Youth Perception on Climate Change and Sustainable Consumption

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Abstract

This paper reviews the awareness level of youth on climate change issues by exploring how youth views climate change and their reaction to it. The paper also explores the social dimensions of climate change and how to promote energy-saving behaviour. This paper adopted the PRISMA systematic review methodology in selecting research articles from two scientific web databases: Scopus and Web of Science (WoS). 38 research papers were examined in-depth and categorised into three themes, youth and sustainable consumption; the impact of social media on youth's awareness; and the role of support systems such as parents, educational institutions, and peers. From this review, we summarised that the youth have a relatively elevated level of knowledge regarding the climate change crisis due to the vast and readily available information from the internet and the increasingly popular social media platforms. Our findings suggest that future research should focus on surrounding support systems that can enhance youth motivation in combating climate change. Furthermore, providing knowledge and information on climate change alone is no longer sufficient; instead, the youth want to be informed of the actions they can immediately partake in.

Keywords: Climate change, energy conservation, sustainability, sustainable consumption, youth

❍1.0 INTRODUCTION

Climate change has been a heated discussion over these past few years. Despite all the political and economic effort that world leaders have pledged in addressing combat climate change, there have been no significant improvements as global carbon emissions continue to rise (Bandura & Cherry, 2020; UNEP, 2019). In 1992, the United Nations Framework Convention on Climate Change (UNFCCC) defined climate change as a change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which occurs in addition to natural climate variability observed over comparable periods (United Nations, 1992). Some notable effects of climate change are global warming, unpredictable extreme weather (e.g., droughts, storms, flash floods) and rising sea levels (UNEP, 2019).

A study on climate-energy nexus reported that ASEAN countries will be heavily affected by climate change with occurrences like rising sea levels, extreme weather, and continuous flooding will be more frequent in the coming years (Overland et al., 2021). Given the coastal geographical location of many ASEAN countries, sea-level rise affects citizens' livelihood as many economic and agriculture sectors become inundated. Indonesia is migrating its capital city from Jakarta to Kalimantan by 2050, as Jakarta has sunk over 2.5 metres from continuous sea-level rise and excessive land use over the past decades (Azhar et al., 2020; Farida, 2021). Comparatively, in Malaysia, due to the increased global warming, energy consumption for air-conditioning is expected to increase by 8.08% to 321000 KJ/h by 2050 from baseline 297000 KJ/h in the year 2000 (Tang, 2019; Yau & Hasbi, 2017).

The inaction of politicians and country leaders has left citizens frustrated with their continuous profit-making and greed while showing minimal concern for environmental impact (Biscotti & D'Amico, 2016; Galvin, 2020; Picketts, 2018; Willis, 2020). Actions taken to combat climate change have been disappointing, to say the least, with growing deforestation, poor planning of public transportation, and lack of support for renewable energy (Khetrapal, 2018). However, the youth has been seen as a prominent catalyst for climate change advocacy in recent years (Balundè et al., 2020; Grønhøj & Thøgersen, 2017; Haugestad et al., 2021; Lee et al., 2020; Wallis & Loy, 2021). Youth are argued to be more aware of climate change, as social media is being used as a powerful tool that provides youth with enormous information and awareness on current world affairs (Bandura & Cherry, 2020). Such information has led youth to use these platforms to initiate powerful environmental movements and protest the status quo (Lee et al., 2020). Prominent youth environmental leader, Greta Thunberg has shaken the world with her strong pursuit to enforce adults and stakeholders to take active action in combating climate change (Jung et al., 2020; Thunberg, 2019). A study conducted in a Malaysian university found that, when youth are given sufficient resources and

have the right intention, youth are more likely to act and adopt pro-environmental behaviour (Mat et al., 2020). Focusing green change on youth and university students could be the catalyst to produce new generations of ecologically and energy-conscious world citizens (Uhl & Anderson, 2001). According to the United Nations (UN) and World Health Organization (WHO), youth are defined as those aged from 15 to 24 years old (UNDESA, 2013; World Health Organization, n.d.).

