

# “Setting Fire to the Rain” 1<sup>st</sup> Year University Students and the “Greta Effect” on Climate Change Activism in Thailand

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Received: November 10, 2024 Accepted: December 30, 2024 Published: January 22, 2025

doi:10.5296/emsd.v14i1.22580

URL: <https://doi.org/10.5296/emsd.v14i1.22580>

## Abstract

This is a research paper that is focused on assessing issues relating to Climate Change Activism by 1<sup>st</sup> year university students and its implications for environmental concerns and issues.

An interpretive methodology was utilised in order to help understand 1<sup>st</sup> year university student perceptions of Climate Change Activism in Bangkok. The scope for this research were 1<sup>st</sup> year private university students involved in climate change activism. Consequently, the population of interest was made up of 4 separate groupings, located at multiple private university sites geographically situated in Bangkok.

The research outcomes comprised of Four (4) main themes: Motivation, Society; Climate Change Strategies; and university Issues; and Twelve (12) sub-themes, underpinned by 219 conversation targets.

The paper addresses the raised issues of 1<sup>st</sup> year private university students' knowledge and attempts of influencing climate change developments in Thailand, in relation to western approaches through the “Thunberg effect”.

**Keywords:** Climate Change, Youth, Student Opinion, University, Thailand

## 1. Introduction

It was declared that, “*Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred*” (IPCC, 2023). Despite this statement, any recognition that young people should be consulted, as it is their future, is not mentioned in this very important document. The “Greta-effect” (Hayes and O’Neill, 2021) appears as a real influence across Europe, but in Asia, it is argued that it comes with increased dangers to those young people who want to invest in and also realise its promise. Further, young people have recognised that climate change matters and are eco-concerned about its effects (Sobel, 1996; Strife, 2012). Social, and more particularly, youth activism, has only received lowered confidence, with no stated “actual evidence” of its impact for change (IPCC, 2023). Youth groups appear marginalised (Bowman, 2020), and where youth activism appears to be ignored, despite the “Greta-effect” (as explained later). Such youth eco-concerns have been determined as resulting from a-priori vicarious experiences (Pihkala, 2020) leading to negative mental responses and anger (Harmon-Jones, 2003; Clayton, 2020) to exposed intense climate developments (Stanley et al., 2021). Young people have a moral right to understand and know about climate change (CC) through education and rights engagement (Mbah, Shingruf and Molthan-Hill, 2022; ESCAP, 2022).

Indicative research shows that younger people/adults will experience a large increase in the effects of climate change, during their working lives (UNCC, 2023; Jones and Lucas, 2023). This is all the more important, as over 60% of the world’s youth population lives in Asia (UN, 2010) and appear to have little or no voice to even attempt to influence governments to make CC changes despite being burdened with climate change impacts for the rest of their lives (Masson-Delmotte et al., 2021). These result from a weak global climate change prognosis, through a changing political arena, such as with the US political issues resulting in major reverses of climate change policy including a withdrawal from the Paris agreement (Bromley-Trujillo and Holman, 2020; Kenny, 2023; LSE, 2017). Young people are therefore more vulnerable to the effects of climate change (Sanson, Horn and Burke, 2019), as well as countries vulnerable to weak economies including 1<sup>st</sup> World economies, such as the UK (Jones, 2001).

### 1.1 *The politics of the Greta Thunberg effect (Greta-Effect)*

Sabherwal et al. (2020) indicated that there was a positive attribute associated with Greta Thunberg, as a climate activist. Action to influence climate change in Asia is not well researched, as very little is published on climate change, and where the underpinning notions of such, are better developed in the West (Roser-Renouf et al., 2014). Climate change anxiety in young people (Hickman et al., 2021) shows clearly that they have opinions (Papadopoulos and Renaldi, 2021; UNICEF, 2022), but they appear to have little ability to influence the decision-makers (Rennie, 2023). This is also the case for Thunberg, despite speaking to the UN CC in 2019 (UN, 2019). However, in Asia, there is very little research about young people opinions of climate change. The reach and punch of Greta is therefore limited to a left-wing cohort, of anti-elitist UN climate change supporters (Prager, 2020). However, more recently, research has shown that this effect is muted due to the practical nature of the impact

overtly encouraged by Thunberg (Thunberg, 2022) but ignored by mostly right-wing governments in Asia (Ulah, Hussain and Al-Faryan, 2024).

In Asia, deference to authority is the norm, whereas in the US, deference to no one, is the norm. The Thunberg effect is therefore not an appropriate model for climate change activists – more likely to mirror climate change enthusiasts. The political context of the climate change ideology is not supported in countries where authoritarianism is the norm (Putra, 2024). This accounts for the majority of Asia, and especially in South East Asia, such as Thailand (Marquardt, Delina and Smits, 2022). Collective action is therefore a political action, where everyone accedes to the power of the regime. In this respect, independent individual or group climate action is not part of the operating culture. Thunberg's notion of collective action therefore has no meaning. The university students appear to have different ideas about how to engage in climate change within Asian countries. Therefore, the Thunberg approach is not a way forward for these countries or the climate change “activists” in those countries, through national endorsement of country/government led strategies (Fielding et al., 2020).

However, school nor university students in Thailand, do not appear to be provided with sufficient teaching programmes or support resources to effectively come to an effective opinion about this. This is recognised by NGO - UNICEF (2023) - who issued an RFP to analyse Thailand's climate change policies and plans, leading to school initiatives. Thus, school curricula needs assistance and support to develop appropriate levels of knowledge engagement in climate change (Ardoin et al., 2018). Subsequently, there appears to be a disconnect between what is taught in high-school curricula, continuing updated practices (Stevenson et al., 2013) and the lack of such education in the university entrance year. Overseas, many universities appear to engage in a much broader practice of a dual strategy of climate change mitigation internally to become carbon-neutral (Chatterton et al., 2015); and another strategy in the provision of education at appropriate levels of curricula and certification (Baumber, Luetz and Metternicht, 2019) assisting in long-term informed response (Cordero, Centeno and Todd, 2020). This dual role does not appear to be well developed (Short, 2009) in Thai private universities. This indicates that the university system and the government departments are not in sync nor is there any coordination for government universities to continue the schools educational package associated with climate change in science and educational packages leading to a carbon-neutral future.

Consequently, this raises some necessary and informed issues (Househ, 2011), and produces the context for the research question, *In what ways do 1<sup>st</sup> year University students influence Climate Change developments and wider mitigation measures leading to a carbon-neutral future?*

## **2. Methods**

Examining climate change opinion developments demands a qualitative study (Walsh, White and Young, 2008) to help distinguish between the many raised climate concerns and opinions. This research focuses on the developing opinions of respondents and not on any aspect of Climate Change (CC) provision by universities or their orientation to CC, as a university. Subsequently, the target respondents for inclusion in the research study are 1<sup>st</sup> year university

students, who have an interest in climate change and its underlying influences and whose such opinions are considered authoritative ‘knowledge agents’ (Sbaraini et al., 2011) reflecting unique personal, present, climate change opinions. These knowledge agents offer pertinent reflections (Sutton and Austin, 2015) regarding specific climate change perceptions (Hansson and Bryngelsson, 2009) developed from school climate change curricula (de Rivas, Vilches and Mayoral, 2024) and personal CC knowledge (Spence et al., 2011).

