireri & Omwenga, 2014), it was found that older women entered the anti-CSG movement with an extensive range of skills easily transferrable to their activism. These skills were drawn mostly from stereotypically female occupations such as educators, nurses, and business administrators, as well as from creative fields. The combined capabilities of the older women encompassed organizing, planning, coordinating, managing, creating, performing publicly, and crafting. Many Nannas had previous involvement in environmental activism, supporting the view that women of all ages have contributed to many eco-movements (Gaard, 2011). It was found that many women entered the movement with computer email (Web 1.0) competence and varying degrees of digital literacy, including social media (Web 2.0) competence, aligning with previous research (Australian Bureau of Statistics, 2018; Haukka & Hegarty, 2011; Larri, 2023; Wiesslitz, 2019; Yellow Social Media Report, 2020).

However, what women lacked were NVDA strategies, specific knowledge of CSG extraction, and an understanding of hegemonic power relations within extractive industries and government. Martin & Coy (2017) identified the lack of a formal definition of activist skills and postulated that social activism involves diverse skills found in many occupations. They did not consider a gender dimension to occupations, nor did they account for the skills developed by women as homemakers and carers. In addition, they did not gather data on which occupational skills contribute to activist skills and which learning and skills gaps may need to be addressed.

Analysis of the initial stages of the KNAG movement's formation phase indicated the ways in which the women used their pre-existing skills to generate their activist

identity. Data about the process indicated a series of informal, situated, experiential, and transformative learning steps, beginning with semistructured instrumental learning (Branagan & Boughton, 2003) of the mock blockade and then transitioning to an actual blockade in the GFNR NVDA CoP.

3.3. Resisting ageist sexism for a meaningful retirement

The culture on which KNAG was founded recognized that age should not be a barrier to activism. Resistance against ageist sexism served as a motivational factor for participation. The specific form of NVDA employed by KNAG pragmatically and gracefully aligns with the capacities of aging women. Respondent S.27 indicated that many women perceive this approach as empowering and effective:

> "I liked that it is a woman's way of protesting: non-confrontational, talking patiently to people, being visible and determined, understanding that change takes as long as it takes, cementing friendships, knitting useful stuff, and being creative, learning more about the issues, talking and sharing. There is strength in being part of a group."

Being retired and older offers individuals an opportunity to choose how to spend their time, liberated from the responsibilities of employment and family commitments. Nannas in this study ranged in age from 45 to 84, with the majority falling between 50 and 74 (88%, *n* = 61, Survey data Q4: Age category) and typically over half were retired (54%, *n* = 30, out of 56 responses).

Respondent S.2 viewed this participation as being able to be actively involved and contribute meaningfully. Of importance to her was the enjoyment of being supported by "like-minded women" while she had an intrinsic motivation of wanting to contribute meaningfully to society:

> "[The KNAG movement has grown quickly because of …] the interest and concern, particularly with older KNAG. They have retired and now have the time and support from other like-minded women. The KNAG come along, and whammo! That's how we can do our bit."

Older women protesting with other older women send a strong visual image of concern for future generations. The Nannas connect with intergenerational climate justice through their actions. This accords with the intrinsic motivation more prevalent in older learners and the empowerment sought by critical feminist geragogy. Respondent S.21 said that her concern for future generations was her motivation. The way in which

"KNAG-ing" (as the Nannas refer to their activism) aligns with her worldview is further evidence of frame alignment:

> "We have more time than most people today, and we have seen the effects of poorly planned decisions regarding the environment etc. We can clearly see what is happening to our planet and have a very strong sense and need to protect our grandchildren. We try and keep the planet in some sort of healthy state for all future generations."

3.4. Using strategic essentialism is empowering and builds connection

Being a KNAG is power-shifting. Nannas claim that the act of being in a group of old women, sitting and knitting defuses situations where tensions and aggression emerge. Respondent S.7 provides an example of this use of strategic essentialism to de-escalate tensions. This practice is consistent with the literature (Della Porta & Diani, 2006; Ricketts, 2012) on NVDA as a powerful tactic that engenders loyalty shifts. "Sitting with knitting gear is incredibly calming when the police are aggressive. Older women are together, seemingly 'harmless' but insistent." As previously mentioned, Canada's Raging Grannies had comparable experiences and used similar tactics, unbeknown to KNAG (interviewee Nanna Angie, involved in KNAG since 2014).

Women mentioned feeling dignified, braver, and surprised at their emerging fearlessness. Respondent S.53 commented that she noticed "just how brave I can be," while Respondent S.17 described this feeling as "the creative spirit and bravery." Respondent S.21 considered the KNAG identity as "a way of protesting with dignity, standing with other strong, fearless women in a non-violent, yet very effective manner."