2.0 LITERATURE REVIEW

2.1 Social Dimensions of Climate Change

The United Nations Task Team on Social Dimension of Climate Change, led by the World Health Organization (WHO) and International Labour Organization (ILO) reports that global climate change mitigation and adaptation depends on the integration of social dimensions intricately with technology, infrastructure, and environmental science (ILO, 2011). Previous initiatives and strategies for climate change mitigation and adaptation have failed to achieve major emissions reductions due to the lack of understanding of social factors and social infrastructure's interaction and contribution towards climate change (ILO, 2011).

The two most significant social factors or drivers of climate change are transportation (of people and goods) and electrification (introduction of electricity to societies and electricity for new kinds of electrical appliances) (ILO, 2011). Other social drivers of climate change are the human need for food (agriculture industry) and shelter, in terms of land use and deforestation costs (ILO, 2011). There lies a fundamental challenge in dissociating energy consumption from economic development and prosperity towards alternative strategies to meet human needs for energy without environmental costs. According to the United Nations Research Institute for Social Development, social factors for sustainable development can be defined as "social structures, institutions and agency, grounded in social norms and values, that determine directions and processes of change" (UNRISD, 2014, p. 1). In addressing social and interlinked environmental challenges, increasing the effectiveness of environmental and social standards initiatives and improving measurement-monitoring-verification of social and environmental impacts is required (UNRISD, 2014).

2.2 Promoting Energy-Saving Behaviour

One of the cost-effective methods for behavioural changes is to adopt a more energy-efficiency lifestyle by changing occupants' behaviour to conserve energy (Dahlbom et al., 2009). Leygue et al. (2017) argued that it is a complex process of influencing and encouraging individuals (especially those with no energy responsibilities) to change their energy use behaviour to reduce consumption. Energy waste in buildings is majorly related to a lack of information on how to conserve energy use, as well as on its benefits of actions as well as occupants' misbehaviours of energy use (Nisiforou et al., 2012; Tam et al., 2018).

When designing an effective behavioural change campaign, it is essential to identify behavioural intentions to assess the success of current practices and to define future directions for improvement (Ekanayake & Gnanapala, 2016). Ouellette and Wood (1998) add that behavioural intention is a reasonable dimension for predicting future behaviour, although there are still arguments on its correlation with actual actions. Based on the Theory of Planned Behaviour (TPB), behavioural intention is shaped by the combination of attitude towards behaviour, subjective norms, and perceived behavioural control (Ajzen, 1991). Social-psychological constructs of the energy conservation model show that social influence, diffusion, and reference groups play momentous roles in promoting and sustaining energy conservation (Costanzo et al., 1986). Social influence norms pressure individuals to conform to desired behaviours because they do not want to feel guilty about contributing to a social problem. It can be reduced by normative social influence-based interventions (Khashe et al., 2016). Several studies reported the success of the interventions in promoting and motivating people to adopt conservation practices and align their behaviours with the typical behaviour in their social context (Allcott, 2011; Goldstein et al., 2008; Khashe et al., 2016; Siero et al., 1996).

Changes in behaviour will initiate when an individual is aware of the need to change and perceive the ability to influence the behaviour (Fischer, 2008). Delmas and Lessem (2014) support that these preconditions of behavioural change are achievable if the individual receives such information in an easily accessible manner on how to perform the change activities and the outcomes after conducting the activities. In the context of energy conservation behaviour, individuals can reduce their resistance to change by learning about the impacts of energy consumption and conservation tips which are then likely to build their awareness and self-efficacy towards the behaviour. Comparative feedback is one of the interventions that use the strategies of normative social influence and information that motivates people to engage in energy conservation behaviour of the peer network (Delmas & Lessem, 2014; Khashe et al., 2016). Delmas and Lessem (2014) further suggest that real-time comparative feedback comparing individuals' and groups' energy consumption will be more effective. Self-efficacy is defined as an individual's beliefs and confidence about their capabilities to perform certain behaviours (Bandura, 1986). Liepold and Mathiowetz (2005) emphasise that it is important to communicate and teach energy conservation strategies to increase individuals' self-efficacy to engage with the strategies.

