



## **Climate Change and University Students: Traditional Media, New Media, and Interpersonal Communication Sought for Obtaining Informational Gratifications**

**Mudassar Hussain**

Garrison University,  
mudassar.hussain@lgu.edu.pk

**Amir Mehmood Bajwa**

Garrison University,  
dramirmehmoodbajwa@lgu.edu.pk

**Seemab Far Bukhari**

University of the Punjab  
seemab.ics@pu.edu.pk

### **Abstract**

The information is available from different sources in this age of media and communication. The audience has more opportunities than before to get access to various and diverse means of communication. This study contributes to the uses and gratifications knowledge and the media dependency theory by analyzing the opinion of university students about their informational gratifications from numerous information sources to explain media dependency. The university students from Pakistan constitute the population for the study. The quota sampling technique is used to select a sample of 600 university students. The quantitative approach is used to collect responses with the help of a questionnaire. The 7-point Likert scale is used to collect data. Descriptive statistics are used for the analysis of data. Overall it is revealed that newer forms of information sources in comparison to the sources of

“traditional” forms of media and the means of “interpersonal communication” are mostly used among university students. Television news, Facebook, Twitter, YouTube, Google search, the interpersonal communication with class fellows and friends are found to be active sources for getting information about climate change. The study has implications for digital marketing for climate-related content.

**Keywords:** *information, uses, gratifications, traditional media, new media, interpersonal communication, dependency*

## **Introduction**

Hansen et al. (1988) found that there were dramatic differences in the levels of future warming, and surprisingly the most affected areas were identified as China and interior areas of Asia. It was also perceived that temperature changes are likely to have major impacts on people (Hansen et al., 1988). In a later study (Hansen et al, 2022) it was found that 2021 and 2018 were tied to be the 6th warmest years and the eighth warmest years in the record occurred in the past eight years. It was reported that three factors increasing greenhouse gas emissions, decreasing aerosols, and the solar irradiance cycle would add to an already record-high planetary energy imbalance and drive global temperature beyond the 1.5 Celsius limit during the third decade of the twenty-first century (Hansen et al, 2022). It was also predicted by scientists that the 2 degrees Celsius limit is also likely to exceed by the midcentury

(Hansen et al, 2022).

It is in the context of this background it is vital to think about climate engagement. The educated youth need to work for climate change. For climate literacy, educated youth or university students need to have access to various sources of information. This accessibility to diverse information channels of communication is prevalent in Pakistani society. Pakistani society is more diverse in the context of information available than it had ever been before. In this jungle of information, communicating from the appropriate medium is a huge challenge for mass media editors, media broadcasters, politicians, and communication strategists. It is therefore important to research how university students sought traditional media, new media, and interpersonal communication to obtain the informational gratifications to guide media and political policy.

**Figure 1**

*Conceptual Model for Uses of Information Sources for Climate-Related Information*



## Literature Review

The media ecosystem of news and the distribution of news is changing and the factors like economy (marketing trends) and “social media”, are changing the character of the “affordances of communication” (Schäfer and Painter, 2021). It was found in the previous research that few specialist climate journalists exist in the developing countries of the south (Schäfer and Painter, 2021). The study also finds that climate journalists' roles for the engagement with the news sources have dramatically changed (Schäfer and Painter, 2021). It is highlighted in the previous study that there is an effect of public relations practices on the professional journalistic practices when contextualizing global warming or climate change (Schäfer and Painter, 2021).

The information landscape is different depending on the region and the audience access diverse information channels about the issue of change in the

climate of the earth (Siyao and Sife, 2021). It was found in the previous research that the lack of focus or use of academic and new forms of media hinder the process of quality journalism because newspaper journalists are less inclined towards exploring and documenting information on climate change in Tanzania (Siyao and Sife, 2021). The community radio was reported to be used for communicating information and knowledge about climate change during a symposium, particularly in the rural areas in Canada which are less developed (Abdulai et al., 2021).

