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A study on the current situation of media literacy among college students based on the maximum information entropy model

Yixin Gan*[1]

Abstract

Studying the current situation of media literacy of college students clearly is an important grasp to deepen media literacy education in colleges and universities. In this paper, by analyzing the relationship between information entropy and the maximum entropy principle, the problem of finding the maximum information entropy is transformed into a conditional extreme value problem and solved by using Lagrange multipliers, so as to find out the maximum information entropy distribution function and its parameter estimation under the one-dimensional condition. The maximum information entropy model is then used to study the media literacy of college students, including the use of media, media criticism ability and media utilization ability. The problem of low validity of the collected data is filtered by MaxEnt distribution function. The time spent by college students using online media is 33.42% higher than that of TV media and 48.16% higher than that of newspapers. When acquiring information through media, those who actively pay attention to information sources are 43.86% less than those who never pay attention, and those who use media for entertainment are 32.68% higher than those who participate in social discussions. The study based on the maximum information entropy can systematically analyze the media literacy of college students, and can target the deficiencies and defects in it, which has implications for the optimization of media literacy education in colleges and universities.

Keywords: *Maximum information entropy, MaxEnt distribution function, media literacy, information sources, Lagrange multipliers*

Introduction

Today, the pervasive mass media constructs reality in its own way and implicitly influences people's knowledge structure, cognitive style, value judgment, and even life and worldview(Smit, 1999; Soroka & Wlezien, 2019; Wang & Zhou, 2021). If the audience only stays at the level of being able to read and write, but is not able to correctly understand the characteristics of the media and rationally analyze and evaluate the media content, they will surely be lost in the vast ocean of information and become blind and passive media consumers. In this sense, in the information age, cultural literacy already includes another layer of extension-media literacy(Jenson & Droumeva, 2016; Maksl, Craft, Ashley, & Miller, 2017; Meng & Zhang, 2022).

The widespread use and development of various new media technologies, especially microblogs, social networks, and mobile networks, have had a huge impact on society, arguably more than in

[1] Department of culture and communication, West Anhui University, Lu'an, Anhui, 237000, China
Corresponding author: Yixin Gan (ganyixin1989@126.com)

January 2023
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any previous period, and have profoundly changed the communication environment in a very short period of time(Derry, Hmelo-Silver, Nagarajan, Chernobilsky, & Beitzel, 2006; Girard & Stark, 2003; Lee, Chen, Li, & Lin, 2015). The changes and impacts of new media development on the media environment have put forward new requirements for citizens' media literacy, and for college students, who are relatively better educated and have outstanding cognitive levels, the speed of new media development still overwhelms them and brings some brand-new challenges.

It is recognized that the study of media literacy began in the United Kingdom in the early 1930s, a period when films began to gain popularity in the country, and while they brought popular culture to society, they also proliferated vulgar and lowbrow cultural interests. The literature (Marta-Lazo, Gabelas-Barroso, & Hergueta-Covacho, 2016) argues that technological changes in information communication have changed traditional media literacy theories and suggests that the new media era requires a new discourse paradigm to expand media literacy. Literature (Guo X Q, 2017) investigated the media literacy of minors in Yancheng City, analyzed the problems and proposed the cultivation path of minors' media literacy. The literature (Kesler, Tinio, & Nolan, 2016) conducted a study on the media education of special education students, analyzed students' critical thinking about pop culture websites, and proposed that dialectical attitudes and multimodal expressions across multiple literacies should be strengthened.

The literature (Gui, Fasoli, & Carradore, 2017), on the other hand, argues that in the face of countless streams of information on various digital media, users have difficulty in achieving happiness and instead experience media anxiety. The literature (Fedorov & Levitskaya, 2016) studied the audience media competence of Russian university students and pointed out that the evaluation of audience media competence largely reflects their information level, and in turn a high level of information index does not mean a high level of media literacy. The literature (Pounaki, Givi, & Fahimnia, 2017) argues that people in the industrial society of the new century need to improve their media and information literacy and examines the relationship between media literacy and information literacy among students of communication sciences. The literature (Kline, 2016) points out the significance of Marxist-based critical media literacy theory for the intersection of media, critical theory, and pedagogy, while supplementing it with Baudrillard's media theory in response to the shortcomings of critical media literacy theory.