An increase in self-efficacy may lead to a greater engagement for a person to contribute to energy-saving goals to perform energy conservation strategies more consistently (Gage & Polatajko, 1994; Woods & Skumatz, 2004). A person with a strong self-efficacy suggests the person's decisions and actions are greatly influenced by internal factors (Lee & Tanusia, 2016), while a person with low self-efficacy is being strongly influenced by external factors (Lindenberg & Steg, 2007; Sheeran & Abraham, 2003). Moreover, it is crucial to identify and understand ways to actively encourage people, especially youth, to contribute to a sustainable energy transition. Present research should focus on increasing and strengthening youth awareness of climate change and taking proactive charge of the depleting environmental change (Bandura & Cherry, 2020). Shifting the focus from adults to youth could be beneficial because youth are claimed to have a higher sense of moral responsibility as they are the generation that will bear the consequences of climate change disruption (Bandura & Cherry, 2020; Chawla, 2009). Therefore, it is imperative to understand the support system that can enhance youth motivation

in combating climate change. The following subheadings discuss the PRISMA systematic review methodology focusing on the youth-specific age category.

⊙3.0 METHODOLOGY

3.1 PRISMA Systematic Review Framework

This paper adopted the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines to conduct a contemporary literature review analysis on the subject of youth and climate change. The PRISMA model presents a systematic review and provides transparency of reporting (Page et al., 2021). A flow diagram of the PRISMA process is provided in Figure 1.
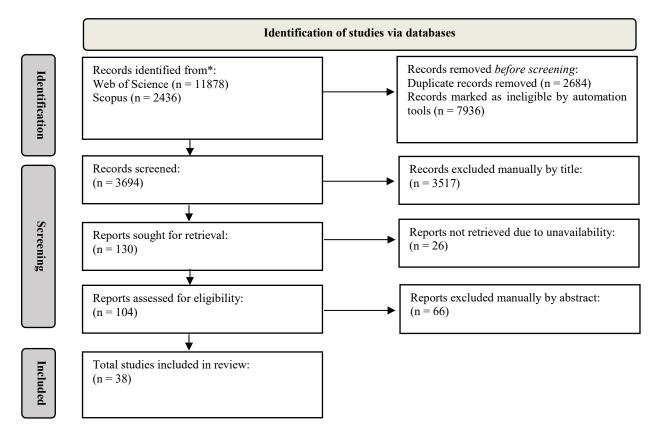

Figure 1 PRISMA analysis flowchart
(Source: Page et al., 2021)

3.2 Search Strategy

A literature search was conducted by adopting the PRISMA method in August 2021 by exploring two scientific databases, the Web of Science (WoS) and Scopus (Page et al., 2021). The Boolean keyword used for this literature search are ("youth" OR "young people" OR "young adults" OR 'adolescent' OR "student") AND ("energy conservation" OR "sustainability" OR "climate change" OR 'pro-environmental behaviour' OR "energy-saving behaviour" OR "green behaviour". The search was limited to English literature only with no specific time frame. In-depth details of the inclusion and exclusion criteria are listed in Table 1.

Table 1 Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
Article written in English	Article in other languages
Article written between the year 2000 to 2021	Articles written before the year 2000
Sample population age range between 15 – 30 years old.	Sample population age range outside of 15 – 30 years old
Research article	Review, opinion, essay, book chapter
Climate change and sustainability topics	Intervention topics

⬤4.0 RESULTS

This paper aims to explore awareness of youth on climate change issues and how that would impact their behaviour (e.g., pro-environmental behaviour or energy-saving behaviour). The literature search using the Boolean keywords yielded 14,314 articles in total: 11,878 articles from Web of Science and 2,436 articles from Scopus. From the initial results, 10,620 articles were removed by the automation tools for not adhering to the inclusion and exclusion criteria mentioned in Table 1. Next, 3,694 articles were gathered and screened manually by their title. From there, 130 articles were chosen to be retrieved. However, 26 articles were not included as they were not freely accessible. Consequently, the remaining 104 articles were assessed for their eligibility through the abstract, which resulted in 38 articles being sampled to be reviewed in-depth.

