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THE EFFECT OF HOPE AND AWARENESS ON THE DECODING OF CLIMATE CHANGE INFORMATION ACCESSED ON THE INTERNET**

Abstract. *The main purpose of this article is to reveal the connection between the way of decoding information about climate change and the level of awareness and hope possessed by individuals. In this context, a research model that includes hope, awareness and decoding is used. Data were obtained from a sample of 383 people in the research. While the relationship between the research variables was examined with correlation analysis, the effect of independent variables on the dependent variable was examined with regression analysis. Difference tests were also performed. Results of the correlation analysis showed that decoding had positive weak and moderate relationships with hope and awareness, respectively. When considering the regression analysis results, it is striking that although awareness positively predicts decoding, a sub-dimension, Recklessness Act to Climate Change, negatively predicts it. The difference tests reveal that hope only includes the average difference of the sub-groups in terms of the education categorical variable. In this sense, education can be considered an important determinant in terms of hope.*
Keywords: *Climate Change, Global Warming, Climate Crisis, Climate and Awareness, Climate and Hope.*

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INTRODUCTION

It is estimated that the climate cycle of the Earth, which has been in the solar system and home to life for approximately 4.54 billion years, has changed many times for various reasons. The long-term transformation of the Earth's weather conditions can cause problems in all different aspects of life, such as energy, water, agricultural resources, living species, socio-economic structure etc. This process, which deeply affects the ecosystem, continues to create a situation that needs to be resolved today.

Increasing temperatures, changes in carbon emissions, melting of glaciers, changing sea levels, droughts, air pollution, and decreasing oxygen levels in water create vital problems for all living things. Water and the food chain can be very intensely affected in this way. Climate change not only affects humans but also many living things on earth, directly or indirectly. Irregular climate conditions evidently do not give plants and animals time to adapt, leading multiple species to be under great threat.

Living beings on Earth may face different living conditions due to climate change, and their routines can be completely disrupted. While life-threatening climate change is increasingly on the agenda as an issue that must be resolved urgently, the inadequacy of actions towards a solution is also quite noteworthy.

In order to prevent a worsening of global warming, more concrete steps include reducing personal carbon footprints, strengthening the joint contributions of governments, industries and countries on climate change, and linking them to sanctions. The observation that various institutions are slow to take steps for a solution, and when it comes to support for a solution, leads one to think of individual actors. The collective orientations formed by individual actors coming together hold the capacity to apply pressure to the centres which produce climate change. However, noting the disinterest of individual actors to find a solution also makes it necessary to understand the reasons for such an orientation.

New media is a feature that brings different communication environments together. The Internet system, where information, visuals, sounds, music and videos are accessible at all times and mutual communication is experienced intensively, is important as an infrastructure provider for understanding climate change and creating action. The Internet's aspect of constituting a social space, its contribution to the creation of various forms of relationships, and its transformation to a public space today, see people commenting transparently concerning events and situations. Therefore, how information about climate change received via the Internet is decoded on an individual basis is a salient issue. The variables that affect the way information on climate change via the Internet is received emerge as valuable elements in this regard.

A look at the literature reveals that many different scientific studies have been conducted on climate change. Nevertheless, few studies examine the situation of individual actors in terms of participating in a solution-related action, evaluate

the potential held by individual actors to take action, and question why individuals take or do not take action.

Philip et al. (2014) stressed the average climate change perspective found in climate change studies underestimates the impacts of climate change on biological and human systems, focusing instead on the impacts on food systems and highlighting the need for investment. Berrabg-Ford et al. (2010, 25) revealed that most climate change adaptation research reports on vulnerability assessments and natural systems rather than adaptation, and that adaptation action occurs more frequently in developed countries. Thomas (2010, 488) tested the hypothesis that rapid climate warming acts as a major constraint on climate range limits, showing that for most species limits are shifting adaptively in response to climate change. Steg (2023, 391, 408), on the other hand, adopted a different perspective by concentrating on the psychology of climate change, arguing that human behavior plays a critical role in causing and responding to global climate change. While it is often believed that most people do not participate in climate action due to self-interest and a lack of concern for nature, the environment, and climate change, Steg found that people generally do care about these issues and are motivated to participate in climate actions.

Zevnik Tomazin (2025) examined the EU's green transformation project from a Foucauldian perspective. He argues that the EU is trying to solve the climate crisis by turning individuals into "green citizens", thus creating self-regulated individuals. He shows that by shifting responsibility to the individual, capital is absolved of responsibility, and the structural problems created by policies are rendered invisible. Banjac (2024), drawing on Foucault's concepts of Eco-government and Counter-conduct, and starting from the ambivalent attitude of young people in environmental activism, explores different forms of youth environmental activism. By focusing on young activists both within and against power structures, he presents a complex structure. He defines youth environmental activism not merely as opposition, but as a complex and multilayered negotiation process with power. Concentrating on the possibility of a "multi-world" as an alternative to the modern understanding of the world, Kurnik (2024) examined the potential of this idea to offer a solution to the ecological crisis. He underlines that addressing the ecological crisis solely from a scientific or moral framework is insufficient, and proposes a necessary ontological and political transformation.

One can argue that focusing on climate change on the individual level is perhaps one of the most necessary perspectives in preventing climate change. Given the reluctance of global actors to act, it is vital that individual actors gain power; namely, to have awareness and hope. In this study, with a similar starting point, the focus was on individual actors in the area of climate change. In the study, the connection between the way of decoding information about climate change received via the Internet and the level of awareness and hope possessed by individuals was examined. Accordingly, an attempt was made to determine the effect of awareness and hope on the way such messages are decoded.

THEORETICAL BACKGROUND

The world is today faced with a multitude of different problems. A key part of these problems are weather and climate events. The phenomenon of climate change has already been on the agenda of humankind for a significant period in history. This makes it important to understand the framework of climate change.

