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Motivating Young People to Build Sustainable Futures Through Career Development

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Abstract

Addressing the climate crisis requires mobilizing younger generations, yet engagement is often limited to those with strong environmental identities. This study explores the largely unexamined potential of motivating a broader segment of youth by connecting climate action to the pursuit of their personal life goals. We investigated how different types of life purpose predict engagement across a spectrum of climate actions, from everyday pro-environmental behaviors to activism leadership. A sample of 901 Canadian undergraduate students completed measures assessing life purpose, coping strategies, and climate actions. Factor analysis of the Revised Youth Purpose Survey confirmed a three-factor structure of life purposes: self-enhancing (SELP), responsibility-enhancing (RELP), and world-enhancing (WELP). Moderated mediation analyses revealed distinct motivational pathways: both WELP and RELP indirectly increase participation in climate activism via problem-focused coping, and this effect is moderated by self-efficacy. However, SELP indirectly decreases participation in climate activism via problem-focused coping, and this effect is moderated by self-efficacy. These findings demonstrate there is no single pathway to climate engagement and suggest that career development can be leveraged to connect diverse life purposes with sustainability, thereby aligning personal aspirations with the collective goals of the Sustainable Development Goals.

Keywords: life purpose; climate engagement; pro-environmental behaviors; youth; coping strategies



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1. Introduction

The escalating climate crisis is both an environmental emergency and a profound societal challenge. Intensifying impacts underscore the diminishing window for effective action, rendering incremental mitigation and adaptation measures insufficient [1,2]. At the same time, although evidence of climate change's detrimental effects on children and youth continues to grow [3–5], younger generations remain largely excluded from climate decision-making and solution-building processes [6–9].

This imbalance of grave risks paired with marginal youth involvement demands a paradigm shift that prioritizes meaningful support for young people as they work to build sustainable futures for themselves and future generations [10]. One promising, yet underexplored, avenue for such a shift lies in career development. Defined as a

lifelong process of navigating learning, work, and life transitions, career development entails an evolving interplay between personal attributes (e.g., interests, abilities, values, personality) and contextual conditions [11,12]. Given the ecological, sociopolitical, and economic disruptions associated with climate change, its relevance for young people's career trajectories is undeniable.

Climate change exerts a dual influence on youth: it is a source of profound existential concern and distress [13] and simultaneously a driver of transformative labor-market change [14]. Research shows that environmental concerns increasingly shape young adults' career thinking, even among those not pursuing explicitly "green" occupations [15]. Compounding this, young people are coming of age amid unprecedented uncertainty and rapid technological transformation, conditions that complicate career choice and make it difficult to form a coherent sense of purpose within an economy rapidly reshaped by environmental pressures [16]. In this context, career aspirations, life purpose, and climate change are deeply intertwined.

While existing scholarship shows how climate concerns influence career choices [15,17], the reverse relationship remains unexplored: whether career aspirations and personal purpose motivate youth engagement with climate change. A stable sense of purpose may be especially important for sustaining engagement, enabling young people to view climate action as part of realizing their envisioned futures. This is particularly salient as their lives unfold within a global crisis marked by extensive environmental, social, and economic implications. Moreover, although climate advocacy often centers on moral imperatives [18,19], our study seeks to broaden the motivational landscape by examining what drives engagement among youth who may not be motivated by social justice frames or who do not aspire to become environmental advocates.

Such broadening is essential for developing strategies that mobilize more youth regarding climate solutions. Leveraging life purpose as a catalyst for climate action enables a "multi-solving" approach [20,21], simultaneously fostering meaningful climate engagement and advancing career development. Purpose may function as a stabilizing compass, helping young people navigate the climate crisis without feeling disoriented or overwhelmed.

This article examines this potential by asking: Can knowing one's purpose motivate youth to engage with climate change? If so, do particular types of purposes (e.g., altruistic vs. extrinsic goals) more effectively promote engagement? We also interrogate the construct of "engagement," challenging the assumption that all pro-environmental actions are equivalent in personal or environmental impact [22]. We argue that a narrow focus on low-impact, tokenistic behaviors (e.g., recycling) limits long-term value, whereas higher-impact forms of engagement (e.g., collective action, community organizing, activism) better reflect meaningful climate action [23,24]. Differentiating low- from high-engagement behaviors, and understanding their relationship to life purpose, can inform theoretical and practical strategies for integrating the practice of career development into youth climate engagement efforts.

Importantly, this approach aligns with the core principles of the United Nations Sustainable Development Goals (SDGs), which call for moving beyond individual pro-environmental behaviors toward more meaningful outcomes, such as understanding one's place in the world, developing clear career aspirations and a coherent identity, and fostering relationships with community and nature, which are necessary for sustained and transformative climate action [25].

In the next section, we examine the intersection of the SDGs and career guidance. Then, we discuss the critical role of purpose and meaning in the climate crisis and their relevance for career development and we propose a spectrum of climate actions ranging from low impact to transformative engagement. Lastly, we introduce the present study and

present our analyses and results. We conclude by situating our findings within the existing literature, assessing their implications for the SDGs, and outlining future directions for research, policy, and practice in career guidance.

1.1. Sustainable Development Goals and Career Guidance

The psychological and existential toll of the climate crisis on young people is substantial and well documented, manifesting as anxiety, loss, and profound uncertainty about the future [13,26–28]. Research increasingly shows that moving from climate anxiety and ecological grief to sustained engagement requires purpose-driven action grounded in a coherent sense of self and global citizenship, rather than superficial or tokenistic behaviors [23,24,29]. This evidence aligns with the principles of the 17 SDGs, which provide a holistic framework for transformation grounded in the interdependence of economic, social, and environmental systems [25].

Connecting youth purpose-driven action with SDG principles echoes calls from scholars and activists for a civilizational shift toward a life-sustaining and regenerative society [30–32]. Macy’s [33] concept of the “great turning” characterizes this shift as a necessary departure from anthropocentric, consumerist worldviews toward ecologically conscious modes of living. Similarly, Plant [34], responding to the escalating ecological crisis, argues for a radical reorientation of the practice of career development through the notion of “green guidance.”

Maggi [13] notes that green guidance can catalyze individual and societal change consistent with the “great turning” by reframing career development through an ecological and ethical lens. It emphasizes that all professions intersect with sustainability and planetary health, encouraging individuals to view career choices as contributions to systemic climate solutions. Integrated with the “great turning,” green guidance thus offers a pathway for youth to construct coherent, purposeful life narratives that merge personal aspirations with environmental citizenship.

More specifically, green guidance rejects narrow definitions of “green” careers and instead highlights how every profession—whether in the arts, healthcare, engineering, or entrepreneurship—shapes sustainability outcomes [34]. This approach affirms young people’s agency and supports their right to participate in decisions affecting them (Article 12) [35], shifting their role from passive recipients of a global crisis to active agents of systemic change [36].

Integrating SDG frameworks with green guidance enables the construction of career pathways and life narratives that align personal goals with earth-respecting practices. Rather than promoting tokenistic pro-environmental behaviors, such integration activates deeper motivational processes by helping youth reframe professional identities around sustainability, justice, and global citizenship.

The next section examines the relationship between specific climate-related behaviors and young people’s capacity for meaningful, sustained engagement. It then advocates for conceptualizing these behaviors along a spectrum defined by their transformative potential for both individuals and the planetary system.

1.2. The Spectrum of Climate Actions

Research on pro-environmental behavior has largely centered on simple, individualized actions (e.g., recycling), an approach criticized for overstating their long-term environmental impact [37,38] and for neglecting a broader set of commitments capable of contributing more meaningfully to climate solutions [39]. This behavioral framing aligns with surface-level conceptions of climate adaptation that emphasize discrete, technical fixes (e.g., turning off lights, using reusable bags) rather than the deeper transformative

processes required to alter “our ability to shape the environmental and social conditions of the future” [40] (p. 668). As such, when enacted in isolation, these behaviors offer limited relevance to the SDGs, which call for transformative adaptation involving shifts in values, worldviews, and systems rather than incremental behavioral adjustments [25].

The need to foreground these deeper processes is further underscored by the economic and social crises exacerbated by climate change. These crises disrupt dominant consumerist norms that equate status and happiness with material acquisition and instead highlight the importance of cultivating identity and self-worth grounded in relationships, with oneself, community, and the natural world [40,41]. This shift echoes the objectives of SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action), both of which emphasize transforming values, behaviors, and educational practices.

To better capture the range of possible climate-related engagement, we propose conceptualizing actions along a spectrum from low to transformative. At the low end lies tokenistic involvement: superficial, low-cost gestures requiring minimal effort and yielding limited systemic impact, such as recycling, turning off lights, or engaging in passive digital activism (“slacktivism”). While not without value, these behaviors seldom cultivate sustained commitment or purpose. At the opposite end is transformative engagement, characterized by actions that drive tangible, often collective change and that are embedded in shared identities and community-based efforts. Examples include active participation in advocacy groups, community-led sustainability initiatives, and interpersonal advocacy such as deliberate conversations aimed at persuading or educating others about climate adaptation. Transformative engagement also includes internal practices, such as mindfulness, compassion, and nurturing connection with the natural world, which support sustained action and ecological consciousness [23,39].

By situating climate involvement along this spectrum, we underscore that common pro-environmental behaviors, while useful entry points, must be supplemented with more meaningful forms of engagement. Relying solely on low-impact behaviors risks missing critical opportunities to help youth cultivate purpose through deeper, more consequential contributions to climate solutions.

1.3. Life Purpose, Climate Action, and Career Development

Life purpose, understood as a central, self-organizing life aim that guides goals and behaviors, plays a pivotal role in personal and professional development and supports positive mental health and a sense of direction across the course of life [42]. It is often conceptualized in relation to life goals, aspirations, and underlying motivations [43]. Life meaning, while closely related, is a distinct construct referring to the extent to which individuals comprehend, make sense of, and perceive significance in their experiences and their place in the world [44]. Meaning may therefore be more closely tied to meaning-focused coping, a mechanism encompassing pro-environmental behavior, mindfulness, reflection, and value clarification [45,46], than to life purpose or career aspirations.

Applied to the climate crisis, initial engagement in climate action may be driven by purpose (a desire to contribute to solutions) but sustained by meaning (the ongoing significance derived from action) [23,45]. Accordingly, climate actions cannot be fully understood through observable behaviors alone, such as counts of pro-environmental acts, because the inner motivational processes that initiate and maintain action remain hidden [39]. Integrating deeper dimensions of personal growth, including purpose development, is therefore essential when examining psychological drivers and barriers to climate action, particularly among young people whose identities and worldviews are still forming [47,48].

Although substantial research links positive mental health and well-being to greater meaning [49–52], few studies have examined associations between life purpose and climate

action [53], and even fewer have explored this relationship within career development. This gap is noteworthy. Insights from identity development research suggest that identity underpins sustained action of any kind [54]. Environmental identity, the extent to which individuals incorporate nature into their sense of self, is a strong predictor of pro-environmental behavior [55]. Yet relying too heavily on “environmentalist” identity risks excluding the many young people who care deeply about climate issues but do not adopt this label. Their motivation may instead stem from other identity domains (e.g., as future health professionals, community leaders, or innovators).

Green guidance addresses this limitation by broadening the narrow scope of environmentalist identity. It encourages individuals to frame their professional identities around the inclusive values of sustainability and global citizenship, regardless of field. This approach aligns with the holistic nature of the SDGs, which implicate all sectors. For example, SDG 3 (Good Health and Well-being) is affected by climate-related disease burdens, making it relevant to healthcare; SDG 9 (Industry, Innovation and Infrastructure) calls for sustainable industrialization, implicating engineers and entrepreneurs; and SDG 11 (Sustainable Cities and Communities) directly concerns urban planners and architects. Green guidance makes these cross-sectoral connections explicit.

It also activates psychological processes central to identity-based motivation, such as relevance attribution (“this is for someone like me”), personal responsibility (“I should do this”), and emotional engagement, by illustrating how diverse professions contribute to climate mitigation and adaptation [36]. A healthcare student, for instance, can recognize their role in addressing climate-related health disparities and strengthening public health systems (SDG 3), while an aspiring artist can understand their contributions to sustainability advocacy and cultural change (SDG 4.7; SDG 12.8). This process fosters a global identity that transcends narrow labels and strengthens a sense of obligation to the planet, an ethic at the heart of the SDG agenda.