The German audience was found to differ in terms of the uses of different channels of communication and it was found that Germans in the "alarmed" category were most anxious, and concerned about climate change which was reflected in their information/communication behavior (Metag et al., 2017) with Television being the most vital source for information. Then alarmed Germans also talked to their family and friends about climate change (Metag et al., 2017).

In another study, it was found that to engage people the mass medium of television (TV) was used and the sources which were used in the TV reporting were those people who actually did not participate in climate action, in addition to this, the other sources included in the reporting were governmental officials and even the business community (Greenberg et al., 1989). There was also an effect of television news in the context of educating



adults about the Great Lakes Environment and the news program had increased knowledge but, it was also explored that public knowledge levels were low (Brothers et al., 1991). Television was followed by the newspaper as the primary source of information (Brothers et al., 1991). It was also important to notice that newspaper readers were more knowledgeable in that context (Brothers et al., 1991).

The satirical television shows have gradually progressed and *The Daily Show* and *The Colbert Report*, covered climate change, in ways that affirm the existence of global warming (Brewer and McKnight, 2015). Brewer and McKnight (2015) analyzed the extent to which exposure to these television shows predicts their perceived reality about change in climate because of global warming. It was found that the program *last Week Tonight on Home Box Office (HBO)*, had addressed the scientific evidence on climate change and how traditional news coverage provides balance to the scientific consensus with the voices of climate skeptics (Brewer and McKnight, 2015).

Bråten et al. (2011) researched how undergraduate university students judged the trustworthiness of different information sources that they read about climate change. It was found that the students had judged information credible or trustworthy from the sources of textbooks as well as the official documents (Bråten et al., 2011). Shin (2011) researched the users' experience of electronic books and found that the cognitive perceptions of the audience play a vital role.

The studies have explored the user's gratification experiences the television, and the internet, and few studies have been done studies on reading (Gerlich et al., 2011). Gerlich et al. (2011) found that passing time, relaxation, escape, and sharing/learning were the contributor to reading behavior. Television and radio were shown to affect the levels of climate change knowledge and problem awareness in the context of climate change (Taddicken, 2013).

### **Theoretical Framework**

The assumptions of uses and gratifications theory are extended to support the theoretical framework of this study. The emergence of computer enabled communication or the mediated communication has invigorated the importance of uses and gratifications (Uses & Grats) research and this approach is provided a pioneering methodology to analyze each emerging or new medium (Ruggiero, 2018). It is argued that the researchers should also explore the interpersonal aspects of media enabled or mediated forms or sources of communication in a more all-inclusive procedure (Ruggiero, 2018). DeFleur and DeFleur (2022) argue that audiences are selective, because of different tastes, and interests, people keenly seek content, to attain diverse categories of satisfactions for their individual wishes. Extending from these assumptions a hypothesis and the research questions are made to research the responses of the university students in Pakistan to analyze the uses of sources for informational

gratifications in the context of climate change.

**H.** New forms of information and media sources, in comparison to traditional forms of information and media sources, and the interpersonal communication sources are more likely to be used by university students for informational gratifications in the background of climate change.

**RQ1.** Which traditional media are preferred for informational gratifications about climate change?

**RQ2.** Which forms of new media are preferred for informational gratifications about climate change?

**RQ3.** Which form of interpersonal communication is preferred for informational gratifications about climate change?

### **Methodology**

The population for the study is university students in Pakistan. The quota sampling technique is used for the selection of university students from the four provinces of Punjab, Sindh, Khyber Pakhtunkhwa, and Baluchistan. The quantitative approach was used to design a questionnaire with 7 points Likert Scale to measure the socio-demographic profile of respondents, and the, “Uses of information sources in the Context of Climate Change” (the questionnaire is attached in the appendix). The offline and online questionnaires were used for the collection of data and 600 complete responses were received.