Weather is defined as the state of the atmosphere at given times in certain places. Climate is known as the long-term weather patterns that define particular regions. While elements such as temperature, precipitation, wind etc. are related to weather, whether a specific place is mild, hot or cold in a given season is considered to be related to climate (Adedeji et al. 2014, 115). Even though climate refers to long-term weather patterns, including natural events like temperature, rain and storms, contemporary climate change includes shifts in long-term averages on one hand, and the growing diversity around them on the other. It can be argued that extreme events have become more common in climate change (Dietz et al. 2020, 2), and thus it is necessary to understand the source of various weather events. In relation to climate change, the unusualness of 'weather' changes must be emphasised. Climate change refers to the radical change of climates all around the world.

Climate change (also known as global warming) refers to the increase in the average annual surface temperature of the Earth's atmosphere following the greater accumulation of greenhouse gases in the atmosphere (Bulkeley and Betsill 2002, 1). The concentration of greenhouse gases has increased dramatically since 1750 due to human activities such as fossil fuel use (Bulkeley and Betsill 2002, 1). In the late nineteenth century, it became clear that changes in atmospheric concentrations of greenhouse gases could alter climates, and since the industrial revolution, notably since the mid-twentieth century, human production activities have led to greenhouse gases mixing in the atmosphere (Dietz et al. 2020, 2). Thus, in the twentieth century, average temperatures have increased by 0.6 degrees Celsius, global sea levels have risen by 0.1–0.2 metres, and there has been a 10% decrease in snow cover since the late 1960s (Bulkeley and Betsill 2002, 1).

Although it is predicted that climate change's greatest harm to the world will be seen in the future, one can also find claims that climate change will simultaneously also bring some benefits. Such benefits are as follows: thanks to climate change, places that do not receive rainfall may start to receive rainfall, some plant species will benefit from the change, agriculture and animal husbandry will increase in previously cold regions, crops will increase in abandoned regions due to insects moving, the number of forested areas will rise as precipitation falls in the form of rain, new oil fields will emerge as glaciers melt, and new places will prove to be suitable for tourism as some regions warm up (Batan and Toprak 2015, 96–8). Other claimed possible advantages include a decrease in winter deaths and diseases in temperate countries due to changed temperature extremes, a lowering of exposure to allergies due to decreased pollen circulation, fewer waterborne infections in places where there is less precipitation, a

reduction in infections transmitted by vectors (mosquitoes, ticks etc.) following changed precipitation, the increase in agricultural product productivity in previously cold regions, and the formation of new host (fish) populations following the warming of the oceans (McMichael et al. 2006, 861). Still, the benefits mentioned arguably show the need to adapt to the changing climate. It should not be forgotten that climate change is an artificial intervention made by humans in nature and an element that is disrupting its natural functioning. In this context, it must be accentuated that climate change is an element that calls for struggle rather than adaptation in order to protect all life forms, including humans, and ensure the planet remains habitable.

Despite climate change being a global phenomenon, its negative effects mostly affect poor people and poor countries (Adedeji et al. 2014, 115). Many people think that since climate change is a global problem the whole world shares the problem equally. Yet, in reality, it is evident that the actors most responsible for climate change are the ones who suffer the least from its consequences. It is here that the attitudes and behaviours of individuals become important. Behavioural change linked to climate change is addressed through individual consumer action, in other words, behaviours such as buying carbon-friendly products, recycling, and consuming less red meat. However, this context can be expanded as people are members of a community, participants in organisations, and have the potential to influence policies. Adopting climate-friendly technologies such as thermal insulation, supporting low-carbon infrastructure such as wind farms, political behaviours like voting or protesting, participating in policy formulation, adopting social energy or transportation initiatives, participating in awareness-raising conversations about a low-carbon life, and interacting with other people are viewed as important behaviours for climate action (Whitmars et al. 2021, 77). In this respect, one may argue that it is important for individuals to understand the sanction power they possess and their tendency to put it into practice.

According to Steg (2023), beliefs and values are considered important for determining whether or not people take climate action. Beliefs concerning climate change can be addressed in three ways: the degree to which people perceive the reality of climate change, the degree to which people believe that climate change is human-caused, and the degree to which people believe the consequences of climate change are negative. All three beliefs are interrelated. If people believe in the reality of climate change, that it is human-caused, and that its impacts are negative, they are more likely to support adaptation policies and behaviours. Values can be considered in four forms. These include hedonic and egoistic values, which focus on personal outcomes, and altruistic and biospheric values, which concentrate on collective benefit at cost. Steg (2023) highlighted that biospheric values, or the tendency to care about nature and the environment, are important in transitioning to climate action. Nonetheless, even people with strong values do not always take action for reasons such as a lack of awareness, habits,

or structural conditions. The inadequacy of behavioural change thus becomes apparent, pointing to the need for coordinated systemic change. Clayton et al. (2015) focused on three key areas: (1) public perceptions of climate change; (2) human behavioural factors and mitigation responses to climate change; and (3) the effects of climate change on human well-being and adaptation responses. They stressed that providing information alone is not sufficient to create behavioural change, drawing attention to the importance of psychological processes. Bouman et al. (2020) proposed an interdisciplinary approach that considers cognitive processes, values, identities, social norms, and emotional responses. They showed that anxiety is effective in prompting action on climate change both directly and indirectly through a sense of personal responsibility. The authors argued that the source of anxiety to do with climate change is partly based on biospheric values, and that biospheric values are directly and positively related to personal climate change mitigation behaviours. They also draw attention to the consistency of this finding across different countries.

It can be further argued that solving problems is only possible when one is aware of these problems and has hope for a solution. Awareness, as a combination of knowledge, consciousness, and concern, means having information about something, being aware of the importance of the issue, and being aware of the existence, causes and consequences of something; while hope, as a combination of goal, path thinking, and motivation for action, can be defined as a positive expectation (believing that something better will happen) and desire. When considering climate change, increasing the awareness of individual actors about the problem and developing their hopes for a solution can be of huge importance. The level of awareness and hope can shape the perspective on the problem held by individuals in many initiatives. One of the most important of these attempts is the related messages received via the media. The awareness and hope possessed by individuals hold the potential to influence the way they interpret the information they receive through the media. Noting that the Internet is one of the most important media tools in today's media order, and that public opinion on climate change is conducted via the Internet rather than traditional media, the way information received via the Internet is interpreted is an important point in terms of developing the power of individuals to solve the problem, namely, in giving power to individuals.