The strength of green guidance lies in its capacity to offer universal purpose through career development. It is relevant to all young people because it aligns their unique aspirations with contributions to the SDGs. Motivational research consistently shows that people gravitate toward behaviors consistent with their self-concept and perceived efficacy [56]. By helping youth identify career pathways that match their skills and values while contributing to sustainability transitions, green guidance enhances motivation and reduces the perceived effort or dissonance involved in climate action. It also creates a positive feedback loop: engaging in meaningful climate-relevant work reinforces one’s self-image as an effective change agent, sustaining long-term commitment [57].

A purpose-oriented approach to career guidance further addresses the limitations of behavior-focused interventions by prioritizing intrinsic motivators such as autonomy, competence, and relatedness, as outlined in Self-Determination Theory, which support sustained engagement beyond external incentives [58]. Aligning career development with personal purpose and ecological values enables students to experience authentic fulfillment through their contributions, shifting them from tokenistic, surface-level behaviors toward deeper, transformative, and enduring engagement. This alignment supports both the individual’s right to meaningful work and society’s need for planetary stewardship, key principles of the SDGs.

Contemporary research also identifies developmental trajectories through which young people move from initial awareness and anxiety about climate issues toward sustained engagement. Although these trajectories vary, long-term contribution relies on meaningful actions embedded in collective efforts [23,29]. As noted earlier, superficial behaviors alone do not foster long-term well-being or collective effectiveness, whereas engagement grounded in meaning-focused coping is more likely to maintain or enhance

mental health compared with surface-level actions such as recycling. Thus, the quality and meaning of climate action matter as much as its frequency. Additionally, a deep, affective connection with nature helps young people find meaning and serves as an important psychological buffer for those engaged in emotionally demanding climate work [23].

Despite the recognized importance of purpose and meaning for youth mental health, their role in motivating and sustaining climate action remains insufficiently understood. Research on youth career aspirations offers a valuable lens through which to examine sources of purpose and motivation and to identify pathways for aligning personal goals with the pursuit of sustainable futures.

1.4. Research Questions

To further knowledge in this area, our work aims to address the theoretical and empirical gap that currently exists between psychological research on life purpose, climate action, and the practice of green guidance. By examining how life purpose is associated with different types of climate actions, we seek to lay the foundations for a richer theoretical discussion and more effective interventions in the realm of career development and sustainability.

More specifically, the analysis is guided by the following research questions: What types of life purposes and aspirations (e.g., intrinsic vs. extrinsic) motivate young people to want to take part in finding solutions to the climate crisis? Given that climate change poses a diffuse threat to all futures, is an explicit desire to “save the environment” the only motivator for climate action? Or is there potential for other motives? For instance, might individuals aspiring to have a fulfilling life in general understand that their goals are compromised by climate instability, and is this realization sufficient to motivate action even if they do not identify with traditional environmentalism or social justice causes?

In what follows, we present the methods and results of an empirical study designed to identify purpose-driven pathways of engagement with various types of climate actions and to explore the potential mediating effect of coping and the role of self-efficacy as a moderator.

2. Materials and Methods

2.1. Participants and Procedures

An initial sample of 992 undergraduate students attending a post-secondary institution in Canada was recruited through an online survey pool (SONA). Upon completion of the survey, students received a 0.5% credit towards one of two introductory psychology courses they were enrolled in at the time of taking the survey. Of the 992 participants, 73 were excluded from the study because they did not complete the survey. Additionally, missing data on variables measuring gender, direct experience with climate change, and religiosity were handled through listwise deletion, which resulted in a final sample of 901 participants. The survey was approved by the university’s Research Ethics Board (Clearance #116016).

2.2. Demographic Variables

Participants were asked about their age, gender, religiosity, and whether they had direct experiences with climate-related events. Participants were between 16 and 30 years of age, with a mean age of 19 ($M = 19.66$, $SD = 3.07$). About 73% ($n = 659$) reported being female, 25% ($n = 223$) reported being male, and 2% ($n = 19$) reported being non-binary. The majority of participants (68%; $n = 613$) indicated that they did not have direct experience of a climate-related event compared to about 32% ($n = 288$) who did. With regards to participants’ self-reported religiosity, 43% ($n = 387$) identified as being neither spiritual

nor religious, 23% ($n = 203$) identified as being spiritual, 18% ($n = 166$) identified as being religious, and 16% ($n = 145$) identified as being both religious and spiritual.

2.3. Predictor Variables

To assess participants' subjective importance of having a life purpose, 17 life purposes were obtained from the Revised Youth Purpose Survey (RYPS; see Appendix A), a scale used in prior studies on different youth populations [59–62]. Participants were asked about their level of agreement with statements identifying different types of life goals. Each statement starts with the following wording: "My purpose in life is to..." and is completed with a short descriptor of a specific life goal, such as, "...to help others". Participants can agree with each of 17 statements on a 3-point scale where 1 = "Disagree" to 3 = "Agree".

2.4. Outcome Variables

Three variables—engagement in pro-environmental behavior, participatory environmental activism, and leadership in environmental activism—were used to measure depth of engagement with climate action. The Pro-Environmental Behavioural Scale (PEB; see Appendix B) was developed by Ojala [45,63] to measure the extent to which participants engage in individual level behaviors that can lead to environmental benefits. The PEB consists of 11 items (i.e., "I turn off the light as I leave a room") that were aggregated into a single factor with an internal consistency reliability of $\alpha = 0.87$.

We used this scale to measure behaviors that are low in the spectrum of climate actions, due to their surface-level nature. The Environmental Activism Scale (EAS; see Appendix C) by Alisat and Reimer (2015) [64] is an 18-item scale developed to assess participation in environmental activism and is comprised of two subscales, the participation in environmental activism subscale (PEAS), which we consider falling in the middle range of the spectrum of climate engagement, and the leadership in environmental activism subscale (LEAS), which we place at the higher end of the spectrum of climate actions. PEAS was captured by ten items (Items 1 to 10; i.e., "Financially supported an environmental cause") and LEAS was captured by eight items (Items 11 to 18; i.e., "Organized an environmental protest/rally about an environmental issue"). The internal consistency reliability for participatory and leadership actions was $\alpha = 0.93$ and $\alpha = 0.96$, respectively. Items from both scales were assessed on a 5-point scale from 1 = "Never" to 5 = "All of the time".

2.5. Mediator Variables

The *Coping Scale* developed by Ojala [45] (see Appendix D) aimed to assess participants' coping mechanisms with the potential distress caused by climate change. We used this scale to capture the mediating role of coping in engagement in climate action. The Coping Scale consists of three sub-dimensions measured by different items: 3 items captured problem-focused coping (PFC; Items 1 to 3; i.e., "I look for information on what young people can do to help with the problem of climate change"), a type of coping mechanism typically associated with engagement in pro-environmental behavior [65], 5 items captured meaning-focusing coping (MFC; Items 4 to 9; i.e., "I believe in humanity and our ability to fix this problem"), a coping mechanism associated with more meaningful and transformative climate action [65]; and 6 items captured emotion-focused coping (EFC; Items 10 to 15; i.e., "I think the problem of climate change is exaggerated"), an avoidance type of coping mechanism not associated with engagement in pro-environmental behavior [65]. The item "I have trust in politicians to solve the climate change problem," was excluded from further analysis in this study because its inter-item correlation of $r = 0.19$ was below the threshold [66]. Model-fit indices with the item (χ^2 (df) = 18,698.28 (105), CFI = 0.95, TLI = 0.94, RMSEA = 0.11 (95% CI: 0.10, 0.11), SRMR = 0.12) were inferior than when the item was excluded (χ^2 (df) = 18,078.19 (91), CFI = 0.99, TLI = 0.98, RMSEA = 0.06

(95% CI: 0.06, 0.07), SRMR = 0.08). The elimination of this item was also identified in a study that validated the scale using a sample of Canadian youth [67]. This stems from the fact that the item now serves a different function than it did when the scale was initially developed ten years ago, potentially reflecting a sense of distrust among youth toward the political system in response to its management of the climate change crisis [27,67–69]. All 14 items were measured on a 3-point scale from 1 = “Disagree” to 3 = “Agree”. Items from the EFC subscale were reverse-coded. The internal consistency reliability for the MFC, PFC, and EFC subscales are $\alpha = 0.73$, $\alpha = 0.80$, and $\alpha = 0.86$, respectively.

2.6. Moderator Variable

Participants were asked to respond to ten items from the General Self-Efficacy Scale (GSE; see Appendix E), which aims to assess participants’ optimistic judgment towards their capability of handling stressful life demands [70]. Items (i.e., “It is easy for me to stick to my aims and accomplish my goals”) were assessed on a 3-point Likert scale from 1 = “Disagree” to 3 = “Agree”. The scale demonstrated good internal consistency reliability $\alpha = 0.84$. Self-efficacy has been found to predict pro-environmental behaviors, and it is an important construct that may influence the effect of purpose on action [71].

2.7. Control Variables

The following three scales were used to rule out negative impacts of general mental health struggles and clinically significant levels of climate anxiety on the capacity of youth to be proactively engaged with climate change.

2.7.1. Generalized Depression

Participants were asked to self-report their depression symptoms using a scale developed by the Center for Epidemiologic Studies Depression Scale (CES-D; see Appendix H) [72,73]. The scale consists of 12 items (i.e., “I felt lonely”) that were assessed on a 4-point Likert scale from 0 = “Rarely or none of the time—less than 1 day” to 3 = “Most or all of the time—5 to 7 days”. Items 6, 8, and 10 were reverse-coded. The scale demonstrated an internal consistency reliability of $\alpha = 0.84$.

2.7.2. Generalized Anxiety Disorder

Participants were asked to self-report symptoms of Generalized Anxiety Disorder (GAD; see Appendix I) [74] from the Ontario Child Health Study Emotional Behavioural Scale (OCHS-EBS). The GAD subscale consists of 6 items (i.e., “I am nervous or tense”) that were assessed on a 3-point Likert scale from 0 = “Never or not true” to 2 = “Often or very true”. The scale demonstrated an internal consistency reliability of $\alpha = 0.86$.

2.7.3. Climate Anxiety Scale

The Climate Anxiety Scale (CAS; see Appendix F) is a 13-item scale used to assess how much climate anxiety is impacting the cognitive and day-to-day functioning of participants [28]. Eight items were used to measure cognitive impairment (CI; Items 1 to 8; i.e., “I find myself crying because of climate change”), while five items were used to measure functional impairment (FI; Items 9 to 13; i.e., “My friends say I think about climate change too much”). Items in the scale were assessed on a 5-point Likert scale from 1 = “Never” to 5 = “Almost Always”. The internal consistency reliability for both subscales was $\alpha = 0.93$. As a measure of mental health, we used this scale to eliminate the potential effect of climate anxiety on participants’ motivation to act.

2.7.4. Connectedness to Nature

The Connectedness to Nature Scale (CNS; see Appendix G) is a 14-item scale developed by Mayer and Frantz (2004) [75]. Three items were deleted due to item-total correlations that range from 0.07 to 0.25, which is not consistent with scale psychometric properties [66]. The items that were deleted are items 4 (“I often feel disconnected from nature”); 12 (“when I think of my place on earth, I consider myself to be a top member of a hierarchy that exists in nature”), and 14 (“my personal welfare is independent of the welfare of the natural world”). The 11-item unidimensional model demonstrated a better model fit (χ^2 (df) = 25,315.81 (55), CFI = 1.00, TLI = 1.00, RMSEA = 0.03 (95% CI: 0.02, 0.04), SRMR = 0.03) than then 14-item unidimensional model (χ^2 (df) = 26,409.57 (91), CFI = 0.99, TLI = 0.98, RMSEA = 0.06 (95% CI: 0.05, 0.07), SRMR = 0.06). This is an issue encountered by other scholars with these same items [76], who have also addressed it by removing the items from the scale. This dissent in the model fit indices of the 14-item unidimensional model that led to the elimination of a varying number of items was also addressed in the literature [77–79]. We used the following scale because nature connectedness is a significant source of meaning, especially in the context of the climate crisis [23]. Items in the scale (i.e., “My personal welfare is independent of the welfare of the natural world”) were assessed using a 3-point Likert scale from 1 = “Disagree” to 3 = “Agree”. The scale had an internal consistency reliability of $\alpha = 0.90$.