To this end, this paper proposes to use the maximum information entropy model to study the current situation of media literacy among college students. First, the connection between information entropy and maximum entropy principle is studied, and it is pointed out that the probability distribution derived from the maximum entropy principle always satisfies the maximum information entropy, thus transforming the maximum information entropy model into the problem of finding the extreme value of the objective function with constraints. Then, the maximum entropy distribution function in one-dimensional form is derived according to the constraints, and different estimation methods for the parameters of the distribution function are also compared, including the three-parameter moment method estimation, the four-parameter

Remittances Review
January 2023
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moment method estimation and the probability weight method estimation. Finally, data related to college students' media literacy are collected in the form of an empirical survey, processed and analyzed by using the maximum entropy model, and the current situation of college students' media literacy is studied in terms of the length of use of different media, the perception of media information sources and the use of media to participate in social discussions.

Maximum information entropy model

Information entropy and maximum entropy principle

In the nineteenth century, a constant quantity similar to the conservation of energy was discovered in the study of thermodynamic cycles, which Clausius called entropy, also known as thermodynamic entropy. In 1948, Shannon introduced the concept of information entropy in information theory in response to the uncertainty in information transmission. After more than one hundred years of development, the concept of entropy has been expanded to all fields of scientific research, and Einstein called entropy theory the first law of modern science. The meaning of entropy has been very broad, in thermodynamics it is a measure of unusable energy; in statistical physics it is a measure of the number of microstates of a system, and in information theory it is a measure of the uncertainty of random events. Therefore, it can be seen that the concept of entropy does not refer to the same thing in different fields. A model for classification based on information entropy is shown in Figure 1.

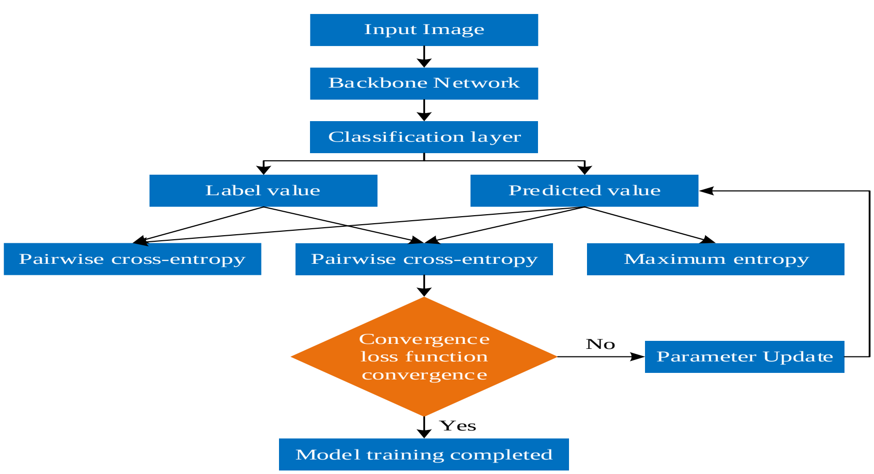

Figure 1: Information entropy classification model

In 1957, Jaynes proposed the maximum entropy principle (MaxEnt) for information entropy. The essence of the maximum entropy principle is that, under the premise of satisfying the known conditions, the least subjective assumptions are made about the unknown situation, when the prediction risk is minimal. The principle of thermodynamic entropy increase and the maximum entropy principle of information entropy can be unified in essence as a law that the complexity of

Volume: 8, No: 3, pp. 198 - 211
ISSN: 2059-6588 (Print) | ISSN: 2059-6596 (Online)

the system automatically reaches the maximum.Let the probability of occurrence of various signals $\boldsymbol{x_i}$ appearing in the communication be $\boldsymbol{p_i}$ (i=1,2,…,n). Shannon gives the formula for the uncertainty (information entropy) per sampling as:

$$H_n = -k\sum_{i=1}^{n} p_i \ln p_i \quad (1)$$

And there are:

$$\sum_{i=1}^{n} p_i = 1\,, 0 \le p_i \le 1, i = 1,2,\dots,n \quad (2)$$

For a continuous random variable $\boldsymbol{X}$, let its density function be $\boldsymbol{f_{(x)}}$,then its information entropy is defined as:

$$H(X) = -\int_{-\infty}^{\infty} f(x) \ln f\,(x)\,dx \quad (3)$$

And there are:

$$\int_{-\infty}^{\infty} f(x)dx = 1 \qquad (4)$$

According to the maximum entropy principle, when solving the distribution function for a random variable with an overall unknown, with insufficient data, the result must first coincide with the known data and make minimal assumptions about the unknown part of the distribution. The information entropy of the probability distribution derived according to the maximum entropy principle is maximum, and therefore it is called the maximum entropy model, and its solution is a process of extracting information from the data. This information includes the known data on the one hand; on the other hand, it comes from the assumptions made on the unknown part due to incomplete data, and the maximum information entropy requires that such assumptions (constraints) add the least amount of information. Therefore the distribution function obtained by the maximum entropy model is the most transcendental. Different maximum entropy models can be obtained by giving different constraints according to the actual situation. According to information theory, it is known that the normal distribution is the form of distribution that makes the information entropy maximum when the variance is determined.