The semi-structured interview process was employed from a subjective “knowledge” viewpoint (Kvale, 1996). This was also strengthened by undertaking an inductive/theory building orientation (Glaser and Strauss, 1967). This methodology is utilised for constructing valuable contextual data outcomes (Qu and Dumay, 2011) which informed richer theory development (Cayla and Eckhardt, 2007) through appropriate reflexivity engagement (Malterud, 2001).

A closed research population of fifteen (15), all contained within an identified in-scope private universities research frame (Ritchie and Lewis, 2003; Fink, 2000). These were made up of 1<sup>st</sup> year university students (contained within a random sampling from live class lists), who had CC related knowledge and experiences (as indicated above). Respondents were chosen through applying a rigorous “population of interest” (Carman, 1990) in order to ensure “empirical adequacy” (Spanos, 1990). Applying sample size sufficiency requirements (Morse, 2000) ensures that the data gathered presents as an in-depth understanding of the research focus (Ogden and Cornwell, 2010) leading to saturation outcomes (Mason, 2010). Thus, making the sample size appropriate and adequate for the research purposes.

A pilot study was carried out with two (2) respondents from the identified and closed population. These respondents were subsequently excluded from the main interview process (Maxwell, 2013). This helped to improve the understanding of the language use and the interview process logic used (Kim, 2011). This also assisted with applying a more rationalised questioning engagement (James & James, 2011). Subsequently, this left thirteen respondents available for the interview population.

All interviews were conducted in English and took approximately 45-50 minutes (Sbaraini et al., 2011; Ward et al., 2015), and were recorded with written permission (Duranti, 2007). An identical set of prepared open questions for each respondent was used (Gray and Wilcox, 1995; James, 2014) and modified through the use of qualified probing questions (Meurer, et al., 2007; Punch 2014). “Whole-process” validity was applied (Denzin and Lincoln, 1998) through methodological consistency (Altheide and Johnson, 1998) focusing on credibility (Johnson, 1997), and dependability (Lincoln and Guba, 1985) as a specific and considered replacement for ‘reliability’ (Strauss and Corbin, 1990). This was further treated by linking the central research question through to the data outcomes (Stenbacka, 2001).

Each interview was independently and manually coded (Dey, 2005) leading to the thematic analysis and outcomes using NVivo 12 (Glaser, 1992; Charmaz, 2006). The analysis outcome fully represented the respondent’s views (James, 2015; Walsh, White and Young, 2008) as “best explanation” (Achinstein, 1992). Finally, this research process outcome exploits an “authentic opinion”, reflecting the narrative and experience level of the 1<sup>st</sup> year university

students, through an engaged and robust methodological rigour (Seale and Silverman, 1997). This was designed to assist in the construction of an analysis committed to the ‘interests of the public good’ (Sinzdak, 2008).

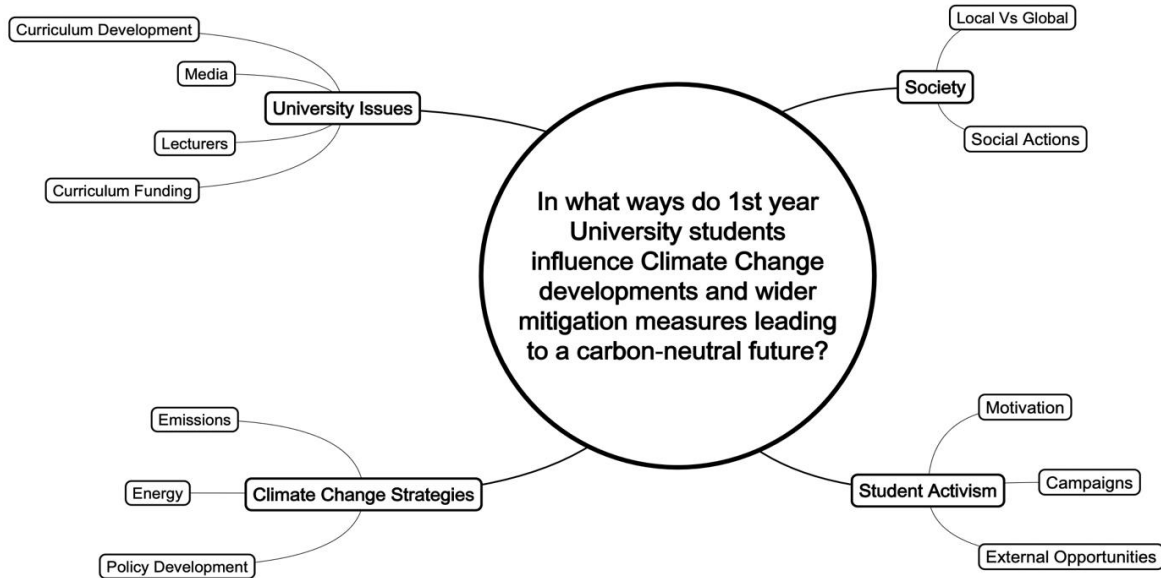


Figure 1. Research Outcomes

### 3. Results

The research outcomes as shown in Figure 1 above and illustrated below in Table 1, comprises of Four (4) main themes: Student Activism; University Issues; Society; and Climate Change Strategies; with Twelve (12) sub-themes, underpinned by 219 conversation targets. The discussion outcomes are focused on the derived Main-themes. The verbatim dialogue expresses the direct respondent’s voice (Cassell and Symon, 2004), and the reporting format informed by Gonzalez (2008) and also Daniels et al. (2007). Subsequently, the resultant explanations are considered “internally coherent” (Coombs, 2017) whilst preserving respondent confidentiality (Kaiser, 2009).

Table 1. Derived Outcomes - Research question, themes and conversation targets

Research Question		
<i>In what ways do 1<sup>st</sup> year University students influence Climate Change developments and wider mitigation measures leading to a carbon-neutral future?</i>		
Main Themes	Sub-Themes	Conversation Targets
<b>Student Activism</b>	Motivation	<u>21</u>
	Campaigns	<u>17</u>
	External Opportunities	<u>15</u>
	<b>Total</b>	<b>53</b>
<b>University issues</b>	Curriculum Funding	18
	Curriculum Development	11
	Lecturers	23
	Media	15
	<b>Total</b>	<b>67</b>
<b>Society</b>	Local vs Global	19
	Social Actions	22
	<b>Total</b>	<b>41</b>
<b>Climate Change Strategies</b>	Policy Development	12
	Emissions	26
	Energy	20
<b>Response Totals</b>	<b>12</b>	<b>58</b>
	<b>Result</b>	<b><u>219</u></b>

The derived outcomes are presented below using extracted data layers (Cassell and Symon 2004). Subsequently, by considering the research question - *In what ways do 1<sup>st</sup> year University students influence Climate Change developments and wider mitigation measures leading to a carbon-neutral future?* - the results are stated here as (4) main-themes, and (12) sub-themes as indicated in Table 1 above, where each sub-theme theme is located and examined within each respective associated main-theme.