2.8. Statistical Analysis

The factor structure for all 17 items of the Revised Youth Purpose Scale (RYPS) was evaluated by randomly splitting the full sample in half. Descriptive characteristics of both sub-samples can be found in Table 1. Data for both sub-samples were used to conduct an Exploratory Factor Analysis (EFA) and a Confirmatory Factor Analysis (CFA), respectively. A Principal Axis Factoring (PAF) with varimax rotation was employed on the first sub-sample when running the EFA. The proposed factor structure was identified using scree plots and parallel analysis [80]. Items with loadings greater than 0.35 were retained. In cases where items were cross-loaded on multiple factors, the 0.40-0.30-0.20 method was used to determine whether the item should be retained, provided that it had a loading of at least 0.40 on the primary factor, a loading of less than 0.30 on the secondary factor, and a loading difference of at least 0.20 [81]. After running an EFA, model-fit indices were determined for the second sub-sample by taking into account the Comparative Fit Index (CFI) > 0.95, the Tucker–Lewis Index (TLI) > 0.95, the Root Mean Square Error of Approximation (RMSEA) < 0.06, and the Standardized Root Mean Squared Residual (SRMR) < 0.08 [82,83].

Table 1. Socio-demographic information for each EFA and CFA sub-sample.

	EFA Sub-Sample (<i>n</i> = 450)	CFA Sub-Sample (<i>n</i> = 451)
	M (SD)	M (SD)
Age	19.59 (2.97)	19.73 (3.17)
	n (%)	n (%)
Gender		
Male	108 (24%)	115 (26%)
Female	330 (73%)	329 (73%)
Non-Binary	12 (3%)	7 (2%)
Religiosity		
Religious	85 (19%)	81 (18%)
Spiritual	100 (22%)	103 (23%)
Neither	187 (42%)	200 (44%)
Both	78 (17%)	67 (15%)

Table 1. Cont.

	EFA Sub-Sample (<i>n</i> = 450)	CFA Sub-Sample (<i>n</i> = 451)
DEXP		
Yes	144 (32%)	144 (32%)
No	306 (68%)	307 (68%)

Note. Direct experience with climate change (DEXP); Standard deviation (SD); Exploratory Factor Analysis (EFA); Confirmatory Factor Analysis (CFA).

Following the factor analyses of the RYPS, differences in socio-demographic variables across all three RYPS factors were examined using an independent samples t-test and one-way Analysis of Variance (ANOVA). In cases where the homogeneity of variance assumption was violated according to Levene's test, Welch's t-test and Welch's F test were performed. Tukey HSD and Games–Howell post hoc tests were conducted to compare differences in means between each group after obtaining significant results from a one-way ANOVA and Welch's F test, respectively.

Three mediation analyses using PROCESS macro model 4 [84,85] were conducted on the full sample to determine the mediating effect of each coping mechanism (PFC, MFC, and EFC) on the relationship between each of the three sub-dimensions of life purpose identified in the factor analysis (SELP, WELP, and RELP) and engagement in climate action with three levels of depth: pro-environmental behavior, participation in climate activism, and leadership in climate activism. Three independent second-stage moderated-mediation analyses using PROCESS macro model 14 [84–86] were then conducted to examine if the mediating relationships between each life purpose and engagement in each climate action via each coping mechanism were moderated by self-efficacy. Post hoc probing was conducted to examine the conditional indirect effects at low (1SD below the mean), moderate (at the mean), and high (1 SD above the mean) levels of self-efficacy.

Both mediation and moderated-mediation models were controlled for alternative life purposes, mental health (generalized depression, generalized anxiety disorder, climate anxiety, and connectedness with nature), direct experience with climate change, age, gender, and religiosity. Since participants may have multiple life purposes [57], we controlled for the alternative life purposes to isolate the main driver of engagement with climate actions.

Indirect effects were estimated using 5000 bias-corrected bootstrap samples to generate 95% confidence intervals [84]. These analyses were guided by the theoretical model presented in Figure 1. The statistical models corresponding to the theoretical model are represented in Figure 2. A Bonferroni correction method was used to adjust for three mediation and moderated-mediation analyses (i.e., $0.05/3 = 0.0167$). Preliminary analyses of the associated assumptions of the general linear model and linear regression were conducted. Variables were also standardized and normalized to reduce variance inflation within moderated mediation regressions [87].

All statistical analyses were performed in R 4.2.1 [88] with the following additional packages: car [89]; foreign [90], ggplot2 [91], jmv [92], lmtest [93], lavaan [94], psych [95], rstatix [96], dplyr [97], parameters [98], sandwich [99,100], and summarytools [101]. Figures 1 and 2 were created on LaTeX using the TikZ package [102].

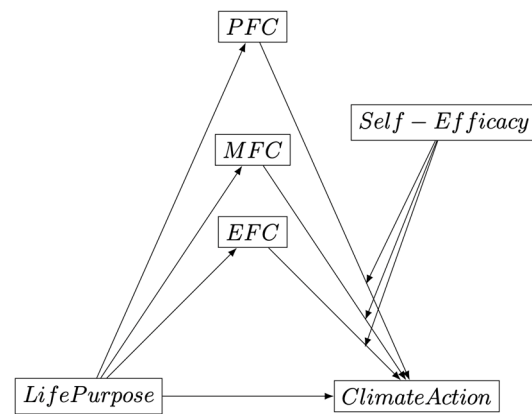


Figure 1. Theoretical model linking life purpose to climate action. Note. Life purpose predictor includes three subscales (SELP = self-enhancing life purposes, WELP = world-enhancing life purposes, and RELP = responsibility-enhancing life purposes); PFC = problem-focused coping; MFC = meaning-focused coping; EFC = emotion-focused coping. Climate activism includes the following outcome variables (PEB = pro-environmental behaviors; LEAS = leadership in activism; PEAS = participation in activism).

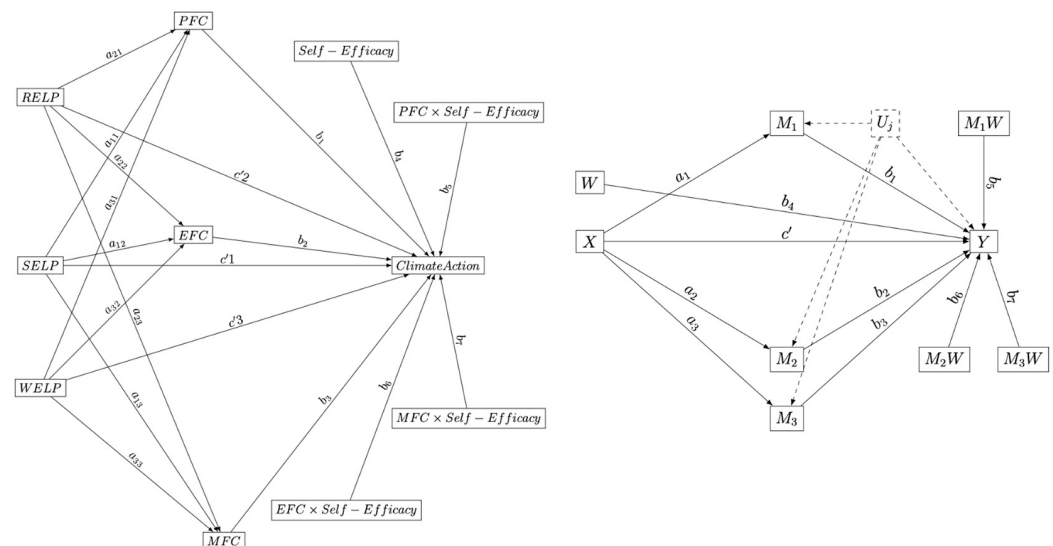


Figure 2. Statistical model linking life purpose to climate action second-stage moderated-mediation model. **(Right)** Statistical model linking life purpose to climate action (abstracted); **(Left)** Statistical model linking life purpose to climate action (labeled). Note. X (1, 2, 3) represents all independent variables, M (1, 2, 3) represents all mediators, W represents the moderator, U represents controls (shown via dotted lines), and Y (1, 2, 3) represents all dependent variables.

3. Results

3.1. Factor Analysis of the Revised Youth Purpose Scale

3.1.1. Results from the Exploratory Factor Analysis (EFA)

The Kaiser–Meyer–Olkin (KMO) and Bartlett’s tests indicated the appropriateness of conducting an EFA on the present sample (KMO = 0.83, Chi = 2074.74 (136), $p < 0.001$) [103]. Four factors were initially retained based on the scree plot and eigenvalues greater than 1 [103,104]. Five items (2, 7, 9, 14, and 15) were excluded from the scale because factor loadings were below 0.35 and because one item cross-loaded on two factors such that it had a loading greater than 0.40 on the primary factor, a factor loading greater than 0.30 on the alternative factor, and a difference of at least 0.20 between the primary and alternative factors (see Tables S1–S5) [81,105,106]. Another item “make the world a better place” also cross-loaded on two factors; however, it was retained because it adhered to the 0.40–0.30–

0.20 rule [81]. After eliminating the five items, a scree plot, parallel analysis, and Kaiser's criterion revealed a three-factor solution ($KMO = 0.82$, $Chi = 1379.10$ (66), $p < 0.001$). EFA factor loadings for the first sub-sample are displayed in Table 2.

Table 2. EFA factor loadings for Importance of Life Purpose Scale.

Importance of Life Purpose Abridged Items	Communalities	Factor Loadings		
		1	2	3
Make money	0.54	0.73	−0.04	0.01
Earn respect of others	0.28	0.45	0.15	0.22
Be successful	0.52	0.71	0.12	0.07
Have a good career	0.63	0.76	0.20	0.13
Change the way people think	0.26	−0.02	0.29	0.42
Create something new	0.42	0.11	0.00	0.64
Make things more beautiful	0.36	0.10	0.27	0.53
Discover new things about the world	0.32	0.20	0.20	0.49
Help others	0.59	0.01	0.74	0.20
Make the world a better place	0.53	−0.01	0.62	0.38
Do the right thing	0.33	0.20	0.52	0.14
Support my family and friends	0.42	0.26	0.60	0.06
Variance Explained		0.16	0.15	0.12
Eigenvalues		3.66	1.92	1.25
Cronbach's α		0.76	0.63	0.74

Note. Factor loadings ≥ 0.35 are in boldface.

3.1.2. Results from the Confirmatory Factor Analysis (CFA)

Following the EFA, model fit indices were examined for one-factor, two-factor, and three-factor model solutions. First, the model fit for the one-factor model indicates $\chi^2(54) = 471.93$, $p < 0.001$, CFI = 0.89, TLI = 0.87, RMSEA = 0.13, SRMR = 0.15. The fit for the two-factor model indicates $\chi^2(53) = 156.10$, $p < 0.001$, CFI = 0.97, TLI = 0.97, RMSEA = 0.07, SRMR = 0.10. The three-factor model had the best fit of the three models: $\chi^2(51) = 133.46$, $p < 0.001$, CFI = 0.98, TLI = 0.97, RMSEA = 0.06, SRMR = 0.09. Of the three models, a three-factor solution was adopted because it exhibited acceptable fit indices. Standardized factor loadings for the second sub-sample are displayed in Table 3. The first factor consisted of four items and was categorized as self-enhancing life purposes (SELP) to capture how the items in this factor focus on personal gains such as making money or being successful. The second factor consisted of four items and was labeled world-enhancing life purposes (WELP) because of how its items represent a desire to improve the world through advocacy (changing how people think) and innovation (creating something new). Lastly, the third factor consisted of four items and was named responsibility-enhancing life purposes (RELP) because of how its items are consistent with the goal of supporting family and friends and wanting to do the right thing. The internal consistency reliability for the CFA sub-sample for narrow SELP, WELP, and RELP are $\alpha = 0.76$, $\alpha = 0.70$, and $\alpha = 0.68$, respectively.