The SPSS was used for the data analysis and Microsoft Excel was used for the presentation of results in the form of the pie chart and bar graphs. Descriptive statistics are used for the analysis of data. The analytical strategy includes the presentation of results in the forms of frequency, percentage, mean, and standard deviation. The mean values for the uses of informational sources are compared to determine the hypothesis. To answer the research questions the mean values of each of the questions are compared to find the frequently used information sources. The mean value of 4 is set as the cutting value to research the frequently used information sources to address research questions.

## **Results**

The male university students were 66.5% and the female university students were only 33.5%. The male university students were more than female university students. There were four age groups in the data. The first group of university students was between the ages of 18 and 22 years. The second group of university students was between the ages of 23 and 27. The third group of university students was between the ages of 28 and 32 years. The fourth group of university students was between the ages of 33 and 37 years. The former group of university students between the ages of 18 and 22 years had the highest number of university students with a percentage of 67.2%. All were university students from Pakistan. Three hundred university students belonged to the discipline of mass communication and three hundred also belonged to the

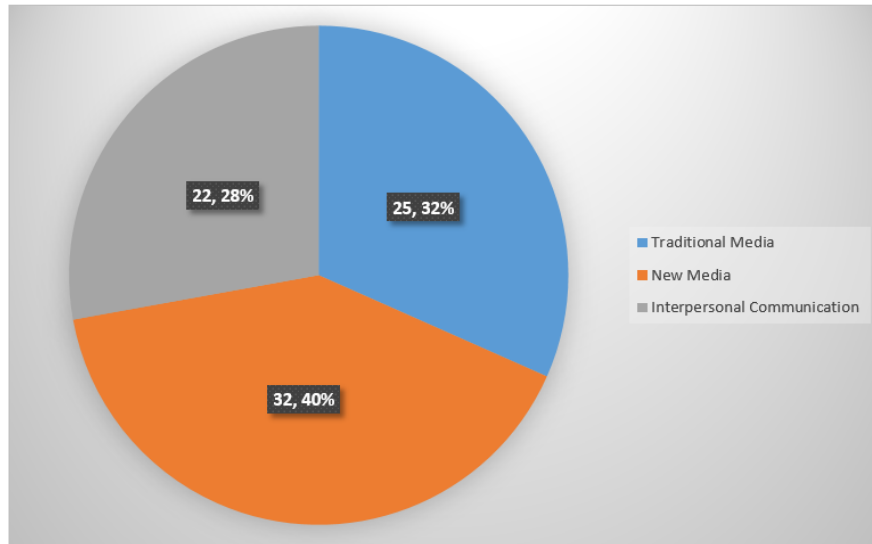
discipline of environmental studies. Most of the university students were from the bachelor program and the percentage of it was 57.2% and 28.7% belonged to master's or MSc. Four groups of one hundred and fifty university students belonged to each of the provinces of the Sindh (University of Karachi), Punjab (University of Punjab), Khyber-Pakhtunkhwa (University of Peshawar), and Punjab (University of Punjab). Table 1 demonstrates the demographics of respondents.

**Table 1**  
*Demographic Profile of Universities' Students*

Variables	Attributes	Frequency	Percentage
Gender	Male	399	66.5
	Female	201	33.5
Age	18-22	403	67.2
	23-27	133	22.2
	28-32	12	2
	33-37	52	8.7
Current Educational Status	Student	600	100
	Non-Students	0	0
Educational Department	Mass Communication	300	50
	Environmental Studies	300	50
Educational Level	BA or BSC	343	57.2
	Masters of MSc	172	28.7
	MPhil	66	11
	PhD	19	3.2
University Affiliation	University of Baluchistan	150	25
	University of Karachi	150	25
	University of Peshawar	150	25
	University of the Punjab	150	25
Provincial Affiliation	Baluchistan	150	25
	North West Frontier Province	150	25
	Punjab	150	25
	Sindh	150	25

**Figure 2**

*Sums for Means for comparing uses of traditional media, new media and interpersonal communication in context of climate change*



The sums for the values of the mean for all items in the categories were compared to find the most valued informational gratification categories. It was found that the new media had the highest value with 32 which means that the new media in comparison to traditional media and interpersonal communication was valued more by the university students. See Figure 2 for the comparison of values of the mean for the categories of communication sources.