### 3.1 Main Themes

#### 3.1.1 Main Theme - Student Activism

In terms of Motivation, as typified one respondent (3) suggested that, “...*Yes, we have tried to use the “Greta effect” because everyone has heard of her and respects her. I hope the authorities will do the same for us...*”. Another respondent (10) indicated that, “...*Some of us feel empowered now to go out and take the climate change message. However, it is too dangerous these days to even share any message of hope...*”. Another respondent (12) advised that, “...*Some of our friends are in jail because we tried to copy her. She has damaged young people all over the world who think that protesting is fun. Not when you are jailed here. We don’t follow her any more...*”.

In terms of Campaigns, as typified one respondent (4) advocated that, “...*We’ve gone to malls and handed out leaflets and posters to people. But many don’t read them, and they end up in the bin. It is also too open. It is demoralising...*”. Another respondent (9) denoted that, “...*We try to do it. We don’t have choice. Otherwise, you will set fire to the rain. Do you want that? I hope not...*”. Another respondent (2) signified that, “...*Sadly, we have been arrested. Greta is to blame. She gets away with everything. We end up in a police cell. This is the reality. She*

*doesn't understand or represent us. Her way is not for us...".*

In terms of External Opportunities, as typified one respondent (11) proposed that, *"...We have been involved in planting trees, cleaning beaches, plastic clean-ups on streets. It's the best we can do. No protests or campaigns for us here. But for climate change there are no planned activities. We can't get much interest, even though our traffic is constantly on stop and the fumes are disgusting...".* Another respondent (4) conveyed that, *"...Greta has no intention of coming here. She would be arrested, the same as us. She is no different. We cannot win against them...".*

### 3.1.2 Main Theme - University Issues

In terms of Curriculum Funding, as typified one respondent (7) advised that, *"...We need more funding for our curriculum research. But no one wants to fund private university students. There's no money anyway...".* Another respondent (3) denoted that, *"...We haven't done enough to substantiate exactly how climate change is going to affect us. It is important that science, studies climate change, so that we can develop proper plans to mitigate its effects. That is missing in Thailand...".*

In terms of Curriculum Development, as typified one respondent (9) intimated that, *"...Some of us were taught climate effects in school, but it is not enough; and not about Thailand. But they don't listen. They think we are nobody. Nothing. We may be young, but you had better take notice. The heat will get to everyone...".* Another respondent (6) expressed that, *"...Since we [are] the future and we are taught that climate change is critical to that future, then I can ask the question why the university is not providing cross-curricula lectures on CC? Such a shame...".*

In terms of Lecturers, as typified one respondent (2) suggested that, *"...There isn't enough lecturers who have any training in climate change. That's the problem here. They do not understand the science nor the social impacts of climate change. Definitely sad...".* Another respondent (8) signified that, *"...Our business lecturers don't seem to care about the climate and its effects. We are told it's the governments responsibility. Really??...".*

In terms of Media, as typified one respondent (5) stated that, *"...I don't look at it that way. I have an opinion. They won't let us use it – not even in the university - we try to do what others do in this world. But it is very difficult here...".* Another respondent (4) denoted that, *"...The way forward is to keep making noise about climate change and hopefully people will understand and support us. There is little we can do though. We are ignored...".*

### 3.1.3 Main Theme - Society

In terms of Local vs Global, as typified one respondent (10) affirmed that, *"...We go to a university in the capital. Local is national. If we just let them do nothing locally, they will definitely run out of rain...".* Another respondent (6) denoted that, *"...Globally, there can be a lot of pressure on countries, but here it is still very fragmented. Money is not the answer, it is CC actions. Thailand plans to be carbon-free in 2065. I am sure it will slip. We have no power to make changes to this, sadly...".*

In terms of Social Actions, as typified one respondent (2) suggested that, “...*We have called for action, but the authorities don't like [it] and will penalise all students, not just the ones who go on strike. This is unfair. It is not so cool. This is what reality is here...*”. Another respondent (8) signified that, “...*It is very difficult to get our views across to policy makers in government here. We try very hard. It has nothing to do with us, it is them. They won't listen. But we won't stop...*”.

### 3.1.4 Main Theme - Climate Change Strategies

#### Policy Development

In terms of Policy Development, as typified one respondent (13) stated that, “...*Whilst we think that all young people should declare their concern of climate change through protests, it is government that creates policy direction. So, raising concerns to government are what we focus on...*”. Another respondent (1) emphasised that, “...*Government scientists tend to be very conservative and short-term thinking. This has an effect on what we can take issue with, scope and therefore its focus...*”. Another respondent (6) denoted that, “...*who is going to listen to us. We are unable to get the government to change. This is Asia, Greta would be in prison here. That's why she hasn't come to Asia...*”.

In terms of Emissions, as typified one respondent (7) suggested that, “...*Our roads are getting cleaner, but energy provision has a long way to go yet to be clean. We know that...*”. Another respondent (4) specified that, “...*We need to build more wind and solar systems. Much more...*”.

In terms of Energy, as typified one respondent (9) denoted that, “...*Renewable energy is starting to be used, but the infrastructure is so poor that going outside the city requires use of non-renewable energy through oil, gas and coal. This will have to change...*”. Another respondent (5) advised that, “...*with nearly 90% of our energy coming from coal, gas and oil [in] Thailand, there is a huge renewable energy gap and climate change issue to manage...*”.

## 4. Discussion

The outline discussion of the research implications for this study follows the main themes and is considered further below:

### 4.1 Student Activism - Motivation, Campaigns, and External Opportunities

The data suggests that the students appeared to be motivated to engage in CC activism, the same as in Europe and the West in relation to neo-liberal contexts (Cole and Heinecke, 2018). However, it was recognised that different social and legal pressures are placed on students, and more importantly within a right-wing counterculture of activism (Jylha and Hellmer, 2020) - despite global youth movements in school (Boulianne, Lalancette and Ilkiw, 2020). This has resulted in significant reductions in CC message reinforcement, reach, coverage and focus except through targeted messages on social media channels (Olsson, 2016) - some of which are protected by end-to-end encryptions. Subsequently, targeted mechanisms are engaged with, that are shorter and more focused and reflect changes in individualism orientations (Loader et al., 2015). These appear to have resulted in smaller group discussions,



where “invited” opinions assist in spreading the CC message. This changed the traditional political knowledge of belonging, through public acceptability (de Coninck et al., 2018). This was boosted through informed and distributed closed networks (Crossley and Ibrahim, 2012), as peer pressure informants (Marsh, O’Toole and Jones 2007) raising further student awareness of climate change (Mavrodieva et al., 2019).

Campaigns were reported as muted, low-key, conditioned and highly controlled, even within the university - which underpins a 1<sup>st</sup> year student’s approach to public climate change decision-making (Creutzig et al., 2018). CC messages, meetings and pamphlets are distributed but only within the university grounds, and then only at designated places. There is no spontaneity, and any meetings must observe the university rules, get permission from the university authority to hold any CC meetings, as well as for the type of content discussed. Most campaign materials and online discussion points are heavily censored leading to misinformation. Most meeting discarded materials are meticulously picked up for recycling, where the area is left clean, as if the CC meetings had never happened.