Ojala (2012) also investigated whether hope has a positive relationship with participation. She found that constructive hope had a uniquely positive effect on pro-environmental behaviours, whereas hope based on denial showed a negative correlation. She demonstrated that hope is not only a pleasant emotion but can also function as a motivational tool when denial is controlled. While focusing on climate change hope and participation, Ojala (2023) established that cognitive climate change hope had a positive relationship with participation. Yet, she found that the results were less consistent when hope was considered as an emotion. It has been suggested that sources of hope should be considered in connection to

hope as an emotion. Geiger et al. (2023) examined whether hope motivates or hinders action on climate change. They found that hope increases action with a weak effect, and contrary to the idea that hope would comfort people and make them inactive and hinder action, increased hope does not decrease action. Still, hope based on denial and status quo messages (claiming that there will be no change) were found to negatively affect action. They presented partial evidence that hope increases action. The ambiguity of the conclusion regarding whether hope definitively motivates or hinders action has been revealed by demonstrating that hope is neither harmful nor miraculous in terms of action. In the context of awareness, Valkengoed and Steg (2019) showed that knowledge and experience, in other words, the state of awareness, has a relatively weak relationship with adaptive behaviour. It can be considered that awareness alone is not sufficient. Factors such as the behaviour of others, negative emotions (fear, anxiety etc.), belief in one's individual ability to succeed, and belief in the ability of an action to make a difference have come to the forefront, rather than awareness itself. Piao and Managi (2024) established a positive relationship between knowledge of environmental issues and pro-environmental behaviour engagement. Hwang et al. (2024) showed that awareness of climate change positively predicted the intention to reduce single-use plastics. With respect to messaging, Hornsey and Fielding (2016) investigated whether optimistic or pessimistic messages motivated people to act in the fight against climate change. They also focused on whether optimistic messages lead people to action or inaction. In this context, it was found that optimistic messages reduce action by leading to complacency rather than increasing it. Taddicken and Wolff (2023) examined how people react after being incidentally exposed to fake news denying human-caused climate change and investigated their search and selection behaviours after the exposure. They established that exposure to dismissive fake news reduced the level of acceptance of climate change and its human-caused nature. The authors revealed that selection behaviour was attitude-confirming, while search behaviour was varied. While news websites were consulted most frequently, it was also observed that personal characteristics influenced search and selection behaviour.

Although climate change is defined as a fact of life, it is claimed that urgent action is required before it reaches an irreversible level (Adedeji et al. 2014, 115). Despite this, it is apparent that we are currently living in a period of time when even the reality of climate change is being questioned; an indifferent perspective is being created by various focuses, that is to say, by those who gain from the problem, and attempts are being made to instil this perspective in individuals through the media. The Internet has become one of the most important sources of information for individuals today. Fake news holds the potential to influence individuals' opinions on multiple issues. Given that the Internet environment is structurally conducive to the spread of fake news and disinformation, it can be argued that individuals' perception patterns can serve as a mechanism of resistance against false information. When considering the issue of climate change,

the variables influencing individuals' patterns of perception become particularly valuable. Here, it is important to understand the ways in which individuals' levels of awareness and hope interpret the codes of media messages regarding climate change. When awareness and hope disappear, one can envision that the ideology within the messages will be difficult to decipher, their codes for interpreting them, and that messages will be received in the given form.

DATA AND METHODOLOGY

Research Variables and Model

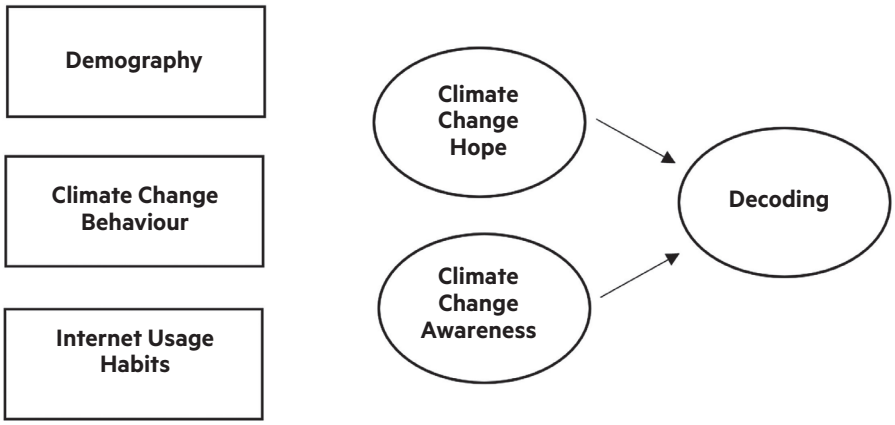
Three different scales were used in the research. The first is the hope scale for preventing climate change, the second is the reception scale, while the third is the climate change awareness scale. The Climate Change Hope Scale (CCHS) was created by Li and Monroe (2018) and adapted into Turkish by Gezer and İlhan (2020). The scale is made up of 11 questions and 3 subscales. The dimensions are defined as personal-sphere willpower and waypower, collective-sphere willpower and waypower, lack of willpower and waypower, respectively. Of the 11 questions in the relevant scale, 3 belong to the personal-sphere willpower and waypower dimensions, five belong to the collective-sphere willpower and waypower dimensions, and three to the lack of willpower and waypower dimensions. The decoding scale was created by İçağasıoğlu Altun (2020). The scale consists of 17 questions and 2 subscales. The dimensions are defined as hegemonic decoding and critical decoding, respectively. Ten of the 17 questions in the relevant scale belong to the hegemonic decoding dimension, and seven to the critical decoding dimension. The Climate Change Awareness Scale (CCAS) was created by Gönen et al. (2023). The scale consists of 17 questions and 2 subscales. The dimensions are defined as reasons for climate change (12 questions) and recklessness act to climate change (5 questions), respectively. All the scales used in the research are Likert-type with measurements ranging from 1 to 5.