4.1 Final Selection of Studies

The sample indicates that research on youth and climate change has increased in the past 20 years. 65% of the articles were published from 2019 to 2021, showing the urgency and importance of climate change studies focusing on youth in recent years. Research on this topic also has a global audience, where researchers worldwide have explored this subject matter, and countries like USA and Canada are leading the way with the most published research. A summary of all the sampled articles is presented in Table 2.

The most common method adopted to research this subject matter was the quantitative approach through survey questionnaires (42.1%), while the quantitative approach through interviews, case studies, or focus group discussions are comparable (34.2%). Another 18.4% adopted a mixed-method approach, with another 2% conducting a content analysis of social media platforms. This paper illustrates contemporary research available globally on the subject matter and categorises it according to three main overarching themes:

- Youth and sustainable consumption;
- The impact of social media on youth's awareness; and
- The role of support systems such as parents, educational institutions, and peers.

Table 2 Summary of articles

Reference	Country	Method	Population	Recommendation/Conclusion
Thew et al. (2020)	United Kingdom	Case study, longitudinal, ethnographic	(17-29 years old)	Youth expresses injustice based on perceived future risks but switched to solidarity claims on injustices experienced by other groups
Basch et al. (2022)	N/A	Content analysis	N/A	Social media influence
Senbel et al. (2014)	Canada	Mixed method	6500 students	Sustainable actions are more influenced by peers and the context of conservation than youth's awareness
Barraclough et al. (2021)	83 countries	Mixed method	173 youth (18-35 years old)	Importance of action and participation. Representation of youth in governance bodies
Haugestad et al. (2021)	Norway	Mixed method	(13-30 years old)	Negotiating shared responsibility for climate change, the ineffectiveness of individual blame, timely action to save future, deprived of promised future, have visible consequences
Zummo et al. (2020)	USA	Mixed method	350 letters of young people	Solution-oriented discourse, climate political discourse, a discourse of doom
Kadic-Maglajlic et al. (2019)	Croatia, Slovenia	Mixed method - field study, online survey	(18-35 years old)	Pro-environmental engagement and pro-social engagement are significant predictors of youth green behaviour. Emotional intelligence boosts the effect. Acknowledge young adults are aware
Fien et al. (2002)	Australia, Brunei	Mixed method - questionnaire, focus group interview	Australia 2100, Brunei 421	Youth have strong environmental beliefs but a low level of perceived control towards environmental degradation. School plays a pivotal role to encourage green action
Kieu and Singer (2020)	Vietnam	Mixed method - questionnaire, focus group, interviews	2 youth club	Youth clubs (non-formal education) promote sustainability
Boulianne et al. (2020)	N/A	Mixed method – examine 993 tweets from Twitter	N/A	Social media - Influence of Twitter and Greta Thunberg
Toth et al. (2013)	United Kingdom	Qualitative - diaries, stories, focus group	114 teens (10-19 years old)	Mixed understanding of energy use, the impact of energy use, sources of information, location, barriers to saving energy and green teens
Hibberd and Nguyen (2013)	United Kingdom	Qualitative - focus group, interview	(16–26 years old)	Pessimism and disempowerment are caused by the lack of relevance, resources, and rituals. The media discourage youth from actively involved in green action because lack of positive messages
Trott et al. (2020)	Haiti	Qualitative - Interview	21 students	Integrate art-science in climate study
Dittmer et al. (2018)	Uganda/ Germany	Mixed method longitudinal – Interview	6 (Germany students), 36 (Uganda students)	Conversation and understanding the climate challenge with youth from different backgrounds. Need more support from the university
McDonald-Harker et al. (2022)	Canada	Qualitative - Interview	83 youth (5-17 years old)	Experiencing catastrophic flood-impacted children to think about environmental problems, connect global processes like climate change to local events, act and encourage others in more pro-environmental habits.