A sense of achievement and popularity by using non-threatening humor and light-heartedness adds to the existing intrinsic motivational condition (Wlodkowski & Ginsberg, 2017). A strong sense of camaraderie was developed through "sisterhood," deploying the SML logic of numbers (Della Porta & Diani, 2006), and the added effect of developing friendships. KNAGing, according to Respondent S.56:

> "… gives opportunity to continue campaigns through a lighthearted platform. It gives friendship and support to women working for the same outcomes. It encourages others to be brave, strength in numbers. It is a popular movement that has caught people's eye. It is effective."

KNAG's recognition of their growing bravery indicates that the learning experiences of on-the-job activism

are challenging and that the KNAG CoP provides a supportive and inclusive learning environment. This recognition combines the motivational conditions for the engagement of older learners with the characteristics of critical feminist geragogy. Respondent S.17 described a positive camaraderie as dedication and determination to work together to overcome problems, saying she valued "how friendly and dedicated they are … the ongoing positiveness, no matter how large the problem."

Nannas have an ethos of inclusivity by identifying and then drawing on women's different abilities. This practice builds connection and motivation in the women as they feel validated for their contributions, no matter how small. Respondent S.61 valued "being able to contribute my creativity to a good cause." Nanna Joy emphasized the importance to Nannas of finding and utilizing people's strengths. She compared this approach with wasting women's abilities by falling into ageist stereotyping, where older women are viewed as "wrinkly invisible, useless drudges, drains on the public purse." Nanna Joy explained her rationale for the KNAG approach to empowering members:

> "… you'd sit with six women knitting in, and so you've got 300 years of experience, and you've got graphic designers and nurses and managers and academics and people who have brought up a million children. Yeah, all of these incredible talents are wasted making cups of tea and pushing petitions under people's faces. This is, I guess, one of the strong points of the Nannas: to find people's strengths and to utilize those strengths within each loop and then within the larger movement. So some people are very good at organizing. There are some people who are good at public speaking. We make a point of acknowledging each other as valuable members of society, not as kind of wrinkly invisible, useless drudges, drains on the public purse."

This KNAG approach is a conscious and intentional strategy that challenges ageist sexism and empowers older women, which is consistent with critical feminist geragogy.

Craftivism and the essentialized persona of older women have become key elements of the Nannas' identity. Identity formation can be understood through both CoP and social movement theories (Della Porta & Diani, 2006; Holst, 2018; Snow *et al.*, 2014).

Nanna Evelyn described how craftivism is used by KNAG as a form of CoP induction, gently drawing out women's individuality and capabilities, which directly link with the criteria of critical feminist geragogy:

> "A lot of Nannas that come in and they're new [say] 'Oh, I can't knit, I can't do this, I can't do that.' And

you'll ask them, 'Well, what do you do when you're sitting at home watching television, or what do you do when you're out in the garden?' They start thinking, and inevitably, they'll come up with something they can make."

The existence of a KNAG enculturation process of induction, where people move from novice to full practitioner, supports Lave & Wenger's (1991, p. 16) concept of "legitimate peripheral participation."

The KNAG CoP utilized the tools of "knitting" and being a "Nanna," along with attention-seeking uniforms and the KNAG persona, to stimulate the engagement of passers-by and opportunistically educate them. These tools fostered the KNAG's skill in activating social change, thereby establishing the KNAG CoP ethos of educating both insiders and outsiders within the movement. It provides a valuable case study in adhering to Hall and Clover's (2005) definition of SML.

A key feature in the learning culture of the KNAG CoP was the emphasis on creativity and humor. Having fun as older learners and enjoying meaningful, purposeful social interactions was an unanticipated and much-valued by-product that can be considered to promote well-aging.

A strong sense of meaningful, active aging was important for many. Respondent S.26 described the knit-in tactic as "great fun and an effective way" of expressing concerns. Respondent S.55 was relieved to find a way of drawing on her extensive life experience post-retirement by engaging in a liberating, collective, and enjoyable negotiated learning enterprise within KNAG. For her, the determination to overcome limitations to participate in a purposeful retirement was important, as also was being able to use her professional skills:

> "I've always been involved in social justice issues as a result of being a teacher of adults. It's helped me come to terms with retirement. I have worthwhile causes and feel passionate about making a difference. Didn't think I'd be able to make much of a difference when I stopped working. Nannas have the time, the passion and the staying power because their families have grown, and they no longer have work pressures to deal with."

The social aspect of feeling welcomed and connected to other women through being visible and vocal added a further positive dimension. This sentiment was expressed by Respondent S.54, who stated that what she valued most in joining the KNAG was "the spirit of the groups I've met, openness, creativity, fun, determination, stamina, and caring for one another." This sentiment harks back to the instrumental importance of inclusivity. The data

strongly suggest that Nannas have discovered collective creativity that engenders positivity in overcoming both the challenges of activism and aging.