**Table 2**  
*Use of Information Sources in Context of Climate Change*

Variables	Items	Frequency (Percentage)							
		Never	Less	Sometimes	At least once a year	At least once a month	At least once a week	Daily	
Traditional media use (TMU)	TV news	62 (10.3)	32 (5.3)	101 (16.8)	151 (25.2)	76 (12.7)	94 (15.7)	84 (14)	
	TV talk shows	89 (14.8)	91 (15.2)	153 (25.5)	86 (14.3)	87 (14.5)	80 (13.3)	14 (2.3)	
	Printed newspapers	60 (10)	162 (27)	250 (41.7)	14 (2.3)	34 (5.7)	31 (5.2)	49 (8.2)	
	Printed magazines	111 (18.5)	205 (34.2)	113 (18.8)	19 (3.2)	72 (12)	51 (8.5)	29 (4.8)	
	Printed books	88 (14.7)	108 (18)	246 (41)	54 (9)	42 (7)	22 (3.7)	40 (6.7)	
	Printed research journals	96 (16)	137 (22.8)	204 (34)	52 (8.7)	32 (5.3)	48 (8)	31 (5.2)	
	Printed brochure or leaflet	185 (30.8)	171 (28.5)	133 (22.2)	46 (7.7)	24 (4)	12 (2)	29 (4.8)	
	Radio	229 (38.2)	124 (20.7)	117 (19.5)	20 (3.3)	37 (6.2)	32 (5.3)	41 (6.8)	
	New media use (NMU)	Facebook	35 (5.8)	68 (11.3)	145 (24.2)	17 (2.8)	31 (5.2)	90 (15)	214 (35.7)
		Twitter	82 (13.7)	42 (7)	178 (29.7)	37 (6.2)	48 (8)	52 (8.7)	161 (26.8)
You Tube		31 (5.2)	76 (12.7)	197 (32.8)	38 (6.3)	66 (11)	85 (14.2)	107 (17.8)	
Whats' App		128 (21.3)	118 (19.7)	158 (26.3)	34 (5.7)	30 (5)	73 (12.2)	59 (9.8)	
Zoom or Google meet		255 (42.5)	110 (18.3)	116 (19.3)	22 (3.7)	74 (12.3)	10 (1.7)	13 (2.2)	
Google		20 (3.3)	47 (7.8)	201 (33.5)	17 (2.8)	71 (11.8)	83 (13.8)	161 (26.8)	
Online newspapers		119 (19.8)	116 (19.3)	206 (34.3)	17 (2.8)	20 (3.3)	64 (10.7)	58 (9.7)	
Online research journals		129 (21.5)	139 (23.2)	148 (24.7)	70 (11.7)	59 (9.8)	19 (3.2)	36 (6)	
Online books		190 (31.7)	201 (33.5)	65 (10.8)	41 (6.8)	54 (9)	15 (2.5)	34 (5.7)	
Interpersonal Communication (IC)		Teachers	59 (9.8)	91 (15.2)	241 (40.2)	17 (2.8)	51 (8.5)	106 (17.7)	35 (5.8)
	Parents	87 (14.5)	92 (15.3)	238 (39.7)	20 (3.3)	41 (6.8)	64 (10.7)	58 (9.7)	
	Class fellows	48 (8)	123 (20.5)	149 (24.8)	25 (4.2)	53 (8.8)	127 (21.2)	75 (12.5)	
	Friends	70 (11.7)	81 (13.5)	196 (32.7)	28 (4.7)	38 (6.3)	78 (13)	109 (18.2)	
	Colleagues	88 (14.7)	109 (18.2)	190 (31.7)	41 (6.8)	25 (4.2)	64 (10.7)	83 (13.8)	
	Peers	171 (28.5)	113 (18.8)	136 (22.7)	30 (5)	72 (12)	38 (6.3)	40 (6.7)	