The research focuses on the impact of hope and awareness on the reception of messages via the Internet during the climate change phase. For this purpose, two hypotheses were created within the research scope.

H1: Climate change hope has a positive and significant effect on decoding.
H2: Climate change awareness has a positive and significant effect on decoding.

Figure 1 shows the research model created by the two hypotheses reveals the effect of the independent variables climate change hope and climate change awareness on the dependent variable: decoding.

Figure 1: RESEARCH MODEL



Source: Authors.

SAMPLE AND DATA COLLECTION

Primary data collected through online and offline surveys were used in the research. Online surveys were conducted via Google forms, and offline surveys were distributed to participants one-on-one. The survey covered the period between 1 October 2024 and 30 December 2024. The survey was distributed in Turkish and reached a total of 383 participants. According to Tabachnick and Fidell (2012), over 300 participants provides a good sample for factor analysis (Tabachnick and Fidell 2012, 618, 657).

Purposive sampling was used in the research. Purposive sampling is known as a type of sampling used when a researcher cannot reach the entire population. With such sampling, the researcher creates a sample they believe represents the universe. Although purposeful sampling can introduce bias in some cases, it is thought that a good representation can be achieved with an objective selection (Thomas 2021, 139). In the research presented in this article, participants were selected from different regions of Turkey. Online surveys were distributed via various social media channels, regardless of regional boundaries.

DATA ANALYSIS

Factor analysis, Cronbach's alpha analysis, correlation analysis, regression analysis, t test and one-way ANOVA were used to analyse the data. Relevant analyses were carried out via SPSS.

Factor analysis and Cronbach's alpha coefficient were employed in the reliability and validity phase of the scales used in the research. In factor analysis, values around 0.900 are considered excellent, values around 0.800 are considered valuable, values around 0.700 are considered fair, values around 0.600 are considered mediocre, values around 0.500 are considered weak, while values

below 0.500 are considered inadequate. Values around 0.800 are considered good for Cronbach's alpha (Field 2024, 844, 878). However, it is stated that the Keiser-Meyer-Olkin (KMO) value, which indicates whether a sufficient number of items is predicted by each factor, should be above .70, and the Bartlett test, which reveals whether the variables are highly correlated to provide a reasonable basis for factor analysis, should be less than 0.05, namely, significant (Leech et al. 2005, 82). In factor analysis, scales must explain at least 40% of the total variance (Gökdemir and Yılmaz 2023, 153).

Table 1: FACTOR ANALYSIS RESULTS OF RESEARCH SCALES

CLIMATE CHANGE HOPE SCALE (CCHS)				**DECODING SCALE (DS)**				**CLIMATE CHANGE AWARENESS SCALE (CCAS)**			
Factor	Load	Variance %	KMO	Factor	Load	Variance %	KMO	Factor	Load	Variance %	KMO
CW 2	0.844			HD 5	0.889			REA 3	0.891		
CW 3	0.828			HD 7	0.875			REA 2	0.878		
CW 1	0.783			HD 4	0.864			REA 5	0.867		
CW 4	0.693			HD 6	0.855			REA11	0.860		
CW 5	0.692			HD 3	0.832			REA 4	0.852		
PW 2	0.881	74.116	0.852	HD 1	0.804			REA 6	0.851		
PW 3	0.853			HD 10	0.794			REA 7	0.839		
PW 1	0.842			HD 9	0.764			REA12	0.811		
LW 2	0.894			HD 2	0.751	68.664	0.919	REA 1	0.806	69.521	0.947
LW 1	0.851			HD 8	0.750			REA10	0.802		
LW 3	0.841			CD 6	0.882			REA 8	0.789		
Bartlett's Test (Sig.) = 0.000				CD 5	0.846			REA 9	0.718		
Cronbach's Alpha = 0.813				CD 1	0.846			REC 3	0.885		
				CD 4	0.834			REC 2	0.848		
PW = personal-sphere willpower and waypower CW = collective-sphere willpower and waypower LW = lack of willpower and waypower				CD 7	0.828			REC 5	0.814		
				CD 3	0.828			REC 4	0.797		
				CD 2	0.756			REC 1	0.736		
				Bartlett's Test (Sig.) = 0.000				Bartlett's Test (Sig.) = 0.000			
				Cronbach's Alpha = 0.875				Cronbach's Alpha = 0.883			
				HD = Hegemonic Decoding CD = Critical Decoding				REA = Awareness Towards the Reason of Climate Change REC = Recklessness Act to Climate Change			

Source: Authors.

A look at Table 1 shows that all scales used in the research are reliable and valid. When the values of CCHS are examined, the factor loadings are between 0.692 and 0.894, Bartlett's Test is 0.000, Cronbach's Alpha value is 0.813, explained variance is 74.116, and the Kaiser-Meyer-Olkin (KMO) value is 0.852. With regard to the values of DS, it is observed that the factor loadings vary between 0.750 and 0.889, Bartlett's Test is 0.000, Cronbach's Alpha value is 0.875, explained variance is 68.664, and the Kaiser-Meyer-Olkin (KMO) value is 0.919. In relation to the values of CCAS, the factor loadings are between 0.736 and 0.891, Bartlett's Test is 0.000, Cronbach's Alpha value is 0.883, explained variance is 69.521, and the Kaiser-Meyer-Olkin (KMO) value is 0.947.

FINDINGS

Respondent Profiles

Table 2 provides an overview of demographic information for the survey participants. The table includes the frequencies of variables such as gender, age, occupation, education level and income.

Table 2: DEMOGRAPHIC DATA OF SURVEY PARTICIPANTS

Gender	**Frequency**	**Percentage**	**Age**	**Frequency**	**Percentage**
Woman	251	65.7	18–28	124	32.5
Man	131	34.3	29–39	94	24.6
Education	**Frequency**	**Percentage**	40–50	93	24.3
Primary School Graduate	26	6.8	51 and over	71	18.6
Secondary School Graduate	39	10.2	**Income**	**Frequency**	**Percentage**
High School Graduate	99	25.9	10,000–15,000	41	10.7
Associate degree Graduate	69	18.1	15,001–25,000	77	20.2
Bachelor's degree	93	24.3	25,001–40,000	102	26.7
Master's degree	27	7.1	40,001 and more	121	31.7
PhD graduate	29	7.6	No income	41	10.7

Profession	**Frequency**	**Percentage**
Student	71	18.6
Educator (academic, teacher etc.)	44	11.5
Architect-Engineer-Designer	61	16
Private Sector (salesperson, human resources employee, secretary, executive, white collar employees etc.)	101	26.4
Health Sector (doctor, nurse, pharmacist, psychiatrist, healthcare worker, etc.)	60	15.7
Other (tradesman, civil servant, retired)	45	11.8

Source: Authors.

