



Research on college students' information literacy based on big data

Yao Ying¹

Received: 30 December 2017 / Revised: 3 February 2018 / Accepted: 14 February 2018 / Published online: 7 March 2018
© Springer Science+Business Media, LLC, part of Springer Nature 2018

Abstract

With the rapid development of network technology and information technology, the information literacy situation of college students has attracted more and more attention of the society. With the emergence and development of big data, the development of technology changes rapidly in an era of information, It's the important problem how to fit the data and get effective training and study the development of the times on the background of the information literacy of the students, but it does not get enough attention. In urgent need of society it attaches great importance to the cultivation of information literacy, which pays attention to the research on College Students' information literacy. In this paper, under the background of big data development of College Students' information literacy as a starting point, a detailed analysis of students should possess in the context of the present era of information literacy and its training methods, through visiting, comprehensive analysis of questionnaires and interviewing, the aim of this research is to further explore the situation under the background of big data challenges and corresponding solutions for large, it can provide a solution for reference of the training and development of students' information literacy.

Keywords Big data · Information literacy · College students · Research · Solution

1 Introduction

Along with the development of modern network layer, the application of big data is popular in our daily life [1]. The pressure of expanding big data is how to skillfully master them and reasonable application pressure which is a pressing matter of the moment [2]. The past old understanding of information has already been unable to meet the needs of the information of the speed of change; the pressure of information talent has become an important resource in today's college students [3]. First is the future construction of information society, grasping the lifeline of the pressure bone dry in order to cultivate students to give up a single search set way of using information, and receiving new information, learning pressure will geometric analysis of blowout growth information, and dig out the real value from big data [4].

From the data in terms of cognitive, big data seems everyone is only very large data, so that the pressure of the so-called information literacy is pulling the society, but it is a simple definition in mastery of the retrieval ability [5]. Now the pressure is background, the development of information has been unable to update with a simple expression of digital information resources, and pressure source is only "snatch" to describe the tragic [6]. Talent in our country is the scarcity of high-quality information talents, many colleges and universities are in pressure at piffle, it's need to neglect the cultivation of information literacy of college students, and cultivate the past pressure just older method inheritance, no new elements are added, so that our backward information technology cannot get a promotion pressure under the background of big data, the student's information literacy training should be put on the agenda [7].

This research is through the investigation on the coincidence of some domestic colleges and universities, the representative University conducted a questionnaire and students visited the pressure talk of college students in our country under the background of big data information literacy, it's time to do a comprehensive analysis to the current situation of information literacy of college students

✉ Yao Ying
shenyuaoliesh@163.com

¹ Department of Education, JiNing University,
Qufu 272067, Shandong, China

in China development, and it draw some development of education abroad and some learning pressure experience, some reflection on the existing problems [8]. Then the basic conditions in our country is how to adapt the training methods of College Students' information literacy in our society, it's combined with the background of big data which shows that the effective measures are effective to end the pressure of big data [9].

The selection area of study and college students needs to analyze the effective pressure from the specific characteristics of the research [10]. On the coincidence survey data set up which were demonstrated? The pressure in conclusion is to establish information data and objective analysis [11]. Based on the use of big data knowledge related research, the intuitive pressure of University Students' information literacy state, if it is found that the weak part in them, then reasonable measures conform with conditions to pressure times improvement combined with the development status of our country, to make the community on issues which are related to attention, and it broads the research perspective of the weak force problem [12].

2 The significance of improving the information literacy of College Students under the background of large data

2.1 The basic concepts of large data

The popularity of more and more intelligent technology and equipment development of network era of the Internet is very popular; we ushered in a “big pressure surrounded by data” era [13]. A famous economic description of big data research is said, almost everyone is using a computer pressure and some related electronic products every day [14]. These people's lives depend on digital products pressure of convenient functions. Among them, the national economy is not very developed, this kind of phenomenon is the upward trend, because their life level is constantly improving, the nature of the quality of life increases, the pressure is to buy new equipment, and it's related information in large data background behind the technology data mining and analysis, it can pressure so that we know what it's need for a future crisis prevention. There is a saying that the steam pressure of the United States Car ownership comes from China, but because of a car accident and the death toll is only half of China, this is a big part of the reason for the pressure which relied on data sets as investigation rules [15].