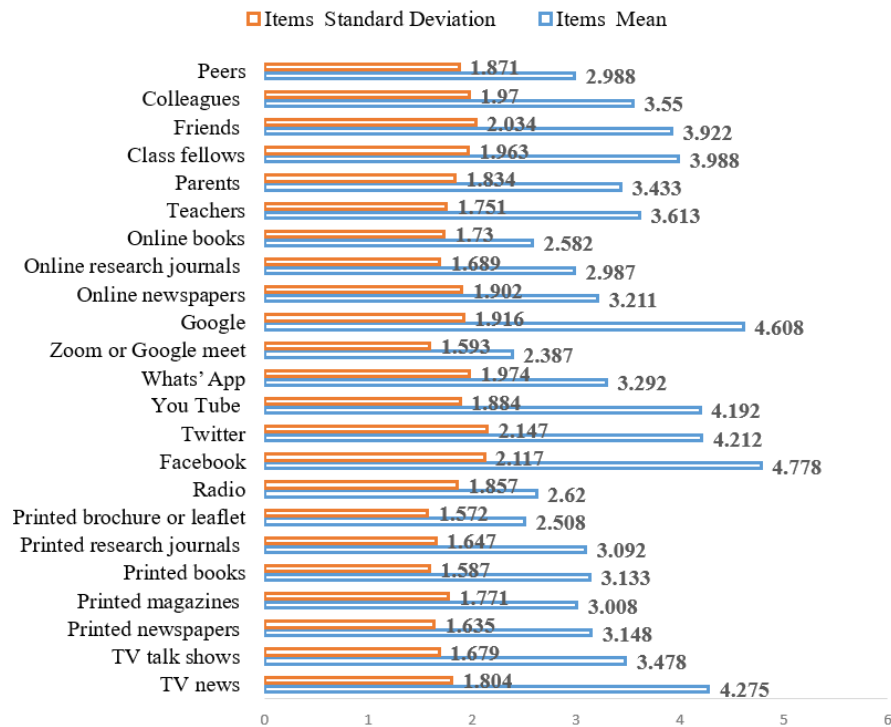
The research questions were formulated to explore which communication channels were preferred for informational gratifications. It was



found that television news was the most used traditional form of medium. The radio was least likely to be used in the context of climate change. The research journals were also seldom addressed to take information about climate change. Among new media Facebook, Google, Twitter, and YouTube were the most used communication channels for taking information about climate change. University students seldom used online books and research journals for getting information about climate change. Among the channels of interpersonal communication face-to-face communication with the class fellows and friends was the mostly used informational source to seek informational gratifications and the peers were least likely to be communicated within that context.

**Figure 3**

*Means and Standard Deviation Values for the Variables*



**Discussion**

The study explored the traditional, new, and interpersonal forms of communication to explore the patterns of uses of communication channels for informational gratifications and it was found that the newer forms of media are displacing the traditional forms of media and the means of interpersonal communication channels to know about climatic change. The reason for it is the advances in the mediated forms of communication. The freedom to access

information and the availability of the Internet has made a conducive environment for accessing information about climate change. Among the new media Facebook is the most used source for getting information about climate change. Google surfing is the second source that is mostly used by university students to get information about climate change which reflects that university students are active in Google searches to know something about climate change. Other forms of new media are also preferred like Twitter and YouTube. Overall, new media are preferred that traditional forms of communication. Television news is mostly used traditional communication channel by university students. Interpersonal communication with class fellows and friends is the mostly used interpersonal communication channel in the context of climate change. University students have seldom utilized books and research journals to get information about climate change which is alarming. This will result in access to fake news and incorrect information because the internet today is filled with information based on grey propaganda and falsehood in the context of climate change. To be more informed about global warming and climate change, university students will have to make their communication strong with their instructors and teachers and should take guidance from them about books and research articles to seek informational gratification in the context of climate change. The mere information from social media can create confusion among university students about the state of climate change's effects and efficacy.