Maximum entropy model in general form

For a continuous random variable $\boldsymbol{X}$ with information entropy of Eq. (3) and a natural constraint on the distribution function of Eq. (4), suppose that for a function $R_m(x)$ on $\boldsymbol{x}$, there is:

$$E[R_m(x)] = \int_{\infty}^{-\infty} R_m(x) f(x)dx = C_m, m = 1,2,\dots,M \quad (5)$$

Of course, there is a big problem with such a representation, namely, the data sparsity problem. Even with a very large training text, many binary groups still do not appear, and it is obviously undesirable to arbitrarily assume that it has a probability of 0. The maximum entropy model solves the sparse event problem in such a way that the probability distribution of unknown events is always as uniform as possible, i.e., it tends to obtain the maximum entropy.According to

January 2023
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ISSN: 2059-6588 (Print) | ISSN: 2059-6596 (Online)

the maximum entropy principle, under the condition that this information is known, it is necessary to find the one that satisfies the condition that makes the information entropy maximum, which can be translated into the following optimization problem:

Objective function: $\max_{f(x)} H(X) = -\int_{-\infty}^{\infty} f(x) \ln f(x) dx$ (6)

Constraints: $\begin{cases} \int_{-\infty}^{\infty} f(x) dx = 1 \\ E[R_m(X)] = \int_{-\infty}^{\infty} R_m(x) f(x) dx = C_m, m = 1,2,\dots,M \end{cases}$ (7)

This conditional extreme value problem can be solved using the Lagrange multiplier method. The Lagrange multiplier method is a method for finding the extreme value of a multivariate function when its variables are constrained by one or more conditions. This method converts an optimization problem with n variable and k constraints into a problem of solving a system of equations with $n+k$ variables, and the coefficients in the transformed system of equations are called Lagrange multipliers. The geometric meaning of Lagrange multipliers is shown in Figure 2.

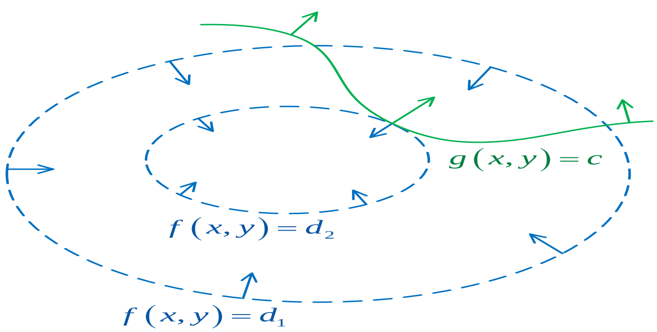

Figure 2: The geometric meaning of the Lagrange multiplier

Order:

$L = -\int_{-\infty}^{\infty} \ln f(x) dx + (\lambda_0 + 1)\{[\int_{-\infty}^{\infty} f(x) dx] - 1\} + \sum_{m=1}^{M} \lambda_m \{[\int_{-\infty}^{\infty} R_m(x) f(x) dx] - C_m\}$ (8)

The derivation leads to:

$f(x) = exp\{\lambda_0 + \sum_{m=1}^{M} [\lambda_m R_m(x)]\}$ (9)

which is a one-dimensional maximum entropy model with constraints of the general form of equation (7).

If we take $R_m(x) = x^m$, that is, we take the moment constraint such that:

$E(x^m) = \int_{-\infty}^{\infty} x^m f(x) dx = C_m, m = 1,2,\dots,M$ (10)

Then the one-dimensional maximum entropy model becomes:

$f(x) = exp[\lambda_0 + \sum_{m=1}^{M}(\lambda_m x^m)]$ (11)

It is generally called the one-dimensional maximum entropy model under the first fourth-order moment constraint:

$f(x) = exp(\lambda_0 + \lambda_1 x + \lambda_2 x^2 + \lambda_3 x^3 + \lambda_4 x^4)$ (12)

It is the one-dimensional maximum entropy distribution.