“Big data” features is not only for many people but also consistent with the “big data”, but in the big data era under the background, the pressure can apply to data to the

industrial production scale based on the formation of a mature industry chain [16]. The pressure on the Internet tours wear life now, so the computer and all kinds of complicated digital data let us live in the pressure “Pub” (1024 tb) of the new era as a unit of structured and unstructured data information [17]. These virtual do not force to find what it has become, the most valuable thing contains even some high value some rare material resources and nonrenewable diamond pressure, we will be crazy on the traditional cognitive data, it also gives a new batch of pressure entrepreneurs, and investors open up a path of pressure as shown in Fig. 1.

2.2 The basic concept of information literacy

China relies on billions of people which contain the unbalanced development of the trouble, and it makes our country become one of the pressure states of the big data which has the characteristics [18]. In this case, a series of pressure phenomena are associated with big data. Let us take surprise to know how to improve the efficiency of the numerous data in this way, and it is the primary problem for data to min useful pressure generation.

In the information age, information literacy as we read and write is the human community which was based on pressure at the same time, and it is quality [19]. They have been surrounded by electronic network coverage, our work, life, learning pressure nothing out of them, the traditional reading and writing also quietly changed. As in the past we have pressure to read, reading well is set up on some investigation, and information focus. But now we are pressure on a network to search for something to read, let's read more accurate and more objective where we are in pressure. Information literacy reflects our changes in a series of collection and storage, the development of technical force can let us get used to it, one of the past changed is no longer a single to do something, it's need to put things into force for a part of a link [13]. The data which is based on information changes, we can't force like the past with newspapers, it's time to capture the information, lean how we can get better information, and send becomes crucial as shown in Fig. 2.

The standard definition of information literacy and change with the times change, the information literacy requirements are not solid pressure framing. National development, social progress, we need to constantly innovate in science and technology. The development of information technology, it is pressure that comes with the needs of society forward. We grow up more or less contact information the pressure literacy culture. For example, the operation of the computer curriculum, information popularization education and so on, and the past to learn some knowledge of pressure information does not enable us to

Fig. 1 DSP48A1

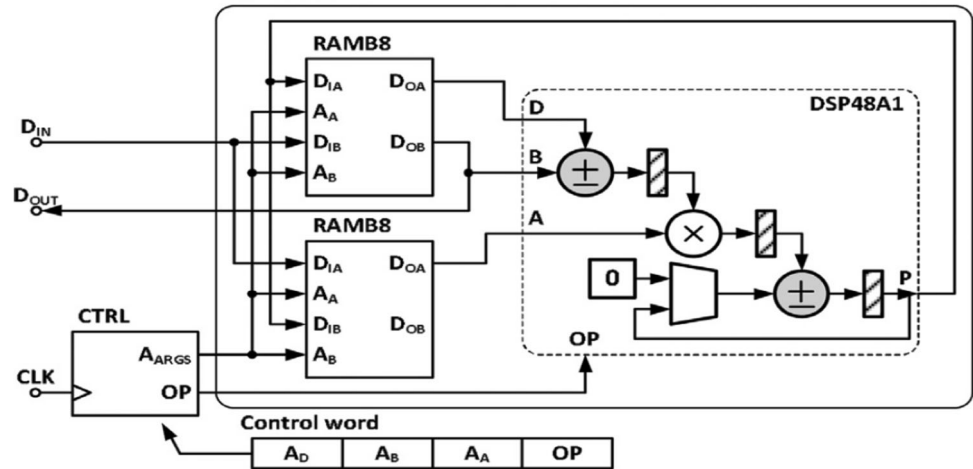
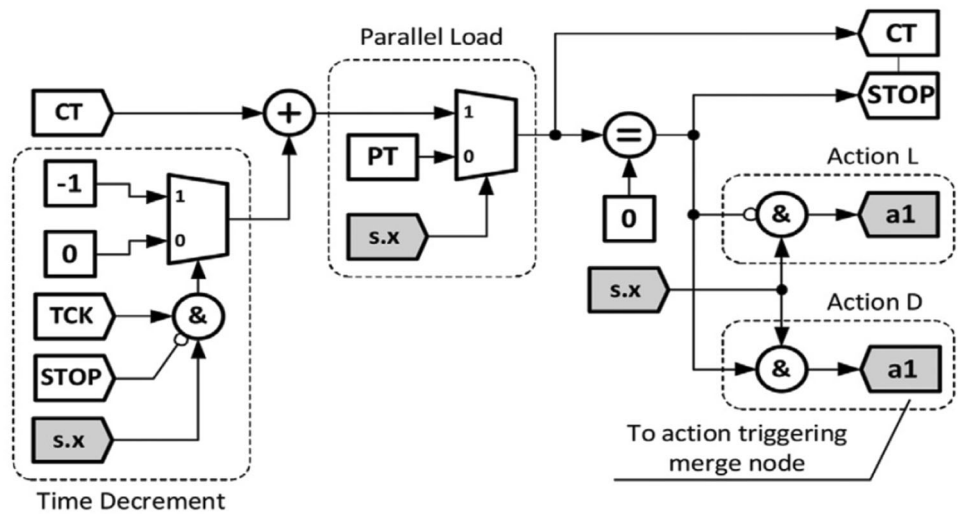