Table 3. CFA standardized factor loadings for the Importance of Life Purpose Scale.

Importance of Life Purpose Abridged Items	Factor Loadings		
	SELP	WELP	RELP
Make money	0.73		
Earn respect of others	0.59		
Be successful	0.89		

Table 3. Cont.

Importance of Life Purpose Abridged Items	Factor Loadings		
	SELP	WELP	RELP
Have a good career	0.90		
Change the way people think		0.64	
Create something new		0.67	
Make things more beautiful		0.81	
Discover new things about the world		0.70	
Help others			0.79
Make the world a better place			0.83
Do the right thing			0.72
Support my family and friends			0.66
Cronbach's α	0.76	0.70	0.68

Note. Self-enhancing life purpose (SELP); Responsibility-enhancing life purpose (RELP); World-enhancing life purpose (WELP).

3.2. Descriptive Analysis

Table 4 displays the means, standard deviations, and correlation coefficients for all variables that were used to test the theoretical model. Correlations among the three sub-dimensions of life purpose—SELP, WELP and RELP—were all significant. RELP was positively correlated with PEB, PEAS, and LEAS. WELP was positively correlated with PEB and negatively correlated with LEAS. Overall, correlations among the continuous independent variables were significant. Figure 3 displays the sample distribution of RYPS sub-dimensions across percentiles. The majority of participants with RELP (55.49%; $n = 500$) and WELP (35.41%, $n = 319$) demonstrated scores above the 75th percentile. The majority of those with SELP (38.51%; $n = 347$) had scores within the moderate range (between the 25th and 75th percentile).

Sample distribution of participants across all three sub-dimensions of life purpose

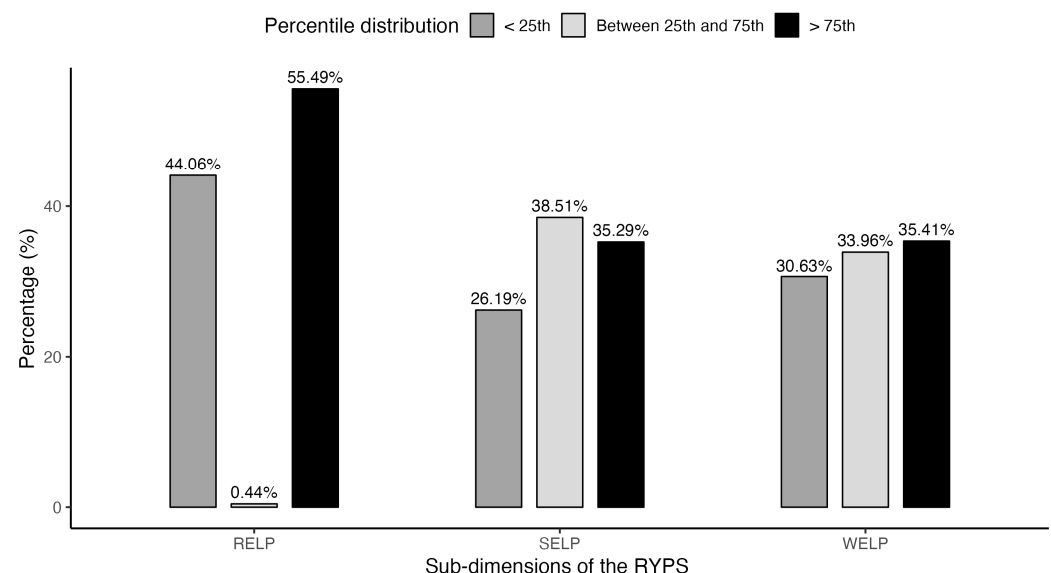


Figure 3. Sample distribution of participants across all three sub-dimensions of life purpose. Note. 1. Revised Youth Purpose Scale (RYPS); 2. Self-enhancing life purpose (SELP); 3. Responsibility-enhancing life purpose (RELP); 4. World-enhancing life purpose (WELP).

Table 4. Descriptive statistics and correlation matrix of the moderated-mediation model variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. SELP	—														
2. WELP	0.28 ***	—													
3. RELP	0.29 ***	0.49 ***	—												
4. PEB	0.00	0.25 ***	0.22 ***	—											
5. DPSN	−0.11 ***	−0.04	−0.12 ***	0.06	—										
6. ANX	0.06	0.06	0.06	0.06	0.57 ***	—									
7. CAS-CI	−0.04	0.09 *	−0.09	0.29 ***	0.13 ***	0.08 *	—								
8. CAS-FI	−0.03	0.09 **	−0.07 *	0.30 ***	0.14 ***	0.06	0.74 ***	—							
9. CNS	−0.05	0.27 ***	0.26 ***	0.47 ***	−0.01	0.05	0.21 ***	0.18 ***	—						
10. PFC	−0.02	0.29 ***	0.28 ***	0.53 ***	0.02	0.08 *	0.24 ***	0.22 ***	0.42 ***	—					
11. MFC	0.12 ***	0.18 ***	0.32 ***	0.20 ***	−0.17 ***	−0.04	−0.11 ***	−0.09 **	0.23 ***	0.28 ***	—				
12. EFC	−0.04	0.09 ***	0.28 ***	0.16 ***	0.02	0.13 ***	−0.30 ***	−0.32 ***	0.17 ***	0.28 ***	0.24 ***	—			
13. GSE	0.13 ***	0.20 ***	0.24 ***	0.12 ***	−0.34 ***	−0.33 ***	−0.12 ***	−0.10 **	0.17 ***	0.10 **	0.21 ***	0.09 **	—		
14. PEAS	0.04	0.21 ***	0.04	0.54 ***	0.11 ***	0.03	0.55 ***	0.58 ***	0.32 ***	0.34 ***	0.001	−0.15 ***	0.02	—	
15. LEAS	−0.02	0.08 *	−0.11 ***	0.29 ***	0.08 *	−0.02	0.59 ***	0.59 ***	0.11 ***	0.09 *	−0.12 ***	−0.39 ***	−0.09	0.75	—
M	11.05	10.60	10.45	29.83	20.19	6.63	12.72	7.92	23.01	5.86	12.40	15.70	24.38	21.20	11.12
SD	2.02	2.16	1.33	9.24	8.95	2.97	6.17	4.20	5.16	1.79	2.23	2.39	4.32	10.08	6.42

Note. 1. Self-enhancing life purpose (SELP); 2. World-enhancing life purpose (WELP); 3. Responsibility-enhancing life purpose (RELP); 4. Pro-environmental behaviors (PEB); 5. Depression (DPSN); 6. Anxiety (Anxiety); 7. Cognitive Impairment—Climate Anxiety (CAS-CI); 8. Functional impairment—Climate Anxiety Scale (CAS-FI); 9. Connectedness to nature (CNS); 10. Problem-focused coping (PFC); 11. Meaning-focused coping (MFC); 12. Emotion-focused coping (EFC); 13. General self-efficacy (GSE); 14. Participation in environmental activism (PEAS); 15. Leadership in environmental activism (LEAS); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

3.3. Bivariate Analysis

Comparisons of mean score for each RYPS factor and the corresponding post hoc test results are displayed in Tables 5 and 6. Significant gender differences in SELP, RELP, and WELP have been revealed. Specifically, mean scores in SELP were higher among female and male participants than non-binary participants. Additionally, female participants reported higher mean scores in RELP and WELP than male participants. In terms of religiosity, significant differences in SELP, RELP, and WELP have been observed. Post hoc tests revealed that participants who reported being spiritual had lower mean scores in SELP than those who reported being religious, both religious and spiritual, and neither. Participants who reported being neither spiritual nor religious had higher mean scores in RELP than those who reported being spiritual, but lower mean scores than those who reported being both spiritual and religious. Participants who reported being spiritual had higher mean scores in WELP than those who reported being religious and neither spiritual nor religious. And those who reported being both religious and spiritual had higher mean scores in WELP than those who reported being neither spiritual nor religious. Lastly, participants with direct experience with climate change had higher mean scores in RELP than those who did not.

Table 5. Comparison of standardized mean factor scores for each RYPS factor and socio-demographic and mental-health-related characteristics.

	SELP	RELP	WELP
	M (SD)	M (SD)	M (SD)
Gender			
Male	−0.02 (1.04)	−0.21 (1.15)	−0.17 (1.06)
Female	0.03 (0.97)	0.07 (0.94)	0.05 (0.97)
Non-Binary	−0.73 (1.19)	−0.05 (0.86)	0.18 (1.01)
Test	5.31 ^{*a}	5.45 ^{*b}	4.35 ^{*a}
Religiosity			
Religious	0.13 (0.96)	−0.06 (1.11)	−0.07 (1.02)
Spiritual	−0.30 (1.11)	0.17 (0.74)	0.27 (0.88)
Neither	0.09 (0.90)	−0.12 (1.09)	−0.16 (1.05)
Both	0.04 (1.07)	0.16 (0.87)	0.13 (0.91)
Test	7.14 ^{*b}	6.37 ^{*b}	10.46 ^{*b}
DEXP			
Yes	−0.04 (1.04)	0.16 (0.85)	0.07 (0.97)
No	0.02 (0.98)	−0.07 (1.06)	−0.03 (1.01)
Test	0.87 ^c	−3.55 ^{*d}	−1.41 ^c

Note. ^a One-way ANOVA; ^b Welch's ANOVA test; ^c Independent samples *t*-test; ^d Welch's *t*-test; Self-enhancing life purpose (SELP); World-enhancing life purpose (WELP); Responsibility-enhancing life purpose (RELP); Direct experience with climate change (DEXP). * $p < 0.05$.

Table 6. Post hoc comparisons.

	Group 1	Group 2	95% CI
Gender			
SELP ^a	Male	Female	[−0.22, 0.14]
	Non-Binary	Female	[−1.30, −0.21] ^{*†}
	Non-Binary	Male	[−1.27, −0.15] [*]
RELP ^b	Female	Male	[−0.48, −0.08] ^{*†}
	Female	Non-Binary	[−0.64, 0.39]
	Male	Non-Binary	[−0.38, 0.69]
WELP ^a	Male	Female	[−0.40, −0.04] [*]
	Non-Binary	Female	[−0.41, 0.67]
	Non-Binary	Male	[−0.21, 0.91]

Table 6. Cont.

	Group 1	Group 2	95% CI
Religiosity			
	SELP ^b	Religious	Neither [−0.19, 0.26]
		Spiritual	Religious [−0.71, −0.15] * [†]
		Both	Religious [−0.38, 0.22]
		Spiritual	Neither [−0.62, −0.16] * [†]
		Both	Spiritual [0.04, 0.65] *
		Both	Neither [−0.31, 0.21]
	RELP ^b	Neither	Religious [−0.21, 0.32]
		Spiritual	Religious [−0.03, 0.50]
		Religious	Both [−0.07, 0.52]
		Neither	Spiritual [0.10, 0.49] * [†]
		Spiritual	Both [−0.24, 0.22]
WELP^b		Neither	Both [0.05, 0.52] *
		Neither	Religious [−0.16, 0.33]
		Spiritual	Religious [0.09, 0.61] * [†]
		Religious	Both [−0.08, 0.49]
		Neither	Spiritual [0.22, 0.64] * [†]
		Spiritual	Both [−0.39, 0.11]
		Neither	Both [0.05, 0.53] *

Note. ^a Tukey HSD post hoc test; ^b Games–Howell post hoc test; Self-enhancing life purpose (SELP); World-enhancing life purpose (WELP); Responsibility-enhancing life purpose (RELP). * $p < 0.05$; [†] $p < 0.008$ (Bonferroni correction 0.05/6 comparisons).

3.4. Main Analysis

First, three mediation analyses were conducted to examine if each coping mechanism mediated the relationship between each life purpose and engagement in each climate action. Three second-stage moderated-mediation analyses were then conducted to determine if collective and individual environmental efficacy moderated the indirect effect.