The presented evidence, shows that for External opportunities, the deliberate actions of CC motivation, campaigns and CC messages, relate to planting micro-forests/reforestation for carbon sequestration (Seddon et al., 2021). Other low key CC activities were also reported to have been performed - just as what was done in some schools (ISB, 2024), by applying the Kyoto Protocol (UNFCCC, 2005). Thus, the 1<sup>st</sup> year university students engage in the development, application and focus of their CC, but in a more controlled way. However, more desirable changes are not forthcoming in the public interest (Hügel and Davies, 2020), where the students suffer setbacks and any enlargement of the CC campaigns, is fraught with difficulty and poses significant risk to the students.

#### *4.2 University Issues - Curriculum Funding/Development, Lecturers, and Media*

It was recorded that the students found no opportunities to engage with CC curriculum funded lectures (similar to that found by Hindley and Wall, 2018) - either for visits to other universities, research discussions/platforms affecting their CC development. No such opportunities were reported to exist in Bangkok, which is also a Global issue (THE, 2023). Subsequently, of further concern, was the issue of a lack of engaged CC activities across the curriculum such as, into business/management/IT/Law/Health/Engineering/Education and deprived of mainstream capability (Thew et al., 2021). Limited scope towards sustainable education in university settings is being conducted (Chiang and Chen, 2022). However, there would appear to be structural barriers to the development and application of CC strategies in education (Filho, Shiel & Paço, 2015), as well as considerable problems with the normalisation of CC information provision within the university setting (Cordero, Centeno and Todd, 2020). The lack of CC in curricula development, appeared to be disappointing to the students, because the curricula were approved by government departments and remain unchanged from the approvals until they are reviewed again - which could take many years. This issue, is thus not reconciled by the restrained government led focus on the climate change educational needs of private universities. Lecturers did include CC in lectures as it was reported as “*low in priority*”, and this adds to a significant plethora of barriers to CC

educational engagement (Molthan-Hill et al., 2019). In order to make the 2050 net zero emissions target (IMF, 2021), much more CC focused education must be developed and implemented - and fast. Many countries are not optimistic of this (Victor et al., 2017) and are taking steps to move this to 2050 instead (Sasse and Trutnevyte, 2023).

The student responses appear therefore to show the lack of proper engagement by the Thailand government (who govern school and university curriculum developments and implementation) and the lack of progress seen through reported outcomes.

#### *4.3 Society - Local/Global; Social Actions*

The data suggests that developed World countries are perceived to make changes - and influences climate change outcomes, through CC actions (Abrahamse, 2005) - long before less developed World countries - through social media (Schmidt, Ivanova and Schäfer, 2013). However, cross border distributed networks may have established an influence (Paniagua, Korzynski and Mas-Tu, 2017) and restrictions on content and orientation affect less developed World countries more. However, as a consequence of environmental campaign practices that were used in the 70-90s against nuclear use, has now fundamentally returned back to nuclear use, due to CC concerns and energy security - UK, Japan and Germany are examples of this (Cleanenergy, 2021). Once again, by completely ignoring nuclear waste issues (James, 2017). This, however, has also some merit, based on the notion that major CC issues are faced today in the post-industrialised age, that come from this development (UN, 2024). Further, the G7 countries are all making drastic changes to their government policies and signed agreements, whereby signed agreement CC actions, such as energy use of only renewables and only new electric car production by 2030, appears to be changed to 2035 (for example, UK, 2023) and likely to move to 2050 at the earliest. Decarbonisation is planned for some EU countries, but not all by 2050 (Sasse and Trutnevyte, 2023). This leads to a two-tier system, much like developed and less developed World countries. This also presents risks to less developed World countries who may not be able to practically change until the end of the 21<sup>st</sup> Century, at the earliest, given that it has signed the Paris agreement (UNFCCC 2015, 2015); and at the COP26, a target for carbon neutrality by 2065 (COP26, 2021); and where CC causes high vulnerabilities and considerable risk to Thailand (Economist Intelligence, 2023) from “low adaptive capacities” (Sasse and Trutnevyte, 2023). As one student exemplified, “*what’s the point of everyone driving electric cars, when there is no electrical point to plug it in, or reducing electrical capacity by closing coal-fired power stations without replacing them with low or no carbon emission replacements*”. This appears to be the reality that pushes students to engage in such risky CC campaigns.

#### *4.4 CC Strategies - Policy Development, Emissions, Energy*

Respondents reported that there is a reluctance for society to engage in CC action, especially in countries with authoritarian right-wing regimes, who may not want to engage in material changes to the present CC requirements. However, difficult choices must be made to ensure a rapid movement towards CC reduction policies that work and are sustainable in the longer term and the costs to the country, as Thailand has signed international agreements demanding such (UNFCCC 2015, 2015). The lack of proper engagement in the microcosm that is the

private university reflects these societal pressures, where the university directly reinforces general societal restrictions through administrative and bureaucratic tendencies.

Emissions appeared to be voiced only in transport requirements. There were little expressions into other emissions areas, such as factories, or coal/natural gas power stations - indicating a lack of education. However, significant comments were made by respondents in terms the lack of solar power and electric vehicle issues due to infrastructure issues. This indicated a clear gap between committed policy and actual real-life developments and practices - as well as a clear failure of CC education in the wider community, raising demands but also in the various professional industries.

In Thailand, energy consumption and its effect on CC, appears to be recognised as too high, and the energy use/mix for production greater than double that of local border countries (APEC, 2010). However, a follow-up report suggested that Thailand (APEC, 2015) has great difficulty with managing emissions and infrastructure, where 48 recommendations cover a host of areas to be developed and implemented. These show that Thailand has not progressed or succeeded adequately in applying appropriate CC measures. It was also suggested that Thailand emissions may remain high for a longer period of time than limited planning indicated (Rajbhandari et al., 2023); and that the limited planning horizon is 2050, against the stated Western orientation of 2030 (now under considerable stress) due to failures to adhere to IPCC agreements (IPCC, 2023; Kaya, Yamaguchi and Geden, 2019). Further, the student response shows a lack of science understanding, which may, in part, be attributed to the lack of CC school teaching, as well as the lack of CC curriculum integration at university level in business, IT and management requirements.

## 5. Conclusions

It would appear that 1<sup>st</sup> year university students have a narrower focus on climate change than is taken by CC professionals, as these individuals also have a wider engagement on air quality, droughts, flooding, catastrophic weather, sea-rise, fishery and marine issues and a reduction in agricultural food yields (Marks, 2011). This student narrowness appears to reflect the inadequate CC knowledge level from schooling, but also the social impact of what is acceptable to have opinions about CC and what such limitations present as a pre-configured and misleading situation through indifferent and rigid civil constraints. This supports, Suriyasarn and Talerngsri (2024), who state that, the “...*human dimension in Thailand’s climate change policies and plans is not well defined.*” - whether by those that want to influence it or those that are affected by it, but have no CC voice. Further, there is also concern that there is a disconnect between the human dimension, CC policies and its implementation measures (ibid, 2024).