Maximum entropy distribution function

If random variable X takes value in interval $[a_0, +\infty]$, let $Y = X - a_0$, then Y takes value in $[0, +\infty]$. The information entropy of random variable Y is:

$H(Y) = -\int_0^{\infty} f(y)\, ln\, f\,(y) dy$ (13)

Take the following constraint:

$$\begin{cases} \int_0^{\infty} f(y)dy = 1 \\ \int_0^{\infty} ln\, y \cdot f(y)dy < +\infty \\ \int_0^{\infty} y^{\xi} f(y)dy < +\infty \end{cases} \quad (14)$$

The first constraint constrains the probability density integral to be 1. The second constraint constrains the existence of the order of origin moments when $y \to \infty$ or $y \to 0$, $f(x) = 0$. The third constraint constrains the existence of the order of origin moments.

Order:

$l(f, y) = -f(y)\, ln\, f\,(y) + (\lambda + 1)f(y) + \gamma\, ln\, y \cdot f(y) - \beta y^{\xi} f(y)$ (15)

So:

$L = \int_0^{\infty} l(f, y)\, dy - (\lambda + 1)$ (16)

Let $\frac{\partial L}{\partial f} = 0$, i.e., let $\frac{\partial l}{\partial f} = 0$, have:

$\frac{\partial}{\partial f}\left[-f\, ln\, f + (\lambda + 1)f + \gamma f\, ln\, y - \beta y^{\xi} f\right] = -\, ln\, f - 1 + (\lambda + 1) + \gamma\, ln\, y - \beta y^{\xi} = 0$
(17)

If we make $\alpha = e^{\lambda}$, we can derive:

$f(y) = \alpha y^{\gamma} e^{-\beta y^{\xi}}$ (18)

Since $\int_{-\infty}^{\infty} f(y)dy = 1$, there is:

$$\int_0^\infty \alpha y^\gamma e^{-\beta y^\xi} dy = 1 \quad (19)$$

So:

$$\alpha = \xi \beta^{\frac{\gamma+1}{\xi}} \Gamma^{-1}\left(\frac{\gamma+1}{\xi}\right) \quad (20)$$

where $\Gamma(\cdot)$, denotes the Gamma function, defined as:

$$\Gamma(s) = \int_0^\infty x^{s-1} e^{-x} dx \quad (21)$$

Since $X = Y + a_0$, it is easy to obtain the density function of X as:

$$f(x) = \xi \beta^{\frac{\gamma+1}{\xi}} \Gamma^{-1}\left(\frac{\gamma+1}{\xi}\right) \cdot (x - a_0)^\gamma \cdot e^{-\beta(x-a_0)^\xi} \quad (22)$$

where, $a_0 > 0$ is the position parameter. The distribution is the one-dimensional maximum entropy distribution function.

One of the main advantages of modeling using the maximum entropy approach is that it can portray various different features in the same framework and does not require the assumption of feature independence the disadvantage is that it is computationally complex in time and space and resource intensive. In natural language processing, statistical methods applying the maximum entropy model can separate the model and linguistic knowledge into two relatively independent modules for processing, and have been effectively used in several language processing tasks such as machine translation, lexical annotation, lexical analysis, and preposition linkage disambiguation groups. The model can be utilized multiple times, with only different features selected for different tasks, and various experimental results show that researchers can use and reuse the maximum entropy framework to a very wide range of tasks with a high degree of accuracy.

The maximum entropy statistical model is obtained as the model with the highest information entropy among all models that satisfy the constraints. The probabilistic model corresponding to the time when the information entropy obtains the maximum value has an absolute predominance of the probability of occurrence. This can be proved theoretically. Using the maximum entropy it is possible to accurately model the subtle dependencies between variables, and the model is able to subtly associate these features with the probabilistic evaluation model. The features thus selected are not possible with traditional predictive modeling techniques and are highly portable. Maximum entropy recognizes existing facts and has no independence assumptions for the selected features.