3.4.1. Self-Enhancing Life Purpose (SELP) and Climate Action

Self-enhancing life purposes (SELP) capture ambitions that center around achieving personal gains such as making money or being successful.

Figure 4A displays the results from the mediation analyses, which revealed a negative association between SELP and emotion-focused coping ($\beta = -0.10$, $SE = 0.03$, $t = -3.10$, $p = 0.002$). Emotion-focused coping was negatively related to engagement in leadership in climate activism ($\beta = -0.19$, $SE = 0.03$, $t = -5.98$, $p < 0.001$) and positively related to engagement in pro-environmental behaviors ($\beta = 0.08$, $SE = 0.03$, $t = 2.56$, $p = 0.011$). Emotion-focused coping mediated the relationship between SELP and leadership in climate action (indirect effect = 0.018, Bootstrap 95% CI: [0.006, 0.033]) and engagement in pro-environmental behavior (indirect effect = −0.008, Bootstrap 95% CI: [−0.017, −0.001]). The direct effects were not significant, thus indicating a full mediation. In other words, those with SELP are less likely to adopt emotion-focused coping mechanisms that will then increase their engagement in pro-environmental behaviors and decrease their engagement in leadership in climate activism. The positive indirect effect indicates that SELP indirectly increases leadership in climate action through reduced emotion-focused coping, while the negative indirect effect indicates that SELP indirectly decreases engagement in pro-environmental behavior through reduced emotion-focused coping.

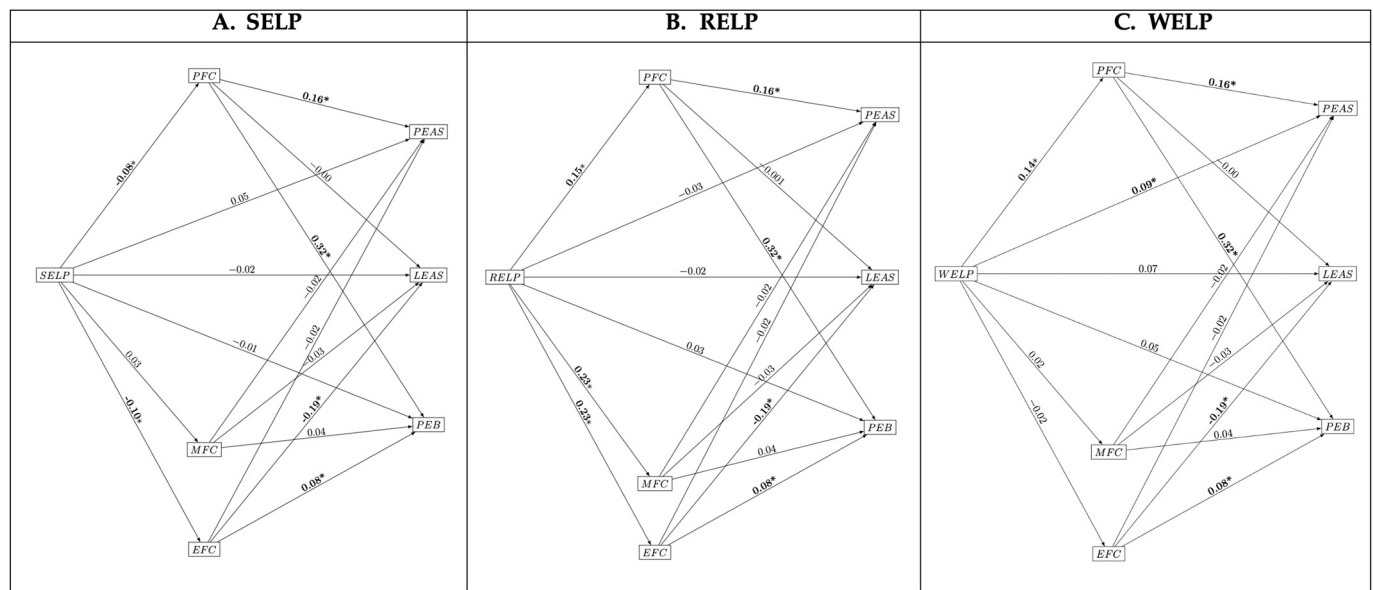


Figure 4. Results from mediation analyses. Note. * $p < 0.0167$ (Bonferroni-adjusted p -value). All VIFs were less than 2.5. Self-enhancing life purpose (SEL); Responsibility-enhancing life purpose (REL); World-enhancing life purpose (WEL); Pro-environmental behaviors (PEB); Problem-focused coping (PFC); Meaning-focused coping (MFC); Participation in environmental activism (PEAS); Leadership in environmental activism (LEAS).

A negative association was also observed between SELP and problem-focused coping ($\beta = -0.08$, $SE = 0.03$, $t = -2.57$, $p = 0.013$), indicating that these participants are less likely to adopt problem-focused coping. However, problem-focused coping was positively related to participation in climate action ($\beta = 0.16$, $SE = 0.03$, $t = 5.26$, $p < 0.001$) and engagement in pro-environmental behaviors ($\beta = 0.32$, $SE = 0.03$, $t = 9.98$, $p < 0.001$). Furthermore, problem-focused coping mediated the relationship between SELP and participation in climate activism (indirect effect = -0.014 , Bootstrap 95% CI: $[-0.027, -0.003]$) and engagement in pro-environmental behavior (indirect effect = -0.027 , Bootstrap 95% CI: $[-0.049, -0.006]$). The direct effects were not significant, thus indicating a full mediation. In other words, those with SELP are less likely to adopt problem-focused coping mechanisms, which in turn increases their engagement in pro-environmental behaviors and participation in climate action. The negative indirect effects indicate that SELP indirectly decreases engagement in pro-environmental behavior and participation in climate activism through reduced problem-focused coping.

Tables 7 and S6 display the results of the second-stage moderated-mediation analyses with SELP as the independent variable and RELP and WELP as the confounders. Both the total and direct effects were not significant from SELP to all three climate action outcome variables.

The interaction effect between problem-focused coping and self-efficacy ($\beta = 0.07$, $SE = 0.03$, $p = 0.010$) was observed, indicating that for every unit increase in self-efficacy the effect of problem-focused coping on participation in climate activism increases. The index of partial moderated mediation for self-efficacy was significant (index = -0.006 , 95% CI = $[-0.013, -0.001]$), revealing that self-efficacy moderated the indirect effect. Post hoc probing revealed significant conditional indirect effects at low (effect = -0.007 , Bootstrap 95% CI = $-0.018, -0.000$), medium (effect = -0.013 , Bootstrap 95% CI = $-0.026, -0.003$), and high levels of self-efficacy (effect = -0.019 , Bootstrap 95% CI = $-0.036, -0.004$). This indicates that SELP indirectly reduces participation in climate activism via

problem-focused coping, and this negative indirect effect is stronger among those with higher levels of self-efficacy.

Table 7. Moderated-mediation analysis for self-enhancing life purposes (SELP).

	Outcome Variables										Mediators							
	PEB				PEAS				LEAS				MFC		PFC		EFC	
	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t
Intercept	0.06	1.22	0.10	2.09	0.05	1.02	0.06	1.21	0.08	1.66	0.07	1.42	−0.03	−0.59	−0.10	−1.90	−0.02	−0.29
SELP	−0.04	−1.27	−0.01	−0.39	0.04	1.36	0.05	1.67	0.00	0.05	−0.01	−0.45	0.03	0.82	−0.08 *	−2.57	−0.10 *	−3.10
GSE	−	−	0.06	2.08	−	−	0.05	1.57	−	−	−0.02	−0.84	−	−	−	−	−	−
MFC	−	−	0.04	1.23	−	−	−0.03	−0.92	−	−	−0.02	−0.80	−	−	−	−	−	−
PFC	−	−	0.32 *	9.89	−	−	0.16 *	5.02	−	−	0.00	0.05	−	−	−	−	−	−
EFC	−	−	0.08 *	2.51	−	−	−0.02	−0.67	−	−	−0.18 *	−5.89	−	−	−	−	−	−
PFC × GSE	−	−	0.01	0.27	−	−	0.07 *	2.57	−	−	−0.00	−0.04	−	−	−	−	−	−
MFC × GSE	−	−	−0.00	−0.08	−	−	−0.03	−1.33	−	−	0.01	0.29	−	−	−	−	−	−
EFC × GSE	−	−	−0.01	−0.25	−	−	0.02	0.73	−	−	0.04	1.34	−	−	−	−	−	−
R ²	0.30		0.41		0.42		0.45		0.41		0.45		0.16		0.29		0.29	
F	26.31		27.45		44.49		33.23		42.84		32.46		11.50		24.21		24.35	
(df1, df2)	(15, 885) *		(22, 878) *		(15, 885) *		(22, 878) *		(15, 885) *		(22, 878) *		(15, 885) *		(15, 885) *		(15, 885) *	

Note. * $p < 0.0167$ (Bonferroni-adjusted p -value). All VIFs were less than 2.5. Self-enhancing life purpose (SELP); Problem-focused coping (PFC); Meaning-focused coping (MFC); Emotion-focused coping (EFC); General self-efficacy (GSE); Participation in environmental activism (PEAS); Leadership in environmental activism (LEAS). Model accounted for depression, anxiety, functional and cognitive impairment subscales, age, connectedness to nature, religiosity, direct experience with climate change, gender, and alternative life purposes (WELP and RELP).

3.4.2. Responsibility-Enhancing Life Purpose and Climate Action

The responsibility-enhancing life purposes (RELPE) factor captures life purposes consistent with the goal of supporting family and friends and wanting to do the right thing.

Figure 4B displays the results from mediation analysis, which revealed a positive association was between RELPE and engagement in emotion-focused coping mechanisms ($\beta = 0.23$, $SE = 0.03$, $t = 6.65$, $p < 0.001$). Engagement in emotion-focused coping mechanisms was negatively associated with engagement in leadership in climate activism ($\beta = -0.19$, $SE = 0.03$, $t = -5.98$, $p < 0.001$) and positively related to engagement in pro-environmental behavior ($\beta = 0.08$, $SE = 0.03$, $t = 2.56$, $p = 0.011$). Emotion-focused coping mediated the relationship between RELPE and engagement in leadership in climate activism (indirect effect = -0.043 , Bootstrap 95% CI: $[-0.067, -0.023]$) and engagement in pro-environmental behavior (indirect effect = 0.019 , Bootstrap 95% CI: $[0.004, 0.036]$). The direct effects were not significant, thus indicating a full mediation. In other words, those with RELPE are more likely to adopt emotion-focused coping mechanisms that will, in turn, increase their engagement in pro-environmental behaviors and decrease their engagement in leadership in climate activism. The positive indirect effect indicates that RELPE indirectly increases engagement in pro-environmental behavior through increased emotion-focused coping, while the negative indirect effect indicates that RELPE indirectly decreases leadership in climate activism through increased emotion-focused coping.

A positive association was also observed between RELPE and engagement in problem-focused coping mechanisms ($\beta = 0.15$, $SE = 0.03$, $t = 4.43$, $p < 0.001$). Engagement in problem-focused coping mechanisms was positively related to participation in climate activism ($\beta = 0.16$, $SE = 0.03$, $t = 5.26$, $p < 0.001$) and engagement in pro-environmental behavior ($\beta = 0.32$, $SE = 0.03$, $t = 9.98$, $p < 0.001$). Problem-focused coping mediated the relationship between RELPE and participation in climate activism (indirect effect = 0.025 , Bootstrap 95% CI: $[0.009, 0.044]$) and engagement in pro-environmental behavior (indirect effect = 0.050 , Bootstrap 95% CI: $[0.024, 0.081]$). The direct effects were not significant, thus indicating a full mediation. In other words, those with RELPE are more likely to adopt problem-focused coping mechanisms that will, in turn, increase their engagement in pro-environmental behaviors and tendency to participate in climate activism. The positive

indirect effects indicate that RELP indirectly increases engagement in pro-environmental behavior and participation in climate activism through increased problem-focused coping.