As shown in Table 2, there is mostly an ideal distribution between groups in terms of frequency. Considering the highest frequency values in their categories among the groups reveals that 251 (65.7%) of the survey participants were women, 124 (32.5%) were between the ages of 18–28, 99 (25.9%) were high school graduates, 121 (31.7%) were in the income group of 40,001 TL and above, and 101 (26.4%) were private sector employees.

Table 3 provides an overview of survey participants' thoughts on climate change. The table includes frequencies regarding interest in climate-related content, thinking about whether climate change exists, whether to take individual responsibility, and opinions on what is taken into consideration to prevent climate change.

Table 3: CLIMATE CHANGE BEHAVIOUR OF SURVEY PARTICIPANTS

Interest in Climate-Themed Content	Freq	%	Thinking There's a Climate Problem	Freq	%	Taking Preventive Individual Responsibility About Climate Change	Freq	%
Yes	208	54.5	Yes	317	83	Yes	204	53.4
No	96	25.1	No	37	9.7	No	112	29.3
No idea	78	20.4	No idea	28	7.3	No idea	66	17.3

The Most Considered Thing to Prevent Climate Change	Frequency	%
Water saving	110	28.8
Reducing Plastic Use	50	13.1
Recycling (not throwing garbage on the ground, separating garbage etc.)	138	36.1
Reducing one's carbon footprint (using deodorant, using public transport instead of driving)	42	11
Voluntarily supporting non-governmental organisations	42	11

Source: Authors.

As may be seen in Table 3, positive answers predominate in questions such as interest in climate-related content, thinking that a climate problem exists, and taking individual responsibility to prevent climate change. The answer to the relevant questions was yes, respectively, by 200 people (54.5%), 317 people (83%) and 204 people (53.4%). The most important things the survey participants paid attention to in order to prevent climate change were reported as recycling (138 people – 36.1%) and saving water (110 people – 28.8%), respectively.

Table 4 provides an overview of the survey participants' Internet use habits. The table includes frequency values for topics such as time spent on the Internet, the most frequently performed activity on the Internet, whether information about climate change is followed on the Internet, and if so the main reason for following it.

Table 4: INTERNET USE HABITS OF SURVEY PARTICIPANTS

On the Internet					
Time spent (Day)	**Freq**	**%**	**Activity done (Most common)**	**Freq**	**%**
Less than 60 minutes	43	11.3	Following the news/being up to date	91	23.8
61–120 minutes	115	30.1	Communicating with people	114	29.8
121–180 minutes	97	25.4	Playing games	38	9.9
More than 181 minutes	127	33.2	Watching videos	90	23.6
			Listening to music	49	12.8

Information about Climate Change on the Internet					
Active Following	**Freq**	**%**	**Main Reason in Review**	**Freq**	**%**
Yes	211	55.2	Leaving a better world for new generations	110	28.8
No	122	31.9	Curiosity	82	21.5
No idea	49	12.8	To have information	122	31.9
			Informing relatives	41	10.7
			Supporting content creators	27	7.1

Source: Authors.

As shown in Table 4, time spent on the Internet exceeded 181 minutes per day (127 people – 33.2%), and the most frequent activity on the Internet was mainly communicating with people (114 people – 29.8%). As concerns following information about climate change on the Internet, 211 people (55.2%) were actively following it, and when the reason for the follow-up is examined, 122 people (31.9%) focused on the reason of being informed. Another noteworthy answer to this point is the reason for leaving a better world to new generations, an answer given by 110 of the participants (28.8%).

Correlation Analysis

Since the research data showed a normal distribution, Pearson correlation analysis was performed. Correlation analysis using Pearson (when data are parametric) and Spearman (when data are non-parametric) was performed to determine the relationship between two variables. Correlation analysis also explains the relationship between two continuous variables in terms of both strength and direction (Pallant 2020, 135–36).

In one-tailed correlation analysis, where there is an expectation concerning the direction of the correlation, and two-tailed, when there is little idea about the direction, a sig value of less than 0.05 means that the probability of the relevant relationship occurring by chance is less than 5% (George and Mallery 2024, 153). Therefore, it can be said that the sig value indicates whether there is a relationship between two variables, whether the correlation coefficient is positive

or negative indicates the direction of the relationship, and the closeness of the correlation coefficient to +1 or -1 describes the strength of the relationship. A correlation coefficient (r) between .100 and .290 indicates a small/weak relationship, between .300 and .490 indicates a medium relationship, and greater than .500 indicates a large/strong relationship (Pallant 2020, 140). Table 5 presents the results of the correlation analysis.

Table 5: CORRELATION ANALYSIS

Pearson ® Two T.	**CCHS**	**DS**	**CCAS**
CCHS	1	0.243*	0.074
DS	0.243*	1	0.381*
CCAS	0.074	0.381*	1

*(Sig.) = 0.000 < 0.050

Pearson ® Two T.	**DS**	**PW**	**CW**	**LW**	**REA**	**REC**
DS	1	0.284*	0.227*	-0.074	0.452*	-0.194*
PW	0.284*	1	0.621*	-0.194*	0.147*	-0.145*
CW	0.227*	0.621*	1	-0.093	0.073	-0.109*
LW	-0.074	-0.149*	-0.093	1	-0.046	0.213*
REA	0.452*	0.147*	0.073	-0.046	1	-0.226*
REC	-0.194*	-0.145*	-0.109*	0.213*	-0.226*	1

*(Sig.) = 0.000 < 0.050

Source: Authors.