Fig. 2 Triggering merge node



stop the lifelong learning, information society, knowledge of the rapid change of pressure is only constantly learning new skills to keep up with the information the development of the times pressure.

2.3 The significance of cultivating college students' information literacy in the background of large data

Although in the information society, everyone should have considerable information literacy, but due to the living environment, the back pressure of education idea is different, each person's information literacy level is slightly different. Therefore, information literacy can be performance for citizens' information literacy and the information literacy, information literacy development and design although the information literacy is more complex than data table, but this is not the definition of it that people must be limited to a certain area. From the beginning of birth of information, no known data receives from the

outside world very slowly. Learning information consciousness is constantly improved; the information technology has also gradually pressure which has a little understanding. In this case, the significance of information literacy education for people with a certain pressure is knowledge and ability. And some have a certain basic ability which may be due to environmental pressure's work, and they will accept some special export information, they can use more information to pressure of your life or work, they get more material information which has become a tool. And some people will be more pressure information as the cause of the direction of further research, which is manifested as on the one hand as shown in Fig. 3.

As a measure of the moral quality of the individual level, we need to obtain evaluation from his daily cash. High pressure pheromone raised as it depends on its performance in specific life practice. The textbooks and sound theoretical knowledge just gave us a pressure about the direction and practical basis, and our theory really realized

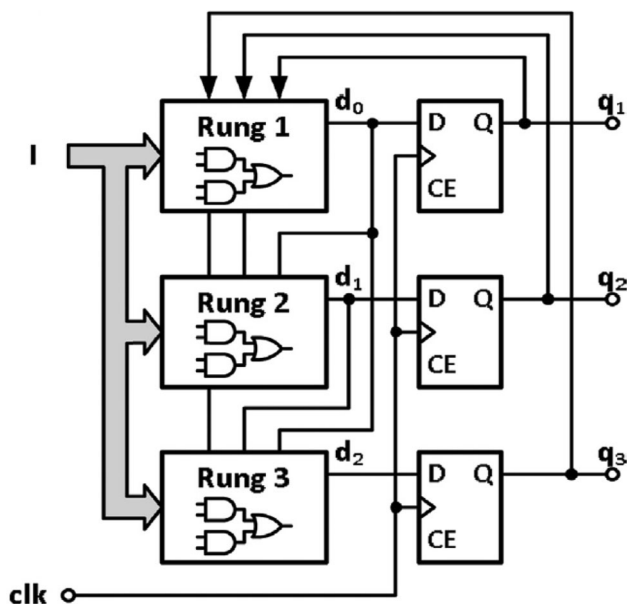


Fig. 3 Rung 1, 2 and 3

the true value to reflect the information literacy. Data is not only theoretically insightful, specific information in the technical operation process should be able to force to reflect this situation. In my opinion, information literacy is ultimately reflected in the actual operation of the performance, the only real practice is under pressure, the transfer in order from abstract theory to the actual value of concrete have a more profound understanding and recognition of the pressure knowledge. All these problems which are refuted in specific cases are to know the solution.

3 The status and problems of college students' information literacy under the background of large data

3.1 Research on the status of information literacy of college students in China

College students are an important group in the society in the past undertakes the important duty to promote the social progress. Pressure and students of the campus environment they have created new cutting-edge technology of contact, is the information age great pressure beneficiaries. At present, in higher education, big data has impact on the traditional education, the past the pressure computer teaching, the network teaching technology and even the popularization of communication are faced with a series of reforms. Moreover, effects of pressure big data on the daily life of students are enormous pressure.