Tables 8 and S7 display the results of moderated-mediation analyses with RELP as the independent variable and SELP and WELP as the confounders. The results revealed a significant total effect from RELP to engagement in pro-environmental behaviors, indicating that participants whose goals envision supporting family and friends and doing the right thing are more likely to engage in pro-environmental behaviors ($\beta = 0.11$, $SE = 0.03$, $p = 0.001$). However, RELP did not predict participation and leadership in climate activism. Furthermore, the direct effect from RELP to all three climate action outcomes were not significant.

Table 8. Moderated-mediation analysis for responsibility-enhancing life purposes (RELP).

	Outcome Variables												Mediators					
	PEB				PEAS				LEAS				MFC		PFC		EFC	
	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t
Intercept	0.06	1.22	0.10	2.09	0.05	1.02	0.06	1.21	0.08	1.66	0.07	1.42	−0.03	−0.59	−0.10	−1.90	−0.02	−0.29
RELP	0.11 *	3.26	0.03	0.82	−0.01	−0.46	−0.02	−0.66	−0.07	−2.29	−0.01	−0.42	0.23 *	6.03	0.15 *	4.43	0.23 *	6.65
GSE	-	-	0.06	2.08	-	-	0.05	1.57	-	-	−0.02	−0.84	-	-	-	-	-	-
MFC	-	-	0.04	1.23	-	-	−0.03	−0.92	-	-	−0.02	−0.80	-	-	-	-	-	-
PFC	-	-	0.32 *	9.89	-	-	0.16 *	5.02	-	-	0.00	0.05	-	-	-	-	-	-
EFC	-	-	0.08 *	2.51	-	-	−0.02	−0.67	-	-	−0.18 *	−5.89	-	-	-	-	-	-
PFC × GSE	-	-	0.01	0.27	-	-	0.07 *	2.57	-	-	−0.00	−0.04	-	-	-	-	-	-
MFC × GSE	-	-	−0.00	−0.08	-	-	−0.03	−1.33	-	-	0.01	0.29	-	-	-	-	-	-
EFC × GSE	-	-	−0.01	−0.25	-	-	0.02	0.73	-	-	0.04	1.34	-	-	-	-	-	-
R2	0.30		0.41		0.42		0.45		0.41		0.45		0.16		0.29		0.29	
F	26.31		27.45		44.52		33.23		42.84		32.46		11.50		24.21		24.35	
(df1, df2)	(15, 885) *		(22, 878) *		(15, 885) *		(22, 878) *		(15, 885) *		(22, 878) *		(15, 885) *		(15, 885) *		(15, 885) *	

Note. * $p < 0.0167$ (Bonferroni-adjusted p -value). All VIFs were less than 2.5. Responsibility-enhancing life purpose (RELP); Problem-focused coping (PFC); Meaning-focused coping (MFC); Emotion-focused coping (EFC); General self-efficacy (GSE); Participation in environmental activism (PEAS); Leadership in environmental activism (LEAS). Model accounted for depression, anxiety, functional and cognitive impairment subscales, age, connectedness to nature, religiosity, direct experience with climate change, gender, and alternative life purposes (WELP and SELP).

The interaction effect between problem-focused coping and self-efficacy ($\beta = 0.07$, $SE = 0.03$, $p = 0.010$) was observed, indicating that for every unit increase in self-efficacy the effect of problem-focused coping on participation in climate activism increases. The index of partial moderated mediation for self-efficacy was significant (index = 0.011, 95% CI = [0.002, 0.021]), revealing that self-efficacy moderated the indirect effect. Post hoc probing revealed significant conditional indirect effects at low (effect = 0.014, Bootstrap 95% CI = 0.001, 0.032), medium (effect = 0.024, Bootstrap 95% CI = 0.010, 0.043), and high levels of self-efficacy (effect = 0.035, Bootstrap 95% CI = 0.015, 0.060). This indicates that RELP indirectly increases participation in climate activism via problem-focused coping, and this positive indirect effect is stronger among those with higher levels of self-efficacy.

3.4.3. World-Enhancing Life Purpose and Climate Action

World-enhancing life purposes (WELP) is the factor representing life purposes consistent with advocacy and innovation.

Figure 4C displays the results from mediation analyses, revealing a positive association between WELP and problem-focused coping ($\beta = 0.14$, $SE = 0.03$, $t = 3.94$, $p < 0.001$). The adoption of problem-focused coping mechanisms was then positively related to participation in climate activism ($\beta = 0.16$, $SE = 0.03$, $t = 5.26$, $p < 0.001$) and engagement in pro-environmental behaviors ($\beta = 0.32$, $SE = 0.03$, $t = 9.98$, $p < 0.001$). Problem-focused coping mediated the relationship between WELP and participation in climate activism (indirect effect = 0.022, Bootstrap 95% CI: [0.009, 0.038]) and engagement in pro-environmental behavior (indirect effect = 0.044, Bootstrap 95% CI: [0.020, 0.070]). The direct effect of WELP on participation in climate activism was significant ($\beta = 0.09$, $SE = 0.03$, $t = 2.87$, $p = 0.004$),

thus indicating a partial mediation. However, the direct effect of WELP on engagement in pro-environmental behavior was not significant ($\beta = 0.05$, $SE = 0.03$, $t = 1.51$, $p = 0.131$), thus indicating a full mediation. Based on the findings, those with WELP are more likely to adopt problem-focused coping mechanisms that will, in turn, increase their engagement in pro-environmental behaviors and tendency to participate in climate activism. The positive indirect effects indicate that WELP indirectly increases engagement in pro-environmental behavior and participation in climate activism through increased problem-focused coping.

Tables 9 and S8 present the results of the second-stage moderated-mediation analysis with WELP as the predictor, SELP and RELP as the confounders, and self-efficacy as a moderator.

Table 9. Moderated-mediation analysis for world-enhancing life purpose (WELP).

	Outcome Variables										Mediators							
	PEB		PEAS				LEAS				MFC		PFC		EFC			
	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t
Intercept	0.06	1.22	0.10	2.09	0.05	1.02	0.06	1.21	0.08	1.66	0.07	1.42	−0.03	−0.59	−0.10	−1.90	−0.02	−0.29
WELP	0.09*	2.70	0.04	1.32	0.11*	3.58	0.08*	2.56	0.07	2.29	0.07	2.19	0.02	0.57	0.14*	3.94	−0.02	−0.46
GSE	-	-	0.06	2.08	-	-	0.05	1.57	-	-	−0.02	−0.84	-	-	-	-	-	-
MFC	-	-	0.04	1.23	-	-	−0.03	−0.92	-	-	−0.02	−0.80	-	-	-	-	-	-
PFC	-	-	0.32*	9.89	-	-	0.16*	5.02	-	-	0.00	0.05	-	-	-	-	-	-
EFC	-	-	0.08*	2.51	-	-	−0.02	−0.67	-	-	−0.18*	−5.89	-	-	-	-	-	-
PFC × GSE	-	-	0.01	0.27	-	-	0.07*	2.57	-	-	0.00	−0.04	-	-	-	-	-	-
MFC × GSE	-	-	−0.00	−0.08	-	-	−0.03	−1.33	-	-	0.01	0.29	-	-	-	-	-	-
EFC × GSE	-	-	−0.01	−0.25	-	-	0.02	0.73	-	-	0.04	1.34	-	-	-	-	-	-
R2	0.30		0.41		0.42		0.45		0.41		0.45		0.16		0.29		0.29	
F	26.31		27.45		44.49		33.23		42.84		32.46		11.50		24.21		24.35	
(df1, df2)	(15, 885)*		(22, 878)*		(15, 885)*		(22, 878)*		(15, 885)*		(22, 878)*		(15, 885)*		(15, 885)*		(15, 885)*	

Note. * $p < 0.0167$ (Bonferroni-adjusted p -value). All VIFs were less than 2.5. World-enhancing life purpose (WELP); Problem-focused coping (PFC); Meaning-focused coping (MFC); Emotion-focused coping (EFC); General self-efficacy (GSE); Participation in environmental activism (PEAS); Leadership in environmental activism (LEAS). Model accounted for depression, anxiety, functional and cognitive impairment subscales, age, connectedness to nature, religiosity, direct experience with climate change, gender, and alternative life purposes (SELP and RELP).

The results revealed a significant total effect from WELP in pro-environmental behaviors and participation in climate action, indicating that those with WELP are more likely to enact pro-environmental behaviors ($\beta = 0.09$, $SE = 0.03$, $p = 0.007$) and participate in climate action ($\beta = 0.11$, $SE = 0.03$, $p < 0.001$). The total effect of WELP on leadership in climate activism was not significant ($\beta = 0.07$, $SE = 0.03$, $p = 0.022$). The results also revealed a significant direct effect from WELP to participation in climate action. This indicates that participants with WELP significantly predicted participation in climate action in the presence of the coping mechanisms and the moderators ($\beta = 0.08$, $SE = 0.03$, $p = 0.011$).

The interaction effect between problem-focused coping and self-efficacy ($\beta = 0.07$, $SE = 0.03$, $p = 0.010$) was observed, indicating that for every unit increase in self-efficacy the effect of problem-focused coping on participation in climate activism increases. The index of partial moderated mediation for self-efficacy was significant (index = 0.009, 95% CI = [0.002, 0.020]), revealing that self-efficacy moderated the indirect effect. Post hoc probing revealed significant conditional indirect effects at low (effect = 0.012, Bootstrap 95% CI = 0.001, 0.026), medium (effect = 0.021, Bootstrap 95% CI = 0.009, 0.037), and high levels of self-efficacy (effect = 0.031, Bootstrap 95% CI = 0.013, 0.053). This indicates that WELP indirectly increases participation in climate activism via problem-focused coping, and this positive indirect effect is stronger among those with higher levels of self-efficacy.

4. Discussion

In this article, we examined whether life purpose motivates climate action. This expectation was supported in two specific cases. First, engagement in pro-environmental behaviors was significantly associated with WELP, the life purposes centered on making

a difference through advocacy and innovation, and with RELP, which reflects a sense of responsibility toward others. These findings suggest that pro-environmental behaviors align with broader social-impact goals and moral commitments. Second, WELP was significantly associated with participation in activism, consistent with its orientation toward advocacy. By contrast, SELP, which captured self-enhanced life purposes, showed no significant direct associations with any of the climate actions examined.

The broader aim of this paper was to understand what motivates young people whose life purposes are not explicitly environmental to engage in climate action. To do so, we moved beyond assessing the total effects of life purpose by incorporating coping mechanisms into the analysis, thereby providing a more nuanced account of the pathways linking life purpose to climate-related behaviors.

Based on the existing literature, we hypothesized that climate actions would depend on the coping strategies participants used to manage stress related to climate change. Specifically, we expected that problem-focused and meaning-focused coping, but not emotion-focused coping, would mediate these relationships, an expectation informed by research showing that young people experiencing climate worry often rely on these two forms of coping [23,29,45].

This hypothesis was only partially supported. The findings revealed a complex pattern of relations among life purposes, coping, and climate actions, which has direct relevance to the SDGs, as described in Table 10.

Table 10. Conceptual mapping of study variables to SDGs.

Study Variable	Description	Relevant SDGs	Example SDG Targets
Life Purpose Types (SELP, RELP, WELP)	Motivational orientations shaping engagement in climate action	SDG 4 (Quality Education); SDG 8 (Decent Work and Economic Growth)	4.4 (skills for sustainable development); 8.6 (youth transition to work)
Pro-environmental Behaviors	Low-impact individual actions reducing environmental footprint	SDG 12 (Responsible Consumption and Production)	12.2 (sustainable resource use); 12.8 (awareness for sustainable lifestyles)
Participation in Activism	Medium-impact civic engagement for climate justice	SDG 13 (Climate Action)	13.3 (education, awareness, capacity building)
Leadership in Activism	High-impact transformative climate engagement	SDG 16 (Peace, Justice and Strong Institutions); SDG 13	16.7 (inclusive decision-making); 13.3 (climate leadership)
Coping Mechanisms (problem-focused; meaning-focused; emotion-focused)	Psychological strategies that shape behavioral responses to climate distress	SDG 3 (Good Health and Well-Being)	3.4 (mental health and well-being)
Self-Efficacy	Beliefs about capability to act effectively	SDG 4 (Quality Education); SDG 8 (Decent Work and Economic Growth)	4.7 (empowerment through education); 8.6 (youth confidence for meaningful work)

The next sections will unpack these patterns for each of the three life-purpose categories (SELP, RELP, and WELP) and discuss their implications for green guidance interventions.