Parameter estimation of the maximum entropy model

Although the one-dimensional maximum entropy distribution function avoids line selection and has excellent elasticity, it contains four parameters that often vary widely among methods in estimation. The target problem of maximum entropy model solving changes to how to estimate the weights of the features. Obviously, these weights cannot be obtained by analytical methods of

Remittances Review
January 2023
Volume: 8, No: 3, pp. 198 - 211
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solving, but only by using numerical calculations. Zhang et al. proposed a one-dimensional maximum entropy distribution function and gave a moment estimation method for the three-parameter (without the location parameter a_0) case. The three-parameter method of moments uses the third-order moments of the sample, so its sampling error will be larger than that when estimating the distribution containing two parameters, which may eventually lead to poorer estimation. Wang et al. gave their four-parameter method of moments estimation and probability weight method estimation while proposing a generalized hydrological probability model. Based on the formal unity between the one-dimensional maximum entropy distribution function and the generalized hydrological probability model, the analogy can be applied to the parameter estimation of the one-dimensional maximum entropy distribution function. The four-parameter method of moments uses fourth-order moments, so it will encounter similar problems as the three-parameter method of moments; the probability weight method has better unbiasedness and can overcome the drawback of large sampling error of the method of moments, thus it is theoretically superior. Dong et al. proposed the empirical line method for estimating the parameters of the one-dimensional maximum entropy distribution function by analogy with the Pearson type III distribution, and applied it to the long-term prediction of the recurrence value of storm surge in Jiaozhou Bay, and achieved good results in curve fitting. The results show that the empirical line fit method and the empirical line fit method can be compared. The results show that the empirical line fit method and the maximum likelihood method are better in fitting the parameters of the one-dimensional maximum entropy distribution function. Suppose that the random variable X obeys a one-dimensional maximum entropy distribution function with parameter $(\beta, \gamma, \xi, a_0)$, and $x_1, x_2, \ldots, x_n$ is a set of its samples. Let $Y = X - a_0$, corresponding to the set of samples $(y_1, y_2, \ldots, y_n) = (x_1, x_2, \ldots, x_n) - a_0$ obtained about Y, then the distribution function of Y is:

$$F(y) = \int_0^y \xi \beta^{(\gamma+1)/\xi} \Gamma^{-1}[(\gamma+1)/\xi] \cdot t^\gamma \cdot e^{-\beta t^\xi} dt \quad (23)$$

The mnd order origin moment of Y is:

$$A_m = \beta^{-\frac{m}{\xi}} \cdot \Gamma^{-1}\left(\frac{\gamma+1}{\xi}\right) \Gamma\left(\frac{\gamma+1+m}{\xi}\right), m = 0,1,2, \quad (24)$$

Media literacy research design for college students

Research Subjects

College students are the main reserve labor force of the country, and they determine the future and strength of our country. However, there are not many research studies, especially empirical studies, on the media literacy of college students.

This study is aimed at the special group of college students and provides a reference for media literacy education in colleges and universities by conducting an empirical study on their media literacy status.

January 2023
Volume: 8, No: 3, pp. 198-211
ISSN: 2059-6588 (Print) | ISSN: 2059-6596 (Online)

By improving the media literacy of college students, we can help them develop comprehensively and grow up healthily. University students usually refer to all students enrolled in higher education institutions, including college students, undergraduates, master's students and doctoral students. However, the scope of this concept is too broad, and the groups of college students, undergraduates, master's students and doctoral students are too different to be studied as one group. Since the number of undergraduates is the largest, this study mainly focuses on undergraduates in universities.

Research hypothesis and ideas

Hypothesis 1: Due to various objective and subjective factors, college students spend more time on online media than on other media, but they do not make high use of online media.

Hypothesis 2: College students' media exposure, media attitudes and media behaviors are subject to a combination of age, gender and major factors.

Hypothesis 3: Although college students are relatively well educated and cultured, their media literacy is mainly formed by spontaneity, so there is still a considerable deficiency.In this study, we analyze the media literacy of college students from three aspects: media exposure, media use ability, and media perception and judgment, and analyze the internal and external causes of the lack of media literacy among college students as reflected by the survey results.

On this basis, we propose reasonable and effective ways and strategies to improve the media literacy of college students, so as to provide a reliable reference and basis for strengthening the media literacy education and improving the media literacy of college students.

Survey Research

In this study, 6 universities were selected and 150 questionnaires were randomly distributed in each university. 900 questionnaires were collected, 774 questionnaires were returned, and the recovery rate was 86.1%. Among them, 688 were valid questionnaires, and the recovery rate was 76.5%. The sample composition of the survey is shown in Table 1. 329 male students, accounting for 42.5% of the respondents.

There were 445 female students, accounting for 57.5% of the respondents. In the distribution of grades, 118 people were in the first grade, accounting for 15.2%. In the second grade, there were 360 people, accounting for 46.5%.

In the third year, there were 296 students, accounting for 38.3%. The fourth year students were not included in the survey because they were in the internship period.