MacDonald et al. (2013)	Canada	Qualitative - interview	12-25 years old	Inuit culture (perspective of indigenous people on climate change). Young people have valuable knowledge and perspective.
Jones and Davison (2021)	Australia	Qualitative - interview	21 (18-24 years old	Three overarching themes were identified: 'stripped of power', 'stranded by the generation gap' and 'daunted by the future'.
MacKay et al. (2020)	Canada	Qualitative - Interview	14 (4 youth, 2 coordinators, 4 chaperones)	Importance of family and community (i.e., webs of support); social networks
Simpson et al. (2019)	USA	Qualitative – case study workshop	N/A	Social media. Education project. Action-oriented.
Stapleton (2019)	Bangladesh	Qualitative – interview	13 youth (15-17 years old)	Framing climate education around social justice
Budziszewska and Głód (2021)	Poland	Qualitative – interviews	8 youth (15-21 years old)	Involvement of youth in climate is due to agency, duty, sense of belonging, personal voice, skill, personal growth
Gallagher and Cattelino (2020)	USA	Qualitative (semi-structured interview)	19 (18-30 years old)	Young adults' perspectives on rising seas are socially structured by ideals of individual agency and self-reliance, but paradoxically disempowering because of the impossibility of addressing change through individualised means.
Ojala and Bengtsson (2019)	Sweden	Quantitative	705 adolescent (39 high school)	Communication with parents and friends. Communication pattern; solution-oriented/supportive and dismissive/gloom.
Deng et al. (2017)	China	Quantitative - case study, survey	488 (17-18 years old)	Improving public perceptions of climate change might increase the desirability of adaptation, whereas improving perceptions of water-saving might increase the feasibility of implementing adaptive measures.
Grønhøj and Thøgersen (2017)	Denmark	Quantitative - Online survey	(18-20 years old)	Young people have less internalised motivation to 'do things for the environment' than parents, but the motivation for pro-environmental is rooted in family descriptive norms, parents' internalised motivation for pro-environmental, and autonomy-supporting parenting style
Oliver and Adkins (2020)	54 countries	Quantitative - Secondary data	540000 youth (15 years old)	Females were 4.7% less informed about greenhouse gases than males. Rigorous school science courses prepare students to be well-informed citizens about climate change.
Kaur et al. (2014)	India	Quantitative - survey	80 youth	Youth have a lack of knowledge and awareness on sustainable consumption.
Ahamad and Ariffin (2018)	Malaysia	Quantitative - survey	390 students	High level of knowledge but a moderate level of practice and attitude among students. Social media as the primary source of getting information.
Busch et al. (2019)	United States	Quantitative - survey	453 middle, high school students	Knowledge about climate change causes and effects was a weak predictor of behaviour. Social norms and efficacy are strong predictors.
Zeeshan et al. (2021)	India	Quantitative - survey	717 students (13-18 years old)	Greater environmental awareness, perception, and knowledge of climate change among females than males. Students from rural areas have less awareness than urban areas, but rural students more receptive to environmental awareness and associated activities
Cuzdriorean et al. (2020)	Romania	Quantitative - survey	138 students (20-41 years old)	Education and the environment have a strong influence over sustainable behaviour.
Asmuni et al. (2012)	Malaysia	Quantitative - survey	248 youth (18-19 years old)	A significant relationship between conservation behaviour of university students with rural backgrounds and parents with school education as their highest education level.
Zyadin et al. (2014)	Jordan	Quantitative - survey	16 years old	Differences in gender, place of residence, school type variables, parents scored the highest score in influencing student
Wallis and Loy (2021)	Germany	Quantitative – online survey	562 youth (13-25 years old)	Friends' participation, identification with others in climate protection, and personal norms of obligation based on values were most strongly related to participation in FFF protests.
Borojević et al. (2017)	Serbia	Quantitative – online survey	1586 (15-30 years old)	Differs of sustainable view. Country context.
Abbas et al. (2019)	Pakistan	Quantitative – survey	(16-35 years old)	Findings show that social media's negative impact outweighs positive impact.
Balundė et al. (2020)	Lithuania	Quantitative – survey (3 study) 1510	1510 (Adolescent 13-18 years old)	Biospheric values, environmental self-identity, and personal norms.
Ojala (2012)	Sweden	Quantitative, survey	723 teens, 381 young adult	Hope based on denial was negatively correlated with pro-environmental behaviour in the teenage group.