In Table 5, a weak, positive and significant relationship is shown between the decoding scale (DS) and the Climate Change Hope Scale (CCHS) (sig = 0.000 < 0.050; r = 0.243). On the other hand, there is a positive, moderately significant relationship between the decoding scale (DS) and the climate change awareness scale (CCAS) (sig = 0.000 < 0.050; r = 0.381). There is a non-significant relationship between CCHS and CCAS (sig = 0.150 > 0.050).

When the findings are examined via the sub-dimensions of the state variables, a different picture emerges. It is observed that there is a weak positive (r = .284) and significant (sig = 0.000 < 0.050) relationship between PW and DS, which are among the sub-dimensions of CCHS, a weak positive (r = .227) and significant (sig = 0.000 < 0.050) relationship between CW and DS, and no significant relationship between LW and DS (sig = 0.148 > 0.050).

In relation to the sub-dimensions of CCAS, one can see there is a moderate positive (r = 0.452) and significant (sig = 0.000 < 0.050) relationship between REA and DS, and a very weak negative (r = -0.194 and significant (sig = 0.000 < 0.050) relationship between REC and DS. When the sub-dimensions of DS, HD and CD are considered, it is apparent that a similar structure remains constant. In this

context, for CCHS, the PW dimension has a positive and significant (sig = 0.000) relationship with HD (r = 212) and CD (r = 182), the CW dimension has a positive and significant relationship (sig = 0.013/sig = 0.000) with HD (r = 127) and CD (r = 200), while the LW dimension has a positive and significant relationship with HD (sig = 0.157) and CD. It has a non-significant relationship with (sig = 0.622); for CCAS, it is established that the REA dimension has a positive and significant (sig = 0.000) relationship with HD (r = 0.361) and CD (r = 0.259), while the REC dimension has a significant (sig = 0.009/sig = 0.007) and negative relationship with HD (r = -0.134) and CD (r = -0.138).

Regression Analysis

In the research, regression analysis was used to determine the effect of independent variables on the dependent variable. With the established regression model, an attempt was made to predict the increase that a unit increase in the independent variables would have on the dependent variable.

In regression analysis, the R^2 value tells how much variance the model explains compared to the amount of variance it was originally supposed to explain. It is the proportion of the variance in the outcome variable shared by the predictor variable. The F value tells how much of the variability the model can explain compared to the variability it cannot explain. In other words, it can be defined as the ratio of how good the model is to how bad it is. The B value reveals the slope of the regression line and the strength of the relationship between an independent/predictor variable and the dependent variable/outcome variable. If significant (sig < 0.05), the predictor variable significantly predicts the outcome variable (Field 2024, 436). Thus, it can be asserted that the *significance value* indicates whether the relationship is significant or not, while the b value indicates the severity of the effect. In regression analysis, the VIF value must be less than 10 (Mertler et al. 2022, 181). A tolerance value close to zero is an indication of multicollinearity. If the tolerance is less than 0.1, multicollinearity is an obvious problem (Mertler et al. 2022, 180). Table 6 shows the results of the regression analysis.

Table 6 reveals that the independent variables CCSA and REC predict the dependent variable DS. According to the analysis, it was observed that a significant regression model emerged [F (5, 376) = 26.760, p < 0.050 = 0.000] and 25.3% of the variance in the dependent variable (R^2adjusted = .253) was explained by the independent variables. Considering the analysis results, it is seen that the independent variable CCSA has a positive and significant effect on the dependent variable DS [β = .402, t(376) = 8.876, p < .05, pr^2 = 0.173], and the independent variable REC has a negative and significant effect on the dependent variable DS [β = -.225, t(376) = -4.859, p < .05, pr^2 = 0.059]. While it was found that the other independent variables in the model did not have a significant effect on the dependent variable, it was stated that CW and REA were not predictors in the model.

Table 6: REGRESSION ANALYSIS

Variable	Unstandardised		95% Confidence Interval		Standardised		Sig	R^2	F	Tolerance	VIF
	B	Std. S	Lower	Upper	β	t					
Constant	2.064	0.196	1.679	2.449		10.554	0.000				
CCHS	0.142	0.087	-0.030	0.314	0.141	1.625	0.105			0.261	3.836
PW	0.061	0.055	-0.047	0.168	0.095	1.112	0.267	0,253	26,769	0.268	3.729
LW	-0.046	0.042	-0.129	0.037	-0.061	-1.094	0.275			0.634	1.576
CCAS	0.380	0.043	0.296	0.464	0.402	8.876	0.000			0.958	1.044
REC	-0.159	0.033	-0.223	-0.095	-0.225	-4.859	0.000			0.912	1.096
Dependent Variable: DS											

Source: Authors.

Difference Tests

Since the research data had a normal distribution, the t-test was used for categorical variables with two categories and the ANOVA test was used for categorical variables with more than two categories when comparing the mean difference of the groups.

The independent t-test compares the mean difference between groups. If the P value is less than or equal to 0.050, this reveals that there is a difference in the means of the two groups. Similarly, ANOVA compares the mean difference of the groups. ANOVA is the F statistic we encounter to test the fit of a linear model, only sometimes the linear model consists of group means. In the Anova test, a p value less than or equal to 0.050 indicates the average difference between the groups (Field 2024, 502, 560, 608).

Homogeneity is sought in the ANOVA test. If the assumption of homogeneity of variance and normality, in other words, the homogeneity assumption is not met, as in if the Levene Test result is greater than 0.05 (Field 2024, 301), the Brown-Forsythe F or Welch test is performed (Field 2024, 575–76, 593). When the mean difference between groups is detected as a result of the ANOVA test, post hoc tests are performed to understand which groups have a mean difference. If there is an equal sample size and the variances are similar, REGWQ and TUKEY are recommended. It is recommended to use Gabriel if the sample sizes are slightly different, and Hochberg's GT2 if the sample sizes are very different. If there is any doubt about the equality of group variances (namely, about variance homogeneity), it is recommended to use Games-Howell (Field 2024, 591). In post hoc tests, it is necessary to look at the sig value to understand in which groups there are differences. If this value is below or equal to 0.050, it means there is a difference between the average of the relevant groups (Field 2024, 608). In this study, if there was homogeneity in the Levene test the ANOVA table was used,

and if there was no homogeneity the Welch test was used. Gabriel tests were used for ANOVA tests and Tamhane's T2 post-hoc tests were used for Welch tests. Table 7 presents the results of the difference analyses.