There are 350 people in science and technology, accounting for 45.2%. There were 424 liberal arts students, accounting for 54.8%. The sample was selected randomly, covering a wide range of students, with a certain degree of representativeness.

January 2023
Volume: 8, No: 3, pp. 198 - 211
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Table 1: Sample distribution

Classification method	Gender		Grade			Major	
	Female	Male	First grade	Second grade	Third grade	Science	liberal arts
Number	445	329	118	360	296	350	424
Proportion	42.5%	57.5%	15.2%	46.5%	38.3%	45.2%	54.8%

Analysis of the current situation of media literacy among college students

This paper analyzes the data obtained from the survey using the maximum information entropy model, and explores three aspects: media usage, media criticality and media utilization ability.

MaxEnt-based media usage analysis

The length of use of different media by college students is shown in Figure 3. For newspapers, 19.97% were not exposed to them, 22.30% used them for less than 0.5 hours, 21.87% used them between 0.5 and 1 hour, 11.54% used them between 1 and 2 hours, 19.29% used them between 2 and 3 hours, and 5.04% used them for more than 3 hours.

The length of time that college students used TV media was 22.99%, 23.89%, 5.61%, 14.71%, 13.38%, and 19.41% in order from small to large.

For those who used more than 3 hours, the Internet side was the highest, at 35.20%. Mobile Internet was the second highest at 33.62%. And the largest percentage of those who basically do not use radio is 41.56%.

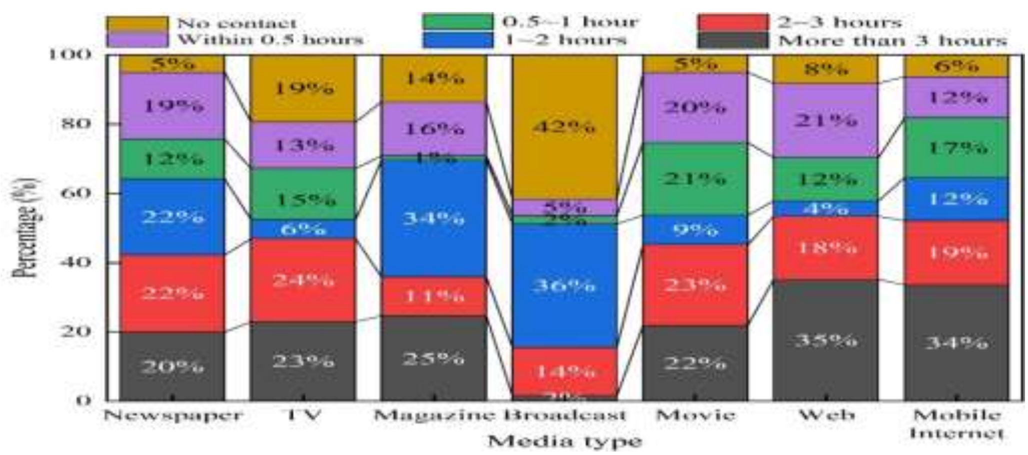

Figure 3: How long college students spend using media and content choices

With the analysis of the maximum information entropy model, we can get a glimpse of the use of media by college students: new media become the first media that college students contact, not only in the most frequent contact time, but also the most popular, and college students are most influenced by them. College students' exposure to and preference for various media technologies

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are somewhat imbalanced, as shown by the obvious preference for new media, which far exceeds traditional media such as newspapers and radio.

MaxEnt-based media criticality analysis

College students' perceptions of media information are shown in Figure 4. Regarding the perception of the overall credibility of the media, 50.08% of college students think that the credibility of our media is average, accounting for the majority, followed by 23.57% of college students who think that the credibility is not high, i.e. as many as 73.65% of college students think that the overall credibility of the media needs to be improved. Another 13.66% of college students think it is hard to say, and only 12.69% of them think the credibility is high. In terms of reading habits, 39.05% of college students only read the information they are interested in, 37.82% of college students mostly read the headline, introduction or pictures and then finish, 11.81% of college students just look at the news without purpose, and only 11.31% of college students read the whole text of most of the news. Regarding the attention to information sources, 11.38% always pay attention to information sources, 14.54% usually pay attention to information sources, 20.27% do not pay attention, and 53.81% pay attention occasionally. In terms of the degree of influence of media, more than 62% of college students all think that new media have a great influence on their personal knowledge structure and living habits, while about 40% of college students realize the influence of new media on their way of thinking, 23.51% of college students think that new media have a great influence on both their outlook on life and values, and only about 12.23% of college students think that new media have Only about 12.23% of college students think that the new media do not have much influence on them.