⦿5.0 DISCUSSION

5.1 Youth, Climate Change and Sustainable Consumption

Health experts argue that climate change is causing negative effects on public health, such as susceptibility to heat-related, heart and lung illness (Fuller et al., 2022; Parker et al., 2019). As for young people, there have been reports of depleting psychological health with conditions like climate anxiety, PTSD from direct experience of climate change and feeling depressed about the future (Majeed & Lee, 2017; Wu et al., 2020). Climate change has not only affected the earth physically (e.g., floods, landslides), but it is also directly impacting the people.

Greta Thunberg, a prominent youth climate activist who conducted her first protest at the Swedish Parliament in 2018 at the age of 15, founded the 'Youthforclimate' or also known as 'Fridaysforfuture', which aims to advocate climate change awareness and policy, has significantly attracted the attention of thousands of youths worldwide (Lee et al., 2020). This global union demand for prompt action to save the planet has certainly garnered the attention of the media, stakeholders, and policymakers (Han & Ahn, 2020). Researchers postulate that the youth are more passionate about the climate crisis issue than adults because their generation must face the consequences of a failed climate system (Wallis & Loy, 2021). The youth feel a sense of urgency in making a stand now, to change the direction of the worsening climate condition, as Greta Thunberg presented her famous speech in Davos at the 2020 World Economic Forum stating, "Our house is still on fire and you're fuelling the flames" (World Economic Forum, 2020).

However, youth are also big consumers, so their contribution to climate problems tends to be overlooked (Ojala & Lakew, 2017). Most youth still live with their parents, and their lifestyle choices can be heavily influenced by their household's awareness and family's behaviour (Grønhøj & Thøgersen, 2017). An interview series conducted among Australian youth argues that even if youth have the intention to choose green alternatives, they usually are not financially capable of making that choice and opt for the ones provided by their parents (Jones & Davison, 2021).

Research trend on youth and sustainable behaviour has undoubtedly changed over the years. Before 2015, most research focused on spreading awareness and knowledge (Fien et al., 2002; Kaur et al., 2014; Levy & Marans, 2012; Toth et al., 2013; Zyadin et al., 2014). Many school programs were rooted to ensure youth understands and are aware of the current climate crisis (Jorgenson et al., 2019; Odell et al., 2021). Post-2015, interestingly, research focus has shifted to encouraging actions rather than just spreading awareness (Ahamad & Ariffin, 2018; Kadic-Maglajlic et al., 2019). This is due to the dreaded knowledge-action gap phenomenon (Fu et al., 2018). A study conducted in Malaysia presented that youth have a high level of knowledge, but a low level of practice in sustainable consumption (Ahamad & Ariffin, 2018).

5.2 The Impact of Social Media on Youth's Awareness

The Internet has been the main source of information on current world events (Zyadin et al., 2014). Social media platforms like Twitter, Facebook, TikTok and Instagram provide youth with up-to-date and readily available access to news and trends updates, which can either be a form of education or entertainment (Ahamad & Ariffin, 2018). The climate change movement has gained popularity on social media platforms, where pivotal climate change activist Greta Thunberg has used Twitter as a space to share her opinions and update the global community about her climate change campaign (Boulianne et al., 2020). A study exploring climate change trends on TikTok found that social media positively and negatively impacts youth (Basch et al., 2021).

A study in Pakistan argues that the negative impact of social media outweighs the positive effect of influencing sustainable behaviour (Abbas et al., 2019). The media can invoke overwhelming exaggerated information on climate change, which could come off as scaremongering that could result in distancing and fear among youth (Ojala & Lakew, 2017). The messages given by news and media outlets certainly significantly impact how youth perceive climate change. In 2013, interviews and focus groups were conducted among youth in the United Kingdom regarding their opinion on climate change, reporting that they felt hopeless and discouraged by the overwhelmingly negative news (Hibberd & Nguyen, 2013). The way information is shaped needs to be interpreted as motivating and hopeful. Informing the public on the progress of what is being done on combating climate change and the positive impact it could result in, is possibly more attractive for the younger audience rather than just throwing facts on the negative effect of climate change (Ojala, 2012, 2017).