### **Conclusion**



Social media like Facebook, Google surfing, Twitter, YouTube, traditional television news, the interpersonal communication with class fellows and friends have emerged as the major communication channels to seek informational gratifications in the context of climate change. The academic media of books and research journals are found to be less preferred by university students which is a concern for the teachers because in that way university students are less likely to be informed with authentic information about climate change.

### **Recommendations**

The teachers in the academic disciplines of mass communication will have to make a communication strategy to introduce to university students the books and research journals for getting information about climate change so they will be more knowledgeable about climate change and may participate well in climate-related activities.

### **References**

- Abdulai A-R, Chireh VK and Tchoukaleyska R (2021) Engaging Diverse Audiences: The Role of Community Radio in Rural Climate Change Knowledge Translation. *Journal of Community Engagement and Scholarship* 13(3). DOI: 10.54656/wyqw9689.
- Bråten I, Strømsø HI and Salmerón L (2011) Trust and mistrust when students





read multiple information sources about climate change. *Learning and Instruction* 21(2): 180–192. DOI: 10.1016/j.learninstruc.2010.02.002.

Brewer PR and McKnight J (2015) Climate as Comedy: The Effects of Satirical Television News on Climate Change Perceptions. *Science Communication* 37(5): 635–657. DOI: 10.1177/1075547015597911.

Brothers CC, Fortner RW and Mayer VJ (1991) The impact of television news on public environmental knowledge. *Journal of Environmental Education* 22(4): 22–29. DOI 10.1080/00958964.1991.9943058.

DeFleur ML and DeFleur MH (2022) *Mass Communication Theories: Explaining Origins, Processes, and Effects* (2nd ed. ). New York: Routledge.

Gerlich RN, Drumheller K and Sollosy M (2011) The Reading Motivations Scale: Uses and Gratifications of Readers , with Implications for Marketers. *ABD Journal* 3.

Greenberg BMR, Sandman PM, Sachsman DB, et al. (1989) Network Television News Coverage. *Environment* 31(2). DOI: <https://doi.org/10.1080/00139157.1989.9928931>.

Hansen et al (2022) *Global Temperature in 2020*. Available at: <https://mailchi.mp/caa/global-temperature-in-2020?e=670df34344>.



Hansen J, Fung I, Lacis A, et al. (1988) Global Climate Changes as Forecast by Goddard Institute for Space Studies three-dimensional model. *Journal of Geophysical Research* 93(D8): 9341–9364. DOI: <https://doi.org/10.1029/JD093iD08p09341>.

Metag J, Füchslin T, and Schäfer MS (2017) Global warming's five Germanys: A typology of Germans' views on climate change and patterns of media use and information. *Public Understanding of Science* 26(4): 434–451. DOI: 10.1177/0963662515592558.

Ruggiero TE (2018) Uses and Gratifications Theory in the 21st Century. *Refining Milestone Mass Communications Theories for the 21st Century* 3(1): 36–70. DOI: 10.4324/9781315679402-4.

Schäfer SM and Painter J (2021) Climate journalism in a changing media ecosystem: Assessing the production of climate change-related news around the world. *Wiley Interdisciplinary Reviews: Climate Change* 12(1). DOI: 10.1002/wcc.675.

Shin DH (2011) Understanding e-book users: Uses and gratification expectancy model. *New Media and Society* 13(2): 260–278. DOI: 10.1177/1461444810372163.

Siyao PO and Sife AS (2021) Sources of climate change information used by newspaper journalists in Tanzania. *IFLA Journal* 47(1): 5–19. DOI:



10.1177/0340035220985163.

Taddicken M (2013) Climate change from the user's perspective the impact of mass media and internet use and individual and moderating variables on knowledge and attitudes. *Journal of Media Psychology* 25(1): 39–52. DOI: 10.1027/1864-1105/a000080.