The lack of climate justice in Asian countries, and in particular in Thailand, with little or no climate litigation being promoted (p110, IPCC, 2023), also shows a lack of capability of young people to positively influence the slow take-up of climate change policies of Asian governments.

An outcome from the research is very clear, that following the Greta-effect in Asia would be

dangerous, divisive and especially difficult in Thailand at this time. This is despite the huge climate change threat and climate change risk index of 9<sup>th</sup> worst in the world affected in terms of climate change pressures (Eckstein, Kunzel and Schafer, 2021). Thus, students have demonstrated limited capability to influence government decision-makers, leading to a stalled process for appropriate levels of climate change engagement. Therefore, the Greta-effect is muted, at best, in Thailand. Empowerment of youth agency (Joslowesky, 2007) may be a major way forward for engaging with climate change policy development, as these are the very people, whose votes will last a lifetime and are thus key contributors of, and implementors of the climate change dialogue and proposition (Hickman et al., 2021).

The outcome does not align with the statements of Sabherwal et al. (2020), and certainly suggests that despite possible shared political ideology across young people in Asia, if this ideology differs with the prevailing regime, then no overt climate action would be taken. This, therefore, underpins the outcomes of Gifford (2011), where psychological barriers affect a persons intentions to engage with climate change actions.

There would appear to be a lack of critical scientific engagement in CC issues in Thailand, but this appears to be an opportune area for the provision and application of information targeted to the major influencers on CC policy development. However, the data also suggests that students feel that there is a lack of government support and useful information relating to methods and techniques to mitigate CC. This maybe a result of incomplete communication with the wider community and not specifically surrounding young people, such as 1<sup>st</sup> year private university students.

The curriculum model and standards utilised in private universities, do not appear to provide the basis for ongoing climate change teaching requirements for specialists nor generalist university education. This is also a change possibility.

Private universities do not appear to be taking the lead to bring contemporary climate change science to students or provide an optimal platform for CC discussion. This means that private university management are failing students by not recognising the change of circumstances associated with changing purposes of climate change developments. Further, this may mirror the lack of curriculum development and the ineffective application of educational quality assurance processes. This has a knock-on effect to the wider communities and businesses. With COP29 (2024), now visibly attempting to build financial outcomes that assist less developed countries in their efforts to reduce their carbon emissions, significant gaps exist with many developed countries in terms of their political orientations, which may not want to finance such measures - UK, US and some East European are demonstrably such countries.

There is a decided difficulty with climate change activism for 1<sup>st</sup> year Private University students in Bangkok, as the realistic outcomes of such activities remain muted and impossible to take to the streets. Despite this, there is a global requirement to ensure that the world does not “*set fire to the rain*”.

### **Acknowledgments**

Not Applicable

### **Authors contributions**

The main author was responsible for the study design and its revision. The second author was responsible for the development of the literature review; which was revised by the main author. The data was collected by the main author and reviewed by the second author. Both authors read, and agreed upon any revisions and the final manuscript. Both authors assessed the reviewers' comments and revised the manuscript accordingly.

The authors agree that the contributions to the revised paper was provided equally.

### **Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### **Competing interests**

The authors report that there are no competing interests to declare.

### **Informed consent**

Obtained.

### **Ethics approval**

Under the operating conditions of conducting this type of research at Bangkok University, no such requirement or research oversight is applicable to the conduct of this research.

The Publication Ethics Committee of the Macrothink Institute.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

### **Provenance and peer review**

Not commissioned; externally double-blind peer reviewed.

### **Data availability statement**

The transcripts and any/or recordings for this study are not publicly available due to the publication of which would severely compromise the anonymity and privacy of the individual participants. This would breach the methodology rigor and the chain of confidence derived through the application of the qualitative study ethics protocols.

### **Data sharing statement**

No additional data are available.

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## References

APEC. (2010). *Peer Review on Energy Efficiency in Thailand. Report for the APEC Energy Working Group*. March. [Online] Available:

[https://aperc.or.jp/file/2010/9/26/PREE20100414\\_Thailand.pdf](https://aperc.or.jp/file/2010/9/26/PREE20100414_Thailand.pdf)

APEC. (2015). *Follow-up Peer Review on Energy Efficiency in Thailand*. EWG 03/2015A. [Online] Available:

[https://www.apec.org/docs/default-source/publications/2016/1/follow-up-peer-review-on-energy-efficiency-in-thailand/final\\_report\\_follow-up\\_pree\\_in\\_thailand\\_20151211.pdf?sfvrsn=31983efc\\_1](https://www.apec.org/docs/default-source/publications/2016/1/follow-up-peer-review-on-energy-efficiency-in-thailand/final_report_follow-up_pree_in_thailand_20151211.pdf?sfvrsn=31983efc_1)

Ardoin, N., Bowers, A., Roth, N., & Holthuis, N. (2018). Environmental education and K-12 student outcomes: a review and analysis of research. *Journal of Environmental Education*, 49(1), 1-17. <https://doi.org/10.1080/00958964.2017.1366155>

Baumber, A., Luetz, J., & Metternicht, G. (2019). Carbon neutral education: Reducing carbon footprint and expanding carbon brainprint. In W. L. Filho, A. M. Azul, L. Brandli, P. G. Özuyar, & T. Wall (Eds.), *Encyclopedia of the UN Sustainable Development Goals: Quality Education*. Springer. [https://doi.org/10.1007/978-3-319-69902-8\\_13-1](https://doi.org/10.1007/978-3-319-69902-8_13-1)

Boulianne, S., Lalancette, M., & Ilkiw, D. (2020). School Strike 4 Climate: Social Media and the International Youth Protest on Climate Change. *Media and Communication*, 8(2), 208-218. <https://doi.org/10.17645/mac.v8i2.2768>

Bowman, B. (2020). They don't quite understand the importance of what we're doing today': The young people's climate strikes as subaltern activism. *Sustainable Earth Reviews*, 3(16). <https://doi.org/10.1186/s42055-020-00038-x>

Bromley-Trujillo, R., & Holman, M. (2020). Climate Change Policymaking in the States: A View at 2020. *Publius: The Journal of Federalism*, 50(3), 446-472.

<https://doi.org/10.1093/publius/pjaa008>

Cassell, C., & Symon, G. (2004). *Essential Guide to Qualitative Methods in Organizational Research*. London, UK: Sage Publications. <https://doi.org/10.4135/9781446280119>

Cayla, J., & Eckhardt, G. (2007). Asian Brands without Borders: Regional Opportunities and Challenges. *International Marketing Review*, 24(4), 444-456.