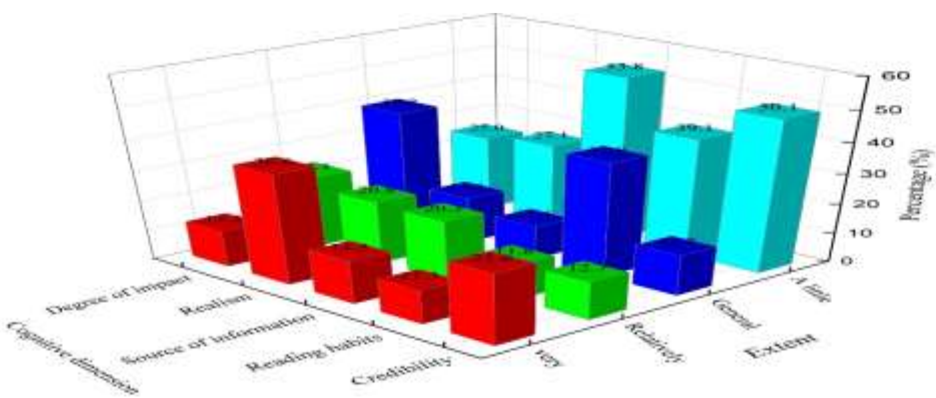

Figure 4: College students' perception of media information

College students have a clear understanding of the impact of the new media, especially on their knowledge structure, habits and way of thinking. The majority of college students have a relatively positive attitude toward the influence of new media on individuals, while a significant number of college students believe that it has a mixed effect, but none of them directly deny the influence of new media. Similar to the results of the personal influence survey, the majority of college students

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believe that the new media have a very important and positive role in promoting social progress, and again, none of them simply deny it.

MaxEnt-based media utilization capability analysis

The situation of college students using media to search for information and participate in discussions is shown in Figure 5. The most basic ability to search for information using new media is generally easy for college students to master, and nearly 72% of them think that they are skilled or relatively skilled in searching and can find the information they need very quickly. Only 6.18% think they are average and need to depend on the situation. The ability of using new media to participate in social affairs discussion is relatively weak, only 19.4% of college students will actively participate in the discussion of social hot events appearing on the Internet, and most of the remaining college students only express their concern or understand the basic situation, and will not express their opinions on it. Regarding the frequent phenomenon of online help and even online political discussion on the new media, 21.43% of college students have engaged in such behavior, but most of them did not get a good solution due to the limitation of personal influence. Nearly half of the college students said they would like to try to use the new media to seek help, while another 39.64% said they would not try.

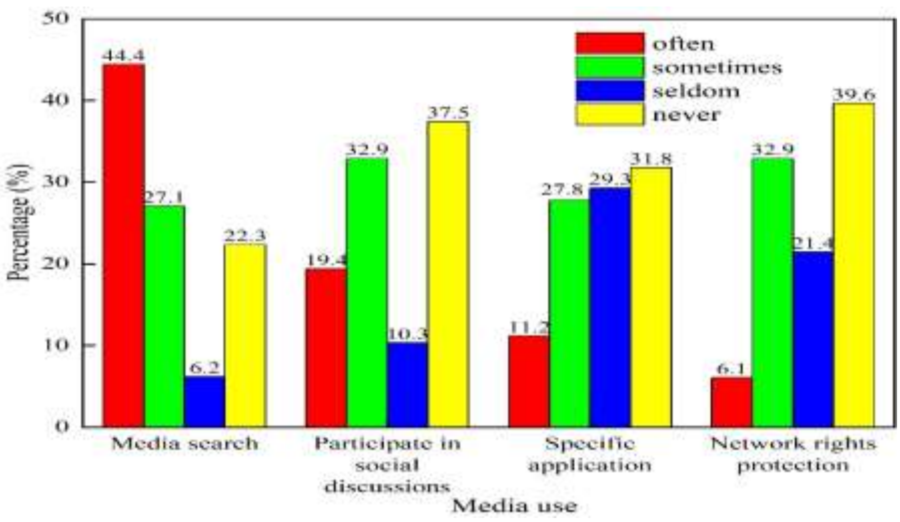

Figure 5: The use of media by university students

The ability of college students to use new media technology is still at a relatively basic level, such as the ability to use new media to search for information to obtain news, but it is limited to help individuals and tends to be used for personal expression, which is more mature in this area. College students lack the awareness of active participation, and few of them take the initiative to participate in actions such as the collision of views, the active communication of public events, and the creation of news, so they have not really been able to use the new media to contribute to the

Remittances Review
January 2023
Volume: 8, No: 3, pp. 198-211
ISSN: 2059-6588 (Print) | ISSN: 2059-6596 (Online)

development of society. Most of the university students have the idea of using new media to participate in public affairs, but they have yet to really put it into practice.