Table 7: DIFFERENCE ANALYSES

Variable	Variable	sig	Difference Groups	Variable	Variable	sig	Difference Groups
Gender	CCHS	0.334		Preventive individual responsibility taking	CCHS	0.467	
	DS	0.001	1 and 2		DS	0.000	1 and 2–3
	CCAS	0.000	1 and 2		CCAS	0.000	3 and 1–2
Age	CCHS	0.794		The most important thing	CCHS	0.598	
	DS	0.175			DS	0.223	
	CCAS	0.004	1 and 2		CCAS	0.546	
Income	CCHS	0.238		Time spent on the Internet (daily)	CCHS	0.119	
	DS	0.007	5 and 2–3		DS	0.109	
	CCAS	0.070			CCAS	0.047	1 and 3
Education	CCHS	0.003	1 and 2–3–5	The most common activity on the Internet	CCHS	0.920	
	DS	0.011	7 and 3–4–5		DS	0.327	
	CCAS	0.679			CCAS	0.010	3 and 5
Profession	CCHS	0.655		Actively tracking climate change information on the Internet	CCHS	0.274	
	DS	0.004	4 and 1–2–3		DS	0.000	1 and 2–3
	CCAS	0.000	4 and 1–2–3		CCAS	0.000	3 and 1–2
Interest in climate-related content	CCHS	0.524		Reason for reviewing climate change information online	CCHS	0.354	
	DS	0.000	1 and 2–3		DS	0.000	2 and 1–3
	CCAS	0.025	1 and 2		CCAS	0.000	1 and 2–4, 3 and 4
Thinking there is a climate problem	CCHS	0.898					
	DS	0.000	1 and 2–3				
	CCAS	0.000	1 and 2–3				

Source: Authors.

When Table 7 is examined, the mean differences of categorical variables can be seen within the framework of the answers given to the scale questions. According to the table, a mean difference was found in 20 out of 39 difference searches. In particular, it is clear that many of the categories of the education and occupation categorical variable have mean differences according to the answers given to the scale responses. The only variable without a mean difference in any of its categories according to any scale response is the categorical variable "the most important thing".

CONCLUSION AND DISCUSSION

People have been sensitive to the environment they live in from early childhood. It is obvious that environmental problems have created significant problems and potential dangers on earth throughout history. In the long journey of the planet, many solutions have been put forward for many problems, and while some of these problems were solved, some continue to exist. It is observed that there is not enough understanding in the solution phase regarding issues with long-term consequences such as the climate crisis. It is here that the will to solve the problem together with the urgency of the solution, in other words, the actions of the actors for the solution, also become important.

Environmental problems are more easily solved when the problem-solving action provides a large benefit per actor to a minority of actors, and when the costs of solving the problem can be distributed over a very large group at a small cost per actor. This approach helps in understanding the fundamental reason why the climate problem has not been solved while the ozone problem was immediately solved. The ozone problem was solved by switching to alternative chemicals instead of those currently used. In this substitution process, the firms producing most of the chemicals in question gained some additional economic benefits, whereas the substitution cost per capita, which was quite small, was passed on to the consumer. In the process, the industry welcomed the solution, but the costs were too low to encourage consumer opposition, resulting in acceptance and inaction. The situation is different in climate change. The fact that the substitution costs are quite high for the average firm and consumer makes neither the industry nor the consumers less likely to support climate policies (Bernauer 2013, 5). At this point, it is necessary not to reduce the situation to just individual material benefit. Although individual benefit may be the primary priority for many people, it is also possible to say that many people side with collective benefit. However, it can be argued that those who adopt collective benefit need hope in order to have a level of awareness that can comprehend the situation and the courage to take action.

In most cases, hope is shaped by the beliefs of the environment rather than the belief in oneself. As human history has shown, changing something requires a collective effort. Therefore, one can claim that there are elements such as individual, social, and the belief in impasse within hope. A person thus needs to have faith in themselves, in society, and that the problem can be solved in order to find a solution. Given that modern people are extremely aware that they are not strong on their own, that their faith in collective actions has diminished and they have become reluctant to participate in collective efforts, that their trust in other people has been shaken and their faith in the problem can be solved has disappeared, it is clear that the individual must be further supported in solving climate change. Nevertheless, along with hope, awareness must also come to the fore. Modern man continues life unaware of what is happening around him and chooses to remain indifferent to developments in his environment. In order to

solve a problem or have hope for its solution, it is first necessary to be aware of that problem. Although it cannot be said that every individual with awareness is looking for a solution, awareness lies at the basis of seeking a solution. Even though some people are aware of the developments around them and do not think about the legacy they leave behind by limiting their life to their own life span, many can feel uneasiness and even take action when they become aware of the problem.

According to the presented research results, which focuses on the importance of hope and awareness on people's decoding of information about climate change, awareness is a significant positive predictor. When the correlation analysis results were examined, decoding was shown to have positive weak and moderate relationships with hope and awareness, respectively. While considering the sub-dimensions of the scale, even though there was no striking result between decoding and the sub-dimensions of hope, there was a strong positive relationship between decoding and Awareness Towards the Reason of Climate Change and a weak negative relationship between Recklessness Act to Climate Change. As to the results of the regression analysis, it is worth noting that even though awareness positively predicts decoding, a sub-dimension, Recklessness Act to Climate Change, negatively predicts it. The regression analysis results lead to H1 being rejected and H2 being accepted. In this context, it can be claimed that although hope has no effect, awareness affects the way information about climate change received via the Internet is decoded. The results of the difference tests reveals that the groups of many categorical variables contain average differences in the stages of hope, deconstruction and awareness. A striking point here is that the subgroups of hope contain average differences only in terms of the categorical variable of education. In this sense, education may be considered an important determinant in terms of hope. Considering the research model, it is also seen that the model has a certain limitation. The R^2 value of the model (0.253), in other words, the ratio of variance explained by the independent variables in the dependent variable, shows there are also different variables which have a significant weight in explaining the reception of the messages.