<https://doi.org/10.1108/02651330710761017>

Chatterton, J., Parsons, D., Nicholls, J., Longhurst, P., Bernon, M., Palmer, A. et al. (2015). Carbon brainprint - an estimate of the intellectual contribution of research institutions to reducing greenhouse gas emissions. *Process Safety and Environmental Protection*, 96, 74-81. <https://doi.org/10.1016/j.psep.2015.04.008>

Chiang, M., & Chen, P. (2022). Education for sustainable development in the business

programme to develop international Chinese college students' sustainability in Thailand. *Journal of Cleaner Production*, 374, 134045. <https://doi.org/10.1016/j.jclepro.2022.134045>

Clayton, S. (2020). Climate anxiety: Psychological responses to climate change. *Journal of Anxiety Disorders*, 74. <https://doi.org/10.1016/j.janxdis.2020.102263>

Cleanenergy. (2021). *The history behind Germany's nuclear phase-out*. [Online] Available: <https://www.cleanenergywire.org/factsheets/history-behind-germanys-nuclear-phase-out>

Cole, R., & Heinecke, W. (2018). Higher education after neoliberalism: Student activism as a guiding light. *Policy Futures in Education*, 0(0), 1-27. <https://doi.org/10.1177/1478210318767459>

Coombes, C. (2017). Coherence and transparency: some advice for qualitative researchers. *Production*, 27. <https://doi.org/10.1590/0103-6513.006817>

COP26. (2021). COP26: *Together for our planet*. UN Climate Action. [Online] Available: <https://www.un.org/en/climatechange/cop26>

COP29. (2024). *UN Climate Change Conference Baku*. [Online] Available: <https://unfccc.int/cop29>

Cordero, E., Centeno, D., & Todd, A. (2020). The role of climate change education on individual lifetime carbon emissions. *PloS One*, 15(2), 1-23. <https://doi.org/10.1371/journal.pone.0206266>

Creutzig, F., Roy, J., Lamb, W., Azevedo, I., Bruine de Bruin, W., Dalkmann, H., et al. (2018). Towards demand-side solutions for mitigating climate change. *Nature Climate Change*, 8(4), 260-263. <https://doi.org/10.1038/s41558-018-0121-1>

Crossley, N., & Ibrahim, J. (2012). Critical mass, social networks and collective action: exploring student political worlds. *Sociology*, 46(4), 596-612. <https://doi.org/10.1177/0038038511425560>

Daniels, J., Bradley, M., Cramer, D., Winkler, A., Kinebrew, K., & Crockett, D. (2007). The Successful Resolution of Armed Hostage/Barricade Events in Schools: A Qualitative Analysis. *Psychology in the Schools*, 44(6), 601-613. <https://doi.org/10.1002/pits.20250>

de Coninck, H., Revi, A., Babiker, M., Bertoldi, P., Buckeridge, M., & Cartwright, A., et al. (2018). In: *Strengthening and implementing the global response in Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways*. [Online] Available: <https://www.ipcc.ch/sr15/chapter/chapter-4/>

de Rivas, R., Vilches, A., & Mayoral, O. (2024). Secondary School Students' Perceptions and Concerns on Sustainability and Climate Change. *Climate*, 12(2), 17. <https://doi.org/10.3390/cli12020017>

Eckstein, D., Kunzel, V., & Schafer, L. (2021). *Global Climate Risk Index 2021*. Bonn, Germany: Germanwatche.

Economist Intelligence, 2023). *Thailand's sustainability policy: getting its act together*. [Online] Available:

<https://www.eiu.com/n/thailand-sustainability-policy-getting-its-act-together/>

ESCAP. (2022). *ESCAP-2022-RP-2022-Review-Climate-Ambition-Asia-Pacific: Raising NDC targets with enhanced nature-based solutions*. [Online] Available:

<https://www.unicef.org/eap/media/12896/file/ESCAP-2022-RP-2022-Review-Climate-Ambition-Asia-Pacific.pdf>

Fielding, K., Hornsey, M., Thai, H., & Toh, L. (2020). Using ingroup messengers and ingroup values to promote climate change policy. *Climatic Change*, 158(2), 181-199.

<https://doi.org/10.1007/s10584-019-02561-z>

Filho, W., Shiel, C., & Paço, A. (2015). Integrative approaches to environmental sustainability at universities: an overview of challenges and priorities. *Journal of Integrative Environmental Science*, 12(1), 1-14. <https://doi.org/10.1080/1943815X.2014.988273>

Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist*, 66(4), 290-302.

<https://doi.org/10.1037/a0023566>

Glaser, B., & Strauss, A. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago, US: Aldine.

<https://doi.org/10.1097/00006199-196807000-00014>

Gonzalez, C. (2008). Conceptions of, and approaches to, teaching online: a study of lecturers teaching postgraduate distance courses. *Higher Education*, 57(3), 299-314.

<https://doi.org/10.1007/s10734-008-9145-1>

Hansson, A., Bryngelsson, M. (2009). Expert opinions on carbon dioxide capture and storage - A framing of uncertainties and possibilities. *Energy Policy*, 37(6), 2273-2282.

<https://doi.org/10.1016/j.enpol.2009.02.018>

Harmon-Jones, E. (2003). Anger and the behavioral approach system. *Personality and Individual Differences*, 35(5), 995-1005. [https://doi.org/10.1016/S0191-8869\(02\)00313-6](https://doi.org/10.1016/S0191-8869(02)00313-6)

Hayes, S., & O'Neill, S. (2021). The Greta effect: Visualising climate protest in UK media and the Getty images collections. *Global Environmental Change*, 71, Article 102392.

<https://doi.org/10.1016/j.gloenvcha.2021.102392>

Hickman, C., Marks, E., Pihkala, P., Clayton, S., Lewandowski, E., Mayall, E., et al. (2021). Climate anxiety in children and young people and their beliefs about government responses to climate change: a global survey. *Lancet Planet Health*, 5, Dec., e863-73.

[https://doi.org/10.1016/S2542-5196\(21\)00278-3](https://doi.org/10.1016/S2542-5196(21)00278-3)

Hindley, A., & Wall, T. (2017). A unifying, boundary crossing approach to developing climate literacy. In W. Filho (Ed.), *Implementing sustainability in the curriculum of universities: Teaching approaches, methods, examples and case studies*. Springer.

[https://doi.org/10.1007/978-3-319-70281-0\\_16](https://doi.org/10.1007/978-3-319-70281-0_16)



Hügel, S., & Davies, A. (2020). Public participation, engagement, and climate change adaptation: A review of the research literature. *WIREs Climate Change*, 11(4), e645. <https://doi.org/10.1002/wcc.645>

*Inclusion (GSI) into Planning and Budgeting in Thailand*. Jan, UNDP. [Online] Available: <https://www.undp.org/thailand/publications/integrating-climate-change-cc-gender-and-social-inclusion-gsi-planning-and-budgeting-thailand>

IPCC. (2023). IPCC: Sections. In H. Lee & J. Romero (Eds.), *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (pp. 35-115). IPCC, Geneva, Switzerland. <https://doi.org/10.59327/IPCC/AR6-9789291691647>

ISB. (2024). *Taking root with sustainability at ISB and the EWC*. [Online] Available: <https://blog.isb.ac.th/plant-a-tree-at-isb>

James, P. (2017). Management Issues and Implications When Constructing Underground High Level Radioactive Waste Storage Facilities in the UK. *Saudi Journal of Engineering and Technology*, 2(2), 73-88. <https://doi.org/10.21276/sjeat.2017.2.2.2>

James, P., & James, T. (2011). *Qualitative Research Methods for Health Services*, London, UK: Megellan UK Press.