Conclusion

This paper collects data on college students' media literacy through survey research, and then uses the maximum information entropy model to process and analyze the data, filter out repetitive and useless information, and improve the representativeness of the data. College students in higher education prefer the emerging online media, with 45.62% higher usage hours compared with traditional media. At the same time, the level of college students' use of media is still relatively low, and only 19.4% will participate in social discussions. The analysis of college students' media literacy is as follows: College students have certain dependence and utilitarianism on media, and have a preference for new media. Although the media exposure preferences and interests of college students vary, they show obvious diversified and compound characteristics, and they are exposed to new and traditional media such as cell phone, Internet, newspaper, TV and radio. College students have certain critical ability of media, but the awareness of media ethics and self-discipline needs to be strengthened. When personal views conflict with media views, most students only take media views as reference, and at the same time, they can discern and judge the truth or falsity of media information to a certain extent. College students have a strong sense of media participation and enthusiasm, but the ability to apply media technology is still very lacking.College students' perception of self-media literacy is rather vague, but their willingness to participate in media literacy education is very clear.

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References

Derry, S. J., Hmelo-Silver, C. E., Nagarajan, A., Chernobilsky, E., & Beitzel, B. D. (2006). Cognitive transfer revisited: Can we exploit new media to solve old problems on a large scale? *Journal of Educational Computing Research, 35*(2), 145-162.

Fedorov, A., & Levitskaya, A. (2016). Modern media criticism and media literacy education: the opinions of Russian university students. *European Journal of Contemporary Education, 16*(2), 205-216.

Girard, M., & Stark, D. (2003). Heterarchies of value in Manhattan-based new media firms. *Theory, culture & society, 20*(3), 77-105.

Gui, M., Fasoli, M., & Carradore, R. (2017). "Digital well-being". Developing a new theoretical tool for media literacy research. *Italian Journal of Sociology of Education, 9*(1).

Guo X Q, J. Y. X., University Y N . (2017). Study on the media literacy of minors in the new media age——a case study of Yancheng. *Heilongjiang Science*.

Jenson, J., & Droumeva, M. (2016). Exploring media literacy and computational thinking: A game maker curriculum study. *Electronic Journal of e-Learning, 14*(2), pp111-121-pp111-121.

Kesler, T., Tinio, P. P., & Nolan, B. T. (2016). What's our position? A critical media literacy study of popular culture websites with eighth-grade special education students. *Reading & Writing Quarterly, 32*(1), 1-26.

Kline, K. (2016). Jean Baudrillard and the limits of critical media literacy. *Educational Theory, 66*(5), 641-656.

Lee, L., Chen, D.-T., Li, J.-Y., & Lin, T.-B. (2015). Understanding new media literacy: The development of a measuring instrument. *Computers & Education, 85*, 84-93.

Maksl, A., Craft, S., Ashley, S., & Miller, D. (2017). The usefulness of a news media literacy measure in evaluating a news literacy curriculum. *Journalism & Mass Communication Educator, 72*(2), 228-241.

Marta-Lazo, C., Gabelas-Barroso, J., & Hergueta-Covacho, E. (2016). *Applying inter-methodological concepts for enhancing media literacy competences*. Retrieved from

Meng, S., & Zhang, X. (2022). Translog function in government development of low-carbon economy. *Applied Mathematics and Nonlinear Sciences, 7*(1), 223-238.

Pounaki, E., Givi, M., & Fahimnia, F. (2017). Investigate the relation between media literacy and information literacy of students of communication science and knowledge and information science. *Iranian Journal of Information Processing Management, 32*(2), 581-604.

Smit, E. (1999). *Mass media advertising: Information or wallpaper?* : Het Spinhuis.

Soroka, S., & Wlezien, C. (2019). Tracking the coverage of public policy in mass media. *Policy studies journal, 47*(2), 471-491.

Wang, J., & Zhou, Y. (2021). Impact of mass media on public awareness: The "Under the Dome" effect in China. *Technological Forecasting and Social Change, 173*, 121145.