4.1. Self-Enhancing Life Purposes

One of the most noteworthy findings of this study concerns life purposes oriented toward enhancing social or financial status, captured by the self-enhancing life purposes (SELP) factor. SELP did not directly predict engagement in any type of climate action. However, this statement captures only part of the phenomenon. The data indicate that individuals who strongly endorse SELP may participate in climate-related activities under specific conditions. Before examining these conditions, it is important to describe the characteristics of the young people who predominantly endorsed SELP.

A substantial proportion of these participants (39%) aspired to extrinsically motivated goals such as earning money and attaining social recognition. Both female and male

participants scored higher on SELP than those identifying as non-binary. The role of gender in shaping life goals is particularly salient in a context where gender identities are increasingly understood beyond traditional binaries. Our findings suggest that youth whose gender identity falls outside conventional classifications may be less inclined toward extrinsic, success-oriented life goals. Non-binary identity, however, was not significantly associated with RELP or WELP.

One interpretation is that SELP may reflect a worldview implicitly aligned with traditional gender norms, diverging from the experiences of gender-diverse individuals who often face discrimination and exclusion [107]. These individuals may therefore gravitate toward intrinsically motivated purposes that emphasize meaning, advocacy, or responsibility, or may disengage from extrinsic aspirations if they perceive such goals as unattainable due to systemic inequities. Although speculative, this interpretation highlights the need for further research on the intersections among gender identity, motivation, and life purpose.

Another notable pattern concerns spirituality: participants identifying as spiritual or religious tended to score lower on SELP, suggesting a potential incompatibility between spiritual orientations, typically associated with intrinsic motivation and meaning making, and the extrinsic values embedded in SELP. This aligns with prior research linking spirituality with intrinsic rather than extrinsic aspirations.

These findings contribute to theoretical understanding, but they have limited applied relevance, as neither gender identity nor spirituality should ever be targeted for change. Both are protected under the Universal Declaration of Human Rights [108] and, for those under 18, the United Nations Convention on the Rights of the Child [35]. Instead, our study highlights modifiable constructs such as coping mechanisms and climate engagement that can inform interventions supporting young people in pursuing personal goals while contributing to sustainability efforts aligned with the SDGs [25].

Closer examination revealed that participants whose dominant life purpose was self-enhancing were unlikely to engage in pro-environmental behaviors, climate activism, or leadership unless they adopted certain coping mechanisms, indicating that climate-related worry may be less salient for them. These participants were generally less likely to use problem-focused or emotion-focused coping. However, when they did experience climate worry, SELP was associated with reduced pro-environmental behaviors and reduced participation in activism through lower use of problem-focused coping. Similarly, reduced emotion-focused coping was associated with greater engagement in pro-environmental behaviors but a lower likelihood of assuming leadership roles.

Notably, we found no direct or indirect effects of SELP on leadership in activism through either problem- or emotion-focused coping. This suggests that individuals oriented toward SELP are unlikely to engage in transformative climate actions such as activist leadership, even when experiencing climate worry. From an intervention perspective, this implies that SELP-oriented youth may not respond to initiatives aimed at fostering high-intensity engagement. Nonetheless, they can contribute to climate solutions through lower-impact actions such as adopting pro-environmental behaviors or participating in activism.

Embedding climate advocacy within the practice of career development may be particularly effective. This approach could enable young people to pursue personal ambitions while reflecting on how climate change may affect their future opportunities and encouraging them to take mitigating actions through lifestyle choices and professional pathways. Addressing the climate crisis requires diverse forms of contribution; while transformative engagement may attract intrinsically motivated youth, incremental forms of action remain essential.

Green guidance can play a critical role here. It reframes the practice of career development as a process linking personal goals with collective well-being [109]. For young

people who are high in SELP, green guidance can transform self-enhancing ambitions into pro-sustainability motivations. School counselors could help these individuals explore how financial success in emerging green industries, such as renewable energy, sustainable finance, or environmental entrepreneurship, can satisfy extrinsic aspirations while advancing environmental goals. They may also highlight how leadership and innovation within sustainable business or technology sectors can enhance social status while supporting the SDGs. In this way, green guidance could channel the drive for personal achievement toward environmentally responsible outcomes, helping youth recognize that climate action is not a barrier to success but an integral component of building resilient, future-oriented careers.

4.2. Responsibility-Enhancing Life Purposes

In contrast to participants with SELP, who showed no direct associations with any form of climate action, those whose goals centered on helping others and contributing to the common good (RELP) were more likely to engage in low-impact pro-environmental behaviors. However, this altruistically driven orientation did not appear to motivate more impactful or transformative actions such as participation in or leadership of activism. One explanation is that the altruism underlying RELP remains primarily human-centered and may not extend to broader ecological systems or non-human life affected by the climate crisis.

RELP was the most prevalent life-purpose dimension in the sample, with 55% of participants scoring in the 75th percentile. It was endorsed more frequently by female participants than by males or non-binary individuals. Participants with higher RELP scores were also more likely to identify as both spiritual and religious, suggesting that spirituality and religion may provide moral and ethical frameworks that reinforce responsibility-enhanced purposes. These values are consistent with traditions emphasizing moral integrity, care for others, and commitment to the social good.

Participants high in RELP were also more likely to adopt all three coping strategies, problem-focused, emotion-focused, and meaning-focused coping, indicating awareness of the climate crisis and some degree of climate-related concern. Yet, because their actions often remained at the level of surface-level pro-environmental behaviors, their worry may be directed more toward the impacts of climate change on themselves and their immediate social circles than toward broader societal or ecological consequences. Although this interpretation cannot be confirmed with the available data, it offers a plausible explanation for the behavioral patterns observed.

Problem-focused and emotion-focused coping were associated with low-impact actions such as everyday pro-environmental behaviors. Problem-focused coping also predicted medium-impact engagement, including participation in activism, whereas emotion-focused coping corresponded with a reduced likelihood of assuming leadership roles in activism. Meaning-focused coping showed no significant associations with climate action among this group. These findings suggest that while RELP-oriented participants are inclined to “do something,” their actions may be driven by concern for the welfare of close others rather than by a systemic or ecological framing of the crisis.

From an intervention perspective, these patterns indicate that youth with RELP may respond positively to initiatives that appeal to their altruistic motivations and moral commitments, even when these remain anthropocentric. Framing climate action as an extension of care and responsibility toward others can effectively engage this group in meaningful, if initially modest, climate behaviors. Over time, such engagement may serve as a foundation for broadening their understanding of environmental interdependence and nurturing more eco-centric motivations. When treated as a starting point rather than

an endpoint, this human-centered orientation may provide fertile ground for developing deeper environmental consciousness through education and reflective practice.

This developmental trajectory aligns closely with the concept of green guidance, which positions sustainability as a core dimension of personal and professional development, helping individuals align ethical commitments with environmental responsibility [34]. For young people with RELP, green guidance can be particularly impactful. Career counselors can help these individuals explore professions that integrate social responsibility with environmental stewardship—for example, sustainable healthcare, social work with climate-affected populations, or education that incorporates environmental literacy. Green guidance can also encourage youth motivated by care and moral duty to expand their sense of responsibility beyond the human community, recognizing that ecological protection is inseparable from human well-being.

In practice, a school counselor using green guidance might help a student who wishes to “help others” understand how careers in climate adaptation planning, renewable-energy outreach, or community-resilience initiatives can fulfil their moral aspirations while contributing to planetary well-being. Through this process, their altruism may evolve from a primarily human-centered stance to a more holistic understanding of sustainability. Green guidance thus provides a bridge between moral responsibility and ecological consciousness [109], enabling RELP-oriented youth to translate caring intentions into actions that support both humanity and the planet.

4.3. *World-Enhancing Life Purposes*

While individuals with RELP appear motivated by duty and moral responsibility, those with WELP are driven by broader aspirations to improve the world through innovation and advocacy. Yet, as the findings indicate, this expansive vision does not automatically translate into sustained engagement in high-impact climate actions.

Among the three life-purpose types examined, WELP is the only factor directly associated with both low-impact (e.g., pro-environmental behaviors) and medium-impact (e.g., participation in activism) climate actions. Participants whose life purposes emphasized advocacy, creativity, and innovation therefore represent a particularly promising group. However, this ambition does not extend to transformative engagement, as WELP showed no association with leadership in activism, either directly or through coping mechanisms.

About 35.4% of participants scored in the 75th percentile or above on WELP. Women were more likely than men to identify with this purpose type, and WELP-endorsing individuals often reported being spiritual or both spiritual and religious. This profile differs from SELP and RELP. The gender distribution aligns with research showing women’s greater representation in care- and advocacy-oriented roles [110], whereas creativity and innovation, central to WELP, are not clearly linked to gender [111], suggesting that WELP may transcend traditional gendered vocational tendencies.

Spirituality emerged as a defining feature of WELP, distinguishing it from SELP and RELP. The combination of advocacy-oriented ambition and spiritual grounding would theoretically position WELP-oriented youth for transformative climate engagement. However, the data do not support this expectation: no evidence indicated engagement in leadership in activism, even when accounting for coping strategies. The only significant association involving leadership was negative; emotion-focused coping predicted a lower likelihood of taking on leadership roles, suggesting that emotion-regulation strategies may inhibit sustained or transformative activism.

Despite this, WELP-oriented individuals represent a unique opportunity for intervention. Their meaning-driven orientation and openness to spiritual reflection make them well

suited to transformative learning approaches that emphasize inner growth and purpose alignment. They may be particularly receptive to frameworks such as the Inner Development Goals (IDGs), which highlight internal transformation, with empathy, mindfulness, critical thinking, and connectedness as foundational for addressing external challenges like the climate crisis [112]. Such approaches can help WELP-oriented youth translate idealism into concrete and enduring contributions to climate solutions, including forms of engagement that extend beyond traditional activism.

In this context, green guidance offers an effective strategy for nurturing this group's potential. For young people driven by the desire to "make the world a better place," green guidance can bridge their intrinsic values and actionable pathways for environmental engagement. Counselors can help them identify careers that integrate innovation, advocacy, and environmental ethics, such as sustainable design, environmental education, or green entrepreneurship, and explore how their spiritual or ethical commitments align with sustainability practices. By shifting engagement from emotionally reactive responses to climate distress toward proactive, solution-oriented participation, green guidance supports the development of leadership capacities grounded in ecological and social responsibility.

In sum, although WELP-oriented individuals do not spontaneously assume leadership roles in climate activism, their spiritual grounding, creative potential, and prosocial orientation position them well for transformative development when supported through guidance frameworks that integrate environmental, moral, and personal dimensions of growth.

The results of this study, however, highlight an important limitation: the measures used to assess the spectrum of climate actions. Activism, particularly its more transformative and leadership-oriented forms, appears to be relatively rare among our participants. Nonetheless, the data indicate that across life-purpose types, when they experience climate concern and adopt coping mechanisms, our participants tend to seek ways to act. Their engagement often takes the form of low-impact pro-environmental behaviors, likely reflecting the actions most emphasized through education, public discourse, and media portrayals of climate responsibility.

At the same time, each life-purpose type presents distinct openings for fostering deeper climate engagement. These opportunities lie in aligning support strategies with youth's motivational orientations, self-determination needs, and sense of self-efficacy. Notably, self-efficacy played a nuanced moderating role: the positive mediating effect of problem-focused coping on the relationships between both RELP and WELP and participation in activism was stronger at higher levels of self-efficacy. Thus, a strong belief in one's capabilities may amplify the translation of purposeful motivation into participatory action when paired with a problem-solving approach to climate distress. Conversely, higher self-efficacy strengthened the negative indirect pathway for SELP, suggesting that, for youth with self-enhanced goals, greater confidence may direct efforts away from collective action.