Jones, C., & Lucas, C. (2023). ‘Listen to me!’: Young people’s experiences of talking about emotional impacts of climate change. *Global Environmental Change*, 83. <https://doi.org/10.1016/j.gloenvcha.2023.102744>

Jones, R. (2001). An environmental risk assessment/management framework for climate change impact assessments. *Natural Hazards*, 23(2-3), 197-230. <https://doi.org/10.1023/A:1011148019213>

Joselowsky, F. (2007). Youth Engagement, High School Reform, and Improved Learning Outcomes: Building Systemic Approaches for Youth Engagement. *NASSP Bulletin*, 91(3), 257-276. <https://doi.org/10.1177/0192636507306133>

Jylha, K., & Hellmer, K. (2020). Right-Wing Populism and Climate Change Denial: The Roles of Exclusionary and Anti-Egalitarian Preferences, Conservative Ideology, and Anti-establishment Attitudes. *Analyses of Social Issues and Public Policy*, 20(1), 315-335. <https://doi.org/10.1111/asap.12203>

Kaiser, K. (2009). Protecting Respondent Confidentiality in Qualitative Research. *Qualitative Health Research*, 19(11), 1632-1641. <https://doi.org/10.1177/1049732309350879>

Kaya, Y., Yamaguchi, M., & Geden, O. (2019). *Towards net zero CO2 emissions without relying on massive carbon dioxide removal*. *Sustainability Science*. <https://doi.org/10.1007/s11625-019-00680-1>

Kenny, J. (2023). Disapproval of Climate Policy Dismantlement: A Comparative Analysis of International Public Opinion on Donald Trump’s Withdrawal from the Paris Climate Change

- Regime. *Journal of Comparative Policy Analysis: Research and Practice*, 1-16.  
<https://doi.org/10.1080/13876988.2023.2262431>
- Kim, Y. (2011). The Pilot Study in Qualitative Inquiry: Identifying Issues and Learning Lessons for Culturally Competent Research. *Qualitative Social Work*, 10(2), 190-206.  
<https://doi.org/10.1177/1473325010362001>
- Kvale, S. (1996). *Interviews: An Introduction to Qualitative Research Interviewing*. London, UK: Sage Publications.
- Loader, B., Vromen, A., Xenos, M., Steel, H., & Burgum, S. (2015). Campus politics, student societies and social media. *The Sociological Review*, 63, 820-839.  
<https://doi.org/0.1111/1467-954X.12220>
- LSE, (2017). *Trump's withdrawal from the Paris Agreement: what next for international climate policy?* 5th June 2017. [Online] Available:  
<https://www.lse.ac.uk/granthaminstitute/news/trumps-withdrawal-from-the-paris-agreement-what-next-for-international-climate-policy/>
- Malterud, K. (2001). Qualitative research: standards, challenges, and guidelines. *Lancet*, 358, 483-488. [https://doi.org/10.1016/S0140-6736\(01\)05627-6](https://doi.org/10.1016/S0140-6736(01)05627-6)
- Marks, D. (2011). Climate Change and Thailand: Impact and Response. *Contemporary Southeast Asia*, 33(2), 229-258. <http://doi.org/10.1355/cs33-2d>
- Marquardt, J., Delina, L., & Smits, M. (2022). *Governing Climate Change in Southeast Asia*. Abingdon, UK: Routledge. <https://doi.org/10.4324/9780429324680>
- Marsh, D., O'Toole, T., & Jones, S. (2007). *Young People and Politics in the UK*. Basingstoke, UK: Palgrave. <https://doi.org/10.1057/9780230625631>
- Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *Forum: Qualitative Social Research*, 11(3), 8. <https://doi.org/10.17169/fqs-11.3.1428>
- Masson-Delmotte, V., Zhai, P., Pirani, A., Connors, S., Péan, C., Berger, S., ... (Eds.). (2021). Climate Change 2021: The physical science basis. *Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, UK: Cambridge University Press.
- Mavrodieva, A., Rachman, O., Harahap, V., & Shaw, R. (2019). Role of Social Media as a Soft Power Tool in Raising Public Awareness and Engagement in Addressing Climate Change. *Climate*, 7(10), 122. <https://doi.org/10.3390/cli7100122>
- Maxwell, J. (2013). *Qualitative Research Design: An Interactive Approach*. London, UK: Sage Publications.
- Mbah, M., Shingruf, A., & Molthan-Hill, P. (2022). Policies and practices of climate change education in South Asia: towards a support framework for an impactful climate change adaptation. *Climate Action*, 1, 28. <https://doi.org/10.1007/s44168-022-00028-z>

- Molthan-Hill, P., Worsfold, N., Nagy, G., Filho, W., & Mifsud, M. (2019). Climate change education for universities: a conceptual framework from an international study. *Journal of Clean Production*, 226, 1092-1101. <https://doi.org/10.1016/j.jclepro.2019.04.053>
- Morse, J. (2000). Determining sample size. *Qualitative Health Research*, 10(1), 3-5. <https://doi.org/10.1177/104973200129118183>
- Ogden, J., & Cornwell, D. (2010). The role of topic, interviewee, and question in predicting rich interview data in the field of health research. *Sociology Health and Illness*, 32(7), 1059-1071. <https://doi.org/10.1111/j.1467-9566.2010.01272.x>
- Olsson, T. (2016). Social media and new forms for civic participation. *New Media & Society*, 18(10), 2242-2248. <https://doi.org/10.1177/1461444816656338>
- Paniagua, J., Korzynski, P., & Mas-Tu, A. (2017). Crossing borders with social media: Online social networks and FDI. *European Management Journal*, 35, 314-326. <https://doi.org/10.1016/j.emj.2016.09.002>
- Papadopoulos, M., & Renaldi, E. (2021). *These young Indonesians feel 'eco-anxiety' over climate change. Here's what they are doing to change that.* [Online] Available: <https://www.abc.net.au/news/2021-10-17/young-people-experienced-eco-anxiety-while-trying-to-save-future/100539788>
- Pihkala, P. (2020). The Cost of Bearing Witness to the Environmental Crisis: Vicarious Traumatization and Dealing with Secondary Traumatic Stress among Environmental Researchers. *Social Epistemology*, 34(1), 86-100. <https://doi.org/10.1080/02691728.2019.1681560>
- Prager, D. (2020). *How Greta Thunberg Explains the Problem With Leftists.* [Online] Available: <https://nationalinterest.org/blog/buzz/how-greta-thunberg-explains-problem-leftists-110526>
- Putra, B. (2024). The politics of countering climate change in Southeast Asia. *Frontiers in Environmental Science*, 12, 1486796. <https://doi.org/10.3389/fenvs.2024.1486796>
- Qu, S., Dumay, J. (2011). The qualitative research interview. *Qualitative Research in Accounting & Management*, 8(3), 238-264. <https://doi.org/10.1108/11766091111162070>
- Rajbhandari, S., Winyuchakrit, P., Pradhan, B., Chaichaloempreecha, A., Pita, P., & Limmeechokchai, B. (2023). Thailand's net-zero emissions by 2050: analysis of economy-wide impacts. *Sustainability Science*, 19, 189-202. <https://doi.org/10.1007/s11625-023-01319-y>
- Rennie, E. (2023). *Eco-anxiety looms as headspace survey reveals young people want climate change action.* [Online] Available: <https://www.abc.net.au/news/2023-09-07/headspace-mental-health-survey-climate-change-eco-anxiety/102825348>
- Roser-Renouf, C., Maibach, E., Leiserowitz, A., & Zhao, X. (2014). The genesis of climate

change activism: From key beliefs to political action. *Climatic Change*, 125(2), 163-178. <https://doi.org/10.1007/s10584-014-1173-5>