Based on the social cognitive theory, the positive influence of social media is operated by two pathways: the direct and socially mediated pathways (Bandura, 1991, 2002, 2006). Direct pathway explains that media trigger changes by informing, enabling, motivating, and guiding viewers to improve their lives. The socially mediated pathway demonstrates how the media influences link people to social networks and community settings where they receive personalised support and guidance (Bandura & Cherry, 2020). Refer to Figure 2.
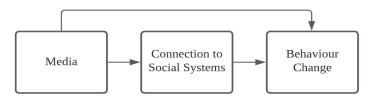

Figure 2 Dual pathway of influence through social media
(Source: Bandura & Cherry, 2020)

5.3 The Role of Social Support Systems

Burdened by the responsibility to navigate climate change actions, the depressive truth of the climate crisis could raise negative emotions (Ojala & Lakew, 2017). Having the right support system is important to keep oneself hopeful and motivated. A study conducted in Sweden argues that providing constructive hope to youth can instil pro-environmental and sustainable behaviour (Ojala, 2012). The in-depth review identified three main figures that play a prominent role in supporting youth's climate battle, namely parents (Corner et al., 2015; Grønhøj & Thøgersen, 2017; Zyadin et al., 2014), educational institutions (Asmuni et al., 2012; Corner et al., 2015; Levy & Marans, 2012; Oliver & Adkins, 2020; Zyadin et al., 2014), and peers (Corner et al., 2015; Kadic-Maglajlic et al., 2019; Senbel et al., 2014; Wallis & Loy, 2021).

5.3.1 Parents

Since habits and behaviour are built from childhood, parents scored the highest in influencing youth's energy behaviour (Zyadin et al., 2014). Parents are responsible for encouraging environmentally conscious behaviour from home (Grønhøj & Thøgersen, 2017). This behaviour can be shaped directly by giving rewards for good actions or indirectly by demonstrating appropriate daily environmental behaviour (Pearce et al., 2020). Grønhøj and Thøgersen (2017) suggest that parents should demonstrate pro-environmental behaviour and communicate the desired behaviour by facilitating choice, which can yield the best result in motivating pro-environmental actions among youth. Some parents seem to show a more profound emotional concern regarding climate change as they are guilty that the deteriorating condition of the earth may negatively impact their children's future. This has led parents to participative more in the global climate justice movement. Having supportive adult figures can provide youth confidence to move forward and connect bridges with politicians (Howard et al., 2021).

However, not all parents demonstrate concern or even acknowledge the climate change phenomenon. Interestingly, past research argues that knowledge transfer from the older generation to the younger generation is not limited to one pathway (Handy et al., 2021). Knowledge transfer can go both ways, as the younger generation may influence their parents and bring a fresh perspective on current events like climate change (Lawson et al., 2018). Besides that, parents should create positive engagement and supportive communication spaces to discuss and collectively act on climate change (Ojala & Lakew, 2017).

5.3.2 Educational Institutions

Despite the increasing global awareness of climate change among youth, the level of understanding of the subject matter differs tremendously depending on the country (Lee et al., 2020; Oliver & Adkins, 2020). How climate change is presented in the school curriculum plays a significant role (Oliver & Adkins, 2020). Climate change is often portrayed as a passive phenomenon in which young people perceive it as a mere informational fact that they need to learn rather than an active phenomenon that is currently happening and possibly worsening soon (Jones & Davison, 2021).

Surrounding awareness level and quality of education play a substantial role in instilling pro-environmental and climate-conscious behaviour (Levy & Marans, 2012). School science courses that are rigorous in content and enjoyable for students produce well-informed citizens about climate change (Oliver & Adkins, 2020). Both schools and curriculum designers could cultivate enjoyment and interest to build positive attitudes, awareness, and responsibility towards the environment alongside the development of scientific literacy (Oliver & Adkins, 2020; Sonetti et al., 2019). There are different approaches educational institutions can use to support climate-conscious behaviour among youth, such as providing incentives (social and material), prompts, campaigns, engagement, and monitoring (Levy & Marans, 2012; Rousell & Cutter-Mackenzie-Knowles, 2020). To illustrate, a green campaign in schools that encourages active participation among students and the installation of green intervention by the school can increase energy saving by up to 20% (Mylonas et al., 2019). Studies have also provided evidence of positively cultivating climate awareness among youth by combining both art and science fields, like showing climate change impact through films and drawings (Walsh & Cordero, 2019).