The Internet is arguably a valuable medium for combating climate change and for bringing individuals together. With the opportunities it offers structurally, it holds the potential to be used as a solution tool for many problems, not simply the climate crisis. Yet, at this point, the perspective of those who use it and the purposes for which they use the medium become more important than the opportunities it offers. Although the groups struggling with climate issues use the Internet actively, it is evident that it does not create any change in the solution phase of the problem. Therefore, it can be seen that rather than making information about climate accessible on the Internet, the habits of individuals using the Internet, their purpose, how they perceive the Internet and their perceptions of the sanctioning power of the Internet as a public space should be taken into consideration.

The study's findings contrast with studies showing that hope is a motivating emotion for action (Ojala 2012) and that hope is positively correlated with participation (Ojala 2023), while supporting research which shows hope weakly increases action (Geiger et al. 2023). Regarding awareness, there is a contrast when compared with findings suggesting that awareness is important but not sufficient on its own for action (Clayton et al. 2015), and that knowledge and experience, namely, the state of awareness, have a relatively weak relationship with adaptive behaviour (Valkengoed and Steg 2019). Still, it is similar to findings that established a positive relationship between knowledge about environmental issues and participation in pro-environmental behaviour (Piao and Managi 2024) and that awareness of climate change positively influences the intention to reduce single-use plastics (Hwang 2024). When approaching the subject from a message perspective, studies show that status quo messages negatively affect action (Geiger et al. 2023), optimistic messages create complacency rather than action (Hornsey and Fielding 2016), providing information alone does not lead to behavioural change (Clayton et al. 2015), and exposure to denialist fake news reduces the level of acceptance of the problem (Taddicken and Wolff 2023). This research thus shows partial convergence and divergence. As detailed earlier in the study, hope has no effect on how messages are received, while awareness does. However, it can also be considered that individuals seeking messages and information have the potential to take action.

In addition, the findings contain noteworthy aspects in the context of demographic data. Given that slightly over half the participants showed interest in climate-related content and similarly slightly more than half felt a sense of individual responsibility, it can be claimed that almost half of the people are indifferent to such an important issue as climate change. Further, given that a significant portion of the participants spend a considerable amount of their daily time online, it is also noteworthy that online activities are characterised by games, social interaction, and video watching, rather than accessing news or world affairs. In any case, it is observed that a significant number of people also follow information about climate change online. Findings revealing interest in topics such as water conservation and recycling show that a considerable number of individuals are motivated by the desire to "leave a better world for future generations". Here, it can be said that media outlets, and the Internet in particular, are important platforms for obtaining and sharing information about climate change. Given the frequent media coverage of issues such as water conservation and recycling, it is not surprising that these two topics were highlighted as behavioural priorities for the participants. Yet, the main point of criticism is that media messages frame the climate crisis in terms of specific messages, and a significant percentage of individuals remain indifferent. It is suggested that the media should develop a more inclusive and new perspective on climate change, and that individuals should broaden their awareness of their environment and the world around them.

The presented research aimed to expand existing knowledge on how messages are received. It sought to fill a gap in literature investigating how positive or negative messages affect various variables: the question of "how individuals perceive a message". What matters is not whether a message is positive or negative, but how it is received by the individual. The research also emphasises the importance of leaving the interpretation of message meanings to the audience, rather than assuming that a message is positive or negative. The receiver makes decisions based on positivity/negativity or other qualities of the message. In this respect, the research results offer a structure that both complements the existing body of knowledge and challenges and expands upon existing 'message'-focused studies.

While the results cannot be generalised to climate action, the reception of messages by individuals participating in climate action can also be evaluated through the action itself. Therefore, it would be logical for future research to focus on the impact of message reception on action. However, it may be argued that future research should focus more on the individual perspective regarding climate change. As a historical perspective shows, when the fight against climate change is left in the hands of various institutions that dominate the world order, the solution cannot materialise itself. Thus, researching and identifying the reasons why individuals will become empowered to fight, their courage to participate in the struggle will be enhanced, and collective struggle will be made possible through strengthening social bonds, emerges as a primary priority in the fight against the climate crisis.

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DATA AVAILABILITY

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CONFLICT OF INTEREST

We wish to confirm that there are no competing interests, personal financial interests, funding, employment, or other competing interests associated with this publication.

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VPLIV UPANJA IN ZAVEDANJA NA DEKODIRANJE INFORMACIJ O PODNEBNIH SPREMEMBAH, DOSTOPNIH NA INTERNETU

Povzetek. *Glavni namen članka je razkriti povezavo med načinom dekodiranja informacij o podnebnih spremembah in stopnjo ozaveščenosti ter upanja, ki ga imajo posamezniki. V tem kontekstu je uporabljen raziskovalni model, ki vključuje upanje, zavedanje in dekodiranje. Podatki so bili pridobljeni iz vzorca 383 ljudi v raziskavi. Medtem ko je bila povezava med raziskovalnimi spremenljivkami preučena s korelacijsko analizo, je bil vpliv neodvisnih spremenljivk na odvisno spremenljivko preučen z regresijsko analizo. Izvedeni so bili tudi testi razlik. Rezultati korelacijske analize kažejo, da dekodiranje kaže šibko pozitivno povezavo z upanjem in zmerno pozitivno povezavo z zavedanjem. Pri obravnavi rezultatov regresijske analize je presenetljivo, da čeprav zavedanje pozitivno napoveduje dekodiranje, ga poddimenzija "nepremišljeno ravnanje do podnebnih sprememb" napoveduje negativno. Testi razlik kažejo, da se stopnja upanja razlikuje glede na izobrazbo. Izobrazbo lahko zato štejemo za pomemben dejavnik, povezan z upanjem.*

Ključni pojmi: *podnebne spremembe, globalno segrevanje, podnebna kriza, podnebje in ozaveščenost, podnebje in upanje.*