Sabherwal, A., Ballew, M., Linden, S., Gustafson, A., Goldberg, M., Maibach, E., ... Leiserowitz, A. (2021). The Greta Thunberg Effect: Familiarity with Greta Thunberg predicts intentions to engage in climate activism in the United States. *Journal of Applied Social Psychology*, 51(4), 321-333. <https://doi.org/10.1111/jasp.12737>

Sanson, A., Horn, J., & Burke, S. (2019). Responding to the Impacts of the Climate Crisis on Children and Youth. *Child Development Perspectives*, 13(4), 201-207. <https://doi.org/10.1111/cdep.12342>

Sasse, J., & Trutnevyte, E. (2023). A low-carbon electricity sector in Europe risks sustaining regional inequalities in benefits and vulnerabilities. *Nature Communications*, 14, article, 2205. <https://doi.org/10.1038/s41467-023-37946-3>

Sbaraini, A., Carter, S., Evans, R., & Blinkhorn, A. (2011). How to do a grounded study a worked example of a study of dental practices. *BMC Medical Research Methodology*, 11(128). <https://doi.org/10.1186/1471-2288-11-128>

Schmidt, A., Ivanova, A., & Schäfer, M. (2013). Media attention for climate change around the world: A comparative analysis of newspaper coverage in 27 countries. *Global Environmental Change*, 23(5), 1233-1248. <https://doi.org/10.1016/j.gloenvcha.2013.07.020>

Seddon, N., Smith, A., Smith, P., Key, I., Chausson, A., ... Girardin, C. (2021). Getting the message right on nature-based solutions to climate change. *Global Change Biology*, 27(8), 1518-1546. <https://doi.org/10.1111/gcb.15513>

Short, P. (2009). Responsible environmental action: its role and status in environmental education and environmental quality. *Journal of Environmental Education*, 41(1), 7-21. <https://doi.org/10.1080/00958960903206781>

Sinzdak, G. (2008). An Analysis of Current Whistleblower Laws: Defending a More Flexible Approach to Reporting Requirements. *California Law Review*, 96(6), 1633-1668. [Online] Available: <http://scholarship.law.berkeley.edu/californialawreview/vol96/iss6/5>

Sobel, D. (1996). *Beyond Ecophobia*. Great Barrington, MA, US: Orion Society.

Spence, A., Poortinga, W., Butler, C., & Pidgeon, N. (2011). Perceptions of climate change and willingness to save energy related to flood experience. *National Climate Change*, 1(1), 46-49. <https://doi.org/10.1038/NCLIMATE1059>

Stanley, S., Hogg, T., Leviston, Z., & Walker, I. (2021). From anger to action: Differential impacts of eco-anxiety, eco-depression, and eco-anger on climate action and wellbeing. *The Journal of Climate Change and Health*, 1, 100003. <https://doi.org/10.1016/j.joclim.2021.100003>

Stevenson, R., Wals, A., Dillon, J., & Brody, M. (2013). Introduction: An orientation to environmental education and the handbook. In R. Stevenson, M. Brody, J. Dillon, & A. Wals

(Eds.), *International handbook of research on environmental education* (pp. 1-6). New York, NY, US: Routledge. <https://doi.org/10.4324/9780203813331-7>

Strife, S. (2012). Children's environmental concerns: expressing ecophobia. *Journal of Environmental Education*, 43(1), 37-54. <https://doi.org/10.1080/00958964.2011.602131>

Suriyasarn, B., & Talerngsri, P. (2024). *Integrating Climate Change (CC), Gender, and Social*

Sutton, J., & Austin, Z. (2015). Qualitative research: data collection, analysis management. *The Canadian Journal of Hospital Pharmacy*, 68(3), 226-231.

<https://doi.org/10.4212/cjhp.v68i3.1456>

THE. (2023). *Mandatory climate courses gain popularity, but challenges too*. [Online] Available:

<https://www.timeshighereducation.com/news/mandatory-climate-courses-gain-popularity-challenges-too>

Thew, H., Graves, C., Reay, D., Smith, S., Petersen, K., ... Bomberg, E. (2021). *Mainstreaming Climate Change Education in UK Higher Education Institutions*, COP26 Universities Network Working Paper. [Online] Available:

<https://uucn.ac.uk/wp-content/uploads/2022/07/Mainstreaming-Climate-Change-Education.pdf>

Thunberg, G. (2022). *The Climate Book*. London, UK: Allen Lane, Imprint of Penguin Press.

UK. (2023). *Government sets out path to zero emission vehicles by 2035*. [Online] Available: <https://www.gov.uk/government/news/government-sets-out-path-to-zero-emission-vehicles-by-2035>

Ulah, S., Hussain, M., & Al-Faryan, M. (2024). Climate change, governance, and economic growth in Asia: a panel cointegration analysis. *Cogent Economics & Finance*, 12(1).

<https://doi.org/10.1080/23322039.2023.2299125>

UN. (2010). *Regional Overview: Youth in Asia and the Pacific*. [Online] Available:

<https://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-regional-escap.pdf>

UN. (2024). *Transforming our world: the 2030 Agenda for Sustainable Development*. [Online] Available: <https://sdgs.un.org/2030agenda>

UNCC. (2023). *Asian Youth's Impact on Global Climate Discourse and Policies*. [Online] Available:

<https://unfccc.int/event/asian-youth-s-impact-on-global-climate-discourse-and-policies>

UNFCCC 2015. (2015). *Paris Agreement*. [Online] Available:

[https://unfccc.int/sites/default/files/resource/parisagreement\\_publication.pdf](https://unfccc.int/sites/default/files/resource/parisagreement_publication.pdf)

UNFCCC. (2005). *Report of the convergence of the parties serving as the meeting of the parties to the Kyoto Protocol on its first session*. [Online] Available:

<https://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf>

UNICEF. (2022). *Climate change is real – so is climate anxiety*. [Online] Available: <https://www.unicef.org/nepal/stories/climate-change-real-so-climate-anxiety>

UNICEF. (2023). *Climate change and sustainable development in Thailand: A landscape analysis of policies and plans and school-based initiatives*. [Online] Available: <https://www.ungm.org/Public/Notice/219718>

Victor, G., Akimoto, K., Kaya, Y., Yamaguchi, M., Cullenward, D., & Hepburn, C. (2017). Prove Paris was more than paper promises. *Nature*, 548(7665), 25-27. <https://doi.org/10.1038/548025a>

Walsh, S., White, K., & Young, R. (2008). Over-Connected? A Qualitative Exploration of the Relationship between Australian Youth and Their Mobile Phones. *Journal of Adolescence*, 31(1), 77-92. <https://doi.org/10.1016/j.adolescence.2007.04.004>