Educational institutions also hold power to debunk misconceptions about climate change (Lee et al., 2020). Given the vast, unfiltered information on the internet, youths may be given false information (Hibberd & Nguyen, 2013). Some people disagree with climate change and even strongly deny its existence or occurrence (Bowden et al., 2019). Hence, education can provide youth with sufficient information and data that can enhance youth's understanding of climate change.

5.3.3 Peers

Adapting and conforming to social norms is a common phenomenon among youth. Social norms can be explained as socially reinforced behaviour (Busch et al., 2019). Youth love being part of a group and acting the same way as one another (Wallis & Loy, 2021). Masson and Fritsche (2021) argue that social identities can shape how people respond to climate change. The recent youth climate strike garnered the attention of youth worldwide because it provides a sense of shared responsibility and group identification (Haugestad et al., 2021). On top of that, when green sustainable behaviours like saving energy are commonly portrayed or gain popularity in the mainstream media, youth are more likely to follow and adhere to the social norm (Senbel et al., 2014). However, a study conducted in Poland argues that since social norms heavily influence youth, their portrayal of sustainable acts may not be genuine; instead, they perform such actions to be praised and admired by their peers (Caniëls et al., 2021).

The PRISMA analysis indicated that youths in this generation have strong environmental awareness, values, and motivation to address the climate change issues, which should be targeted to promote behavioural change towards energy-saving habits. Collective efficacy beliefs are said to be a stronger predictor than self-efficacy beliefs (Chen, 2015; Homburg & Stolberg, 2006), as collective efficacy may increase the efficacy perceptions in both group and individual levels, which elevate their behaviour patterns (Jugert et al.,

2016), and this can be explored at large scale settings like classrooms and dormitory occupied by youth. Directing energy-saving measures in buildings with predominant youth usage, such as schools, universities, and dormitories, can overcome the resistance to change faced in other building typologies, as youth are more adaptive to technology and motivated to address climate change issues.

⭘6.0 CONCLUSION

Global leaders and policymakers should make governance for climate change available and accessible to youth. Moving forward, governments need to take serious action by adopting policies that will protect future generations from the effects of climate change. Caring for the future should be a responsibility for all generations and not just the youth because, in some parts of the world, the impact of climate change is happening now, and it takes collective action and humanity to combat it (Diprose et al., 2019).

From the review, we found that social media profoundly influences youth's views on climate change. From recent climate strikes, social media provided a platform for young people to spread awareness, share pictures, generate conversations on climate change, and directly communicate with global leaders to take prompt action (Boulianne et al., 2020). However, the information provided by the media has both positive and negative effects. As much as people support this climate justice movement, there are also people who deny and spread false information. Therefore, youth and the internet community need to be mindful of the information they receive and always fact-check with trusted resources.

Youth also require a strong support system from parents, school, and peers for them to act in the fight against climate change (MacKay et al., 2020). These support systems provide youth with a safe outlet to discuss positively and share correct information regarding climate change and sustainable consumption. Therefore, this paper suggests shifting the motion of climate change awareness among youth from providing knowledge to encouraging action. It is vital to close the knowledge-action gap to ensure a successful outcome. Targeting energy-saving strategies and technologies in youth-predominant building typologies such as schools, universities, and dormitories may lead to a further reduction in overall building sector energy consumption, as they are motivated to address climate change issues. However, this paper is limited to only providing a general context of youth's perception. It is not specific to how climate change impacts their daily lives, as diversity between different continents, regions, countries, and cultures were not investigated. Additionally, the number of papers reviewed is limited to 38 articles, which is relatively small for any heterogenic generalisation and a more extensive literature analysis could help improve the paper's findings.

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