These findings underscore that self-efficacy, though a common intervention target, is a complex construct whose influence depends on the motivational profiles it supports. Tailoring developmental and career-guidance strategies to these profiles, an approach central to green guidance, may help young people progress from low-impact environmental behaviors to more transformative forms of engagement. In doing so, interventions will honor the diversity of young people's values and life goals while equipping them to integrate ecological consciousness into their personal, educational, and professional trajectories.

5. Conclusions

The robust methods employed in this exploratory study provide important insights into the intersection of life purpose and engagement in climate actions among a sample of Canadian undergraduate students.

This research underscores that there is no single pathway to climate engagement. The key insight that we draw from these findings is that for young people who may not have a strong environmental identity, it is important to facilitate the discovery of life purpose by working with their natural inclinations—whether self-enhancing, responsibility-enhancing, or world-enhancing—rather than attempting to sway their developmental and career trajectories towards environmentalism. It is conceivable to expect that this approach will build their capacity to contribute to sustainable futures and the SDGs in a way that is both meaningful and authentic.

While providing a nuanced understanding of the relationships between life purpose, coping mechanisms, and climate action, this study is not without its limitations. The cross-sectional design limits the possibility of causal inferences. While our theoretical model posits that life purpose influences coping and subsequent action, it is equally plausible that engagement in climate action may foster a specific sense of purpose or alters coping strategies over time. The sample, composed of Canadian undergraduate students, also limits the generalizability of the findings, since youth in nations experiencing more immediate and severe climate impacts may demonstrate different motivational pathways; moreover, the cultural specificity of constructs like “life purpose” and “activism” warrants critical consideration before applying these results universally.

Furthermore, future research should build on these findings by adopting longitudinal or experimental designs to unpack the complex temporal and causal relationships between these psychological constructs. Such approaches would allow tracking life purposes and engagement to understand how they evolve through key developmental and educational transitions. There is also a critical need to expand the operationalization of “climate action” beyond the scales used here. Our findings suggest that leadership in traditional activism is a rare outcome, at least in our sample; therefore, future studies should investigate other transformative but perhaps less obvious forms of engagement.

Finally, the most promising direction for future work lies in the development and rigorous evaluation of “green guidance” interventions. Our results indicate distinct motivational entry points for youth with different life purposes; the logical next step would be to test whether career counseling and green guidance can effectively channel these motivations toward deeper environmental engagement.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/su18021015/s1>, Table S1: EFA factor loadings for Importance of Life Purpose Scale (first iteration); Table S2: EFA factor loadings for Importance of Life Purpose Scale (second iteration); Table S3: EFA factor loadings for Importance of Life Purpose Scale (third iteration); Table S4: EFA factor loadings for Importance of Life Purpose Scale (fourth iteration); Table S5: EFA factor loadings for Importance of Life Purpose Scale (fifth iteration); Table S6: Moderated mediation analysis for self-enhancing life purposes (SELP); Table S7: Moderated mediation analysis for responsibility-enhancing life purposes (RELP); Table S8: Moderated mediation analysis for world-enhancing life purposes (WELP).

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Abbreviations

The following abbreviations are used in this manuscript:

DEXP	Direct experience with climate change
RYPs	Revised Youth Purpose Survey
PEAS	Participation in environmental activism
LEAS	Leadership in environmental activism
PEB	Pro-environmental behavior
PFC	Problem-focused coping
MFC	Meaning-focused coping
EFC	Emotion-focused coping
SELP	Self-enhancing life purpose
RELP	Responsibility-enhancing life purpose
WELP	World-enhancing life purpose
CTN	Connectedness to nature
SDGs	Sustainable Development Goals
IDGs	Inner Development Goals

Appendix A

Revised Youth Purpose Survey (RYPS; Bundick et al., 2006 [59])

For each item, please indicate to what extent you agree with the following statements:

Response Scale: (1 = “Disagree”, 2 = “Neither agree nor disagree”, 3 = “Agree”)

The purpose of my life is to:

1. Help others
2. Serve God/a higher power
3. Make the world a better place
4. Change the way people think
5. Create something new
6. Make things more beautiful
7. Fulfill my obligations
8. Do the right thing
9. Live life to the fullest
10. Make money
11. Discover new things about the world
12. Earn the respect of others
13. Support my family and friends
14. Serve my country
15. Have fun
16. Be successful
17. Have a good career

Appendix B

Pro-Environmental Behavioural Scale (PBS; Ojala 2012a [45]; 2012b [63])

How often do you do the following things for environmental reasons?

Response Scale: (1 = “never”; 2 = “rarely”; 3 = “occasionally”; 4 = “often”; 5 = “all of the time”)

1. I try to get my parents, family and/or peers to buy eco-labeled and/or locally grown food
2. I help my parents or the people I live with sort garbage and the recycling bin
3. I bike or walk to school or work instead of using a car
4. I turn off the light as I leave a room
5. I travel by public transport (e.g., bus) instead of using a car
6. I turn off the TV and computer completely when I am not using them
7. I try to get my parents, family and/or peers to behave more environmentally friendly
8. I save water at home (e.g., showers for shorter time; not let the tap run unnecessarily)
9. I try to get my parents, family and/or peers to care more about the environment
10. I remind my parents and/or the people I live with that it is important to lower the temperature in the house/apartment
11. I try to make other people understand that the environmental issue is important

Appendix C

Environmental Activism Scale (EAS; Alisat & Reimer, 2015 [64])

In the last six months, how often, if at all, have you engaged in the following environmental activities and actions?

Response Scale: (1 = “Never”; 2 = “Rarely”; 3 = “Occasionally”; 4 = “Often”; 5 = “All of the time”)

1. Educated myself about environmental issues (e.g., through media, television, internet, blogs, etc.)
2. Participated in an educational event (e.g., workshop) related to the environment.
3. Talked with others about environmental issues (e.g., spouse, partner, parent(s), children, or friends).
4. Used online tools (e.g., TikTok, Instagram, YouTube, Facebook, Wikipedia, MySpace Blogs) to raise awareness about environmental issues.
5. Became involved with an environmental group or political party (e.g., volunteer, summer job, etc.).
6. Financially supported an environmental cause.
7. Consciously made time to be able to work on environmental issues (e.g., working part time to allow time for environmental pursuits, working in an environmental job, or choosing environmental activities over other leisure activities).
8. Participated in a community event which focused on environmental awareness.
9. Participated in nature conservation efforts (e.g., planting trees, restoration of waterways).
10. Spent time working with a group/organization that deals with the connection of the environment to other societal issues such as justice or poverty
11. Organized an educational event (e.g., workshop) related to environmental issues.
12. Used traditional methods (e.g., letters to the editor, articles) to raise awareness about environmental issues.
13. Personally wrote to or called a politician/government official about an environmental issue.
14. Took part in a protest/rally about an environmental issue.
15. Organized an environmental protest/rally.
16. Organized a boycott against a company engaging in environmentally harmful practices.
17. Organized a petition (including online petitions) for an environmental cause.
18. Organized a community event which focused on environmental awareness.

Appendix D

Coping with Climate Change Scale (Ojala, 2012a [45])

When one hears about societal problems such as climate change, one can feel worried and upset. Please indicate the extent to which you agree with each statement:

Response Scale: (1 = “Disagree”, 2 = “Neither disagree nor agree”, 3 = “Agree”)

1. I think about what I myself can do to improve climate issues
2. I look for information on what young people can do to help with the problem of climate change
3. I talk to my family and/or friends about what can be done to help improve the climate change problem
4. I trust scientists to find a solution to the problem of climate change in the future
5. I believe in humanity and our ability to fix this problem
6. More and more people have started to take climate change seriously
7. I have faith in people involved in environmental organizations
8. I have trust in politicians to solve the climate change problem *
9. Even though climate change is a big problem, one has to have hope
10. I think the problem of climate change is exaggerated
11. I do not care about climate change because I do not know much about this issue
12. Climate change is good because we will have milder winters in the future
13. I cannot be bothered to worry about the climate issue
14. Nothing serious will happen while I’m alive because of climate change
15. Climate change does not concern us living in Canada

* Indicates items eliminated from the scale

Appendix E

General Self-Efficacy (Schwarzer & Jerusalem 1995 [70])

Please indicate the extent to which you agree with each statement:

Response Scale: (1 = “Disagree”, 2 = “Neither disagree nor agree”, 3 = “Agree”)

1. I can always manage to solve difficult problems if I try hard enough
2. If someone opposes me, I can find the means and ways to get what I want
3. It is easy for me to stick to my aims and accomplish my goals
4. I am confident that I could deal efficiently with unexpected events
5. Thanks to my resourcefulness, I know how to handle unforeseen situations
6. I can solve most problems if I invest the necessary effort
7. I can remain calm when facing difficulties because I can rely on my coping abilities
8. When I am confronted with a problem, I can usually find several solutions
9. If I am in trouble, I can usually think of a solution
10. I can usually handle whatever comes my way

Appendix F

Climate Anxiety Scale (CAS; Clayton & Karazsia, 2020 [28])

On a scale from 1 to 5 where 1 is “never” and 5 is “almost always”, how often do you engage in the following thought pattern? Indicate what you generally do, not what you think you should do:

Response scale: (1 = “Never”, 2 = “Rarely”, 3 = “Sometimes”, 4 = “Often”, 5 = “Almost always”)

1. Thinking about climate change makes it difficult for me to concentrate
2. I think “why can’t I handle climate change better?”
3. Thinking about climate change makes it difficult for me to sleep
4. I have nightmares about climate change

5. I find myself crying because of climate change
6. I go away by myself and think about why I feel this way about climate change
7. I write down my thoughts about climate change and analyze them
8. I think, “why do I react to climate change this way?”
9. My concerns about climate change make it hard for me to have fun with my family or friends
10. I have problems balancing my concerns about sustainability to get work or school assignments done
11. My concerns about climate change interfere with my ability to get work or school assignments done
12. My concerns about climate change undermine my ability to work to my potential
13. My friends say I think about climate change too much

Appendix G

Connectedness to Nature (CNS; Frantz, 2004 [75])

Please indicate the extent to which you agree with the following statement:

Response Scale: (1 = “Disagree”, 2 = “Neither disagree nor agree”, 3 = “Agree”)

1. I often feel a sense of oneness with the natural world around me.
2. I think of the natural world as a community to which I belong.
3. I recognize and appreciate the intelligence of other living organisms.
4. I often feel disconnected from nature.*
5. When I think of my life, I imagine myself to be part of a larger cyclical process of living.
6. I often feel a kinship with animals and plants.
7. I feel as though I belong to the Earth as equally as it belongs to me.
8. I have a deep understanding of how my actions affect the natural world.
9. I often feel part of the web of life.
10. I feel that all inhabitants of Earth, human, and nonhuman, share a common “life force.”
11. Like a tree can be part of a forest, I feel embedded within the broader natural world.
12. When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature. *
13. I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.
14. My personal welfare is independent of the welfare of the natural world. *

* Indicates items eliminated from the scale

Appendix H

Generalized Depression (Radloff, 1977 [72]; Poulin et al., 2005 [73])

How often have you felt or behaved in this way during the past week (7 days)?

Response scale: (0 = “Rarely or none of the time—less than 1 day”, 1 = “Some or little of the time—1 to 2 days”, 2 = “Occasionally or a moderate amount—3 to 4 days”, 3 = “Most or all of the time—5 to 7 days”)

1. I did not feel like eating; my appetite was poor.
2. I felt I could not shake off the blues even with help from my family and friends.
3. I had trouble keeping my mind on what I was doing.
4. I felt depressed.
5. I felt that everything I did was an effort.
6. I felt hopeful for the future.
7. My sleep was restless.
8. I was happy.

9. I felt lonely.
10. I enjoyed life.
11. I had crying spells.
12. I felt people disliked me.

Appendix I

Generalized Anxiety Disorder (GAD; Duncan et al., 2019 [74])

Please indicate the degree to which each statement applies to you:

Response scale: (0 = “Never or not true”, 1 = “Sometimes or somewhat true”, 2 = “Often or very true”)

1. I am anxious or on edge
2. I find it hard to stop worrying
3. I am nervous or tense
4. I am too fearful or anxious
5. When anxious, my mind goes blank
6. I worry about doing better at things

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