4. Conclusion

This research illuminates older women as capable and adept at managing their own experiential situated learning to achieve transformational change in becoming environmental activists and effective contributors to social change for transitioning to a low-carbon economy. For the majority of the participants in this case study, the identity shift from caregivers, homemakers, and breadwinners, as wives and partners, mothers, and grandmothers, to environmental activists was a transformation they had never envisaged previously. Older female environmental activists encountered unexpected ageist sexism that sought to silence them. Instead, they created spaces in which they would be seen and heard.

The research identified Nannagogy as a hybrid operating through a dynamic of instrumental, communicative, transformative, and emancipatory learning embedded within the Nannas' CoP. The principles of self-directed, needs-based, critical feminist geragogy were demonstrated through primary data. It is defined as a learning system for a specific form of SML praxis that honors the wisdom and experience of older women and enhances their well-being.

First and foremost was the ethos of older women's empowerment that underpinned the KNAG CoP. The initial and most critical shift was to segregate themselves and place boundaries around the external control of their activist identity. Such a move represented a refusal to be complicit in their oppression. The next shift was valuing and drawing on the combined life experiences and knowledge of the older women to articulate their environmental activism. KNAG intuitively and explicitly embraced a hybrid of learning strategies to achieve outcomes in ecological and environmental literacy and activist skills that led to epistemic and axiological shifts in personal worldviews. Both these shifts were foreshadowed by Darlene Clover in her seminal work, *Gender Transformative Learning and Environmental Action* (Clover, 1995), and subsequently documented in a number of studies (Roy, 2003; Jenkins, 2015; Tosh & Gislason, 2016; Velásquez, 2017).

Sadly, this research confirms the ongoing challenge of overcoming oppressive gender and age-based stereotypes in environmental social movements. Happily, the Nannas have shown us a model where older women's wisdom has successfully achieved older women-centered power shifting, which does not exclude men but equally does not privilege them.

Incorporating critical feminist geragogy with transformative environmental adult education in this interpretive model demonstrates the usefulness of SML as a transdisciplinary analytical tool. The integration of these approaches further raises the profile of transformative learning in informal settings such as social movements and later-life learning. It challenges tertiary education institutions to integrate SML into their programs. Contexts that rely on situated collaborative, experiential learning, and peer-to-peer learning require educators skilled in facilitating experiential learning. This presumes that expertise and qualifications have been gained and recognized, which further presumes that educational institutions incorporate social movement and transformative learning into undergraduate and postgraduate fields of study. I do not advocate the institutionalization of SML; rather, I seek to support the democratic rights of citizens to work for social justice and ecological and environmental sustainability. To achieve this, capacity building is required.

To benefit from the Knitting Nannas learnings, I propose four recommendations:

(i)   Social movements are advised to value their participant's voices and capabilities. Specifically, when aiming to attract older women, organizers are advised to promote peaceful activism and to overcome ageist and sexist stereotyping. This is best achieved by providing positive, creative, purposeful, inclusive, and collaborative learning environments that affirm and draw on life experiences, meaningful social interaction, and supportive networks.

(ii) Later-life learning organizations are advised to review their curricula to ensure instructional methods reflect critical feminist geragogy.

(iii) Tertiary education institutions are encouraged to advance transdisciplinary critical dialogue toward further development of a theoretical base that addresses gender and other intersectionalities within ageism.

(iv) Governments are encouraged to implement strategies that support the policy directions of the United Nations Decades on Ecosystem Restoration and Healthy Ageing (2021 – 2030) by embracing older citizens' right to quality later-life learning and their capacity for leadership, expertise, elder wisdom, and resilience in the challenge to address the impacts of transitioning to a low-carbon economy.

Ultimately, this is a movement of older women activists who have proven their claim that "you're never too old to be an activist." In doing so, they have crafted their special niche in a galaxy of environmental activist organizations, where they are admired for their bravery and courage – a far cry from their beginnings.

Women and older women have always been activists. What has been lacking is the acknowledgment and recognition of women's capabilities. Intuitively, the Nannas implemented critical feminist geragogy and realized that well-being flowed from their developing community. These are women of consequence because they have come to believe in their agentic selves and challenge others to never underestimate the wisdom and power of older women.

Conflict of interest

The author declares that she has no competing interests.

Author contributions

This is a single-authored article.

Ethics approval and consent to participate

This research was approved by the James Cook University Human Research Ethics Committee (approval number: H6886). Participants provided written consent on the proviso that they would be deidentified.

Consent for publication

Written consent permission was obtained from each of the subjects that confirmed their understanding regarding publication.

Availability of data

A copy of the complete thesis from which this paper is drawn is available in James Cook Univerity's institutional repository, ResearchOnline@JCU, accessible here: https://doi.org/10.25903/h15s-t502.

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