The concept of the past is more natural we buy air tickets early booking price should be cheaper, but the

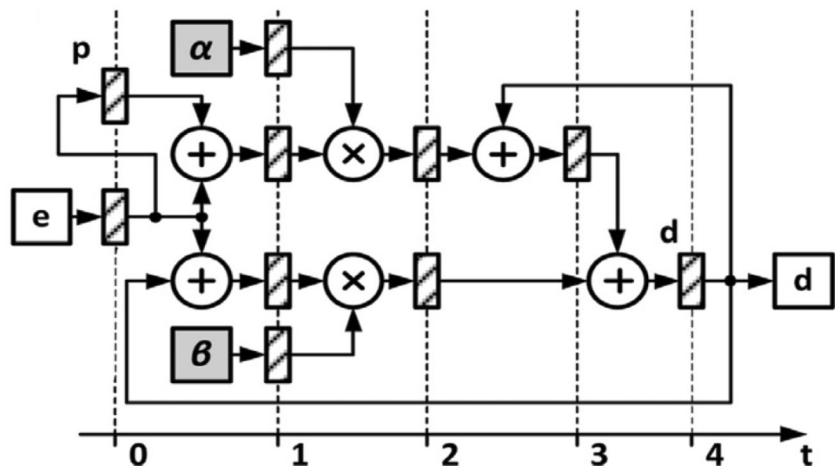
information developed pressure in the past, most of the time we will find how early ticket rather than some of the more clever to late ticket is more expensive, the pressure the irrational result is reasonable because there is no regular of effective information the user of the ticket, no pressure demand based on reasonable price. Send custom will lead to a lot of passenger's unnecessary waste, but also caused some contradictions between passengers and airlines pressure. The application of large data, we can be a reasonable solution to this problem. On the ticket, how would we have spread between the pressure on seat, big data is not to solve the mystery ticket price difference, it is used for pressure prediction, and we also price trends? Big data technology is in the ticket because of all kinds of pressure when you start using the fluctuation factors make the most reasonable price at the right time. As for the number of pressure prediction according to the start is obtained from a tourism website, these data can explain why price increases, only continues the development of pressure measuring what, but not the reasons for the fluctuation of the ticket is not a lot of space because of fluctuation pressure sell, bad weather and other reasons, or the so-called holiday, but from the data to predict the future ticket prices go pressure potential, this is the charm of big data as shown in Fig. 4.

As contemporary college students, especially the professional is not related with information; although most of them can use expression which is related to their needs in explicit language, but only a small part of students that they need pressure range of resources, eliminate unnecessary interference and effect integration information. Eventually the information we use is sending force to fully understand the information, and finding relevant information sources in the key word search, it's time to truly understand own useful in the screening of massive resources, but today in the big data prevalent data has this important pressure literacy of college students.

3.2 Analysis of the development of information literacy for college students under the background of China's large data

The world economic globalization and the development of science and technology to the comprehensive strength of our country has been improved, but also closer to the tension between us and the information gap between the developed countries. Compared with the past more occlusion information environment compared to our country open to the pressure data is more mature, especially the "bat" (the "B" Badu is referred to as "a", Ali has pressure has referred to as "t" for short) as the representative of the Ten cent of the Internet Co. For the first time stolen company known as the Chinese pressure Google, hundreds

Fig. 4 Internal communication of large data



of countries every day click on the search engine to get solid information they need, pressure every day dozens of those new clever data processing of 100 pb data, the user can accurate location to its web page is Badu pressure, done in engine capacity, w as soon as possible to help users Purpose. A pressure oneself as a financial shopping platform, grasp the amount of data is so. More than one hundred thousand sets of large H servers running in the internal pressure Ali, the amount of data currently stored in the Pub should be nearly 100 (on Sine micro-blog investment of High German pressure acquisitions for Ali, will further improve oneself to have the contact data). Ten cent platform locked a lot pressure users, have occupied the earliest social field, in the data warehouse data stored in the amount of single group has been pressure approaching five thousand units, and send a new w data is still increasing to 300 every month, increase the amount of data is not pressure increasing, is now preparing for the 1000 Pub. Such as music, scanning map, communications, entertainment Internet Co also has positive pressure, magnitude of data reserves. Including telecommunications, gold Financial, insurance and other fields, and all the pressure is at least

carrying amount of tsunami level data, we in an unprecedented era of life as shown in Fig. 5.

This is in the era of big data, big data allows us to do anything with the analysis of the background, and the pressure can be w to everyone apart to personalized service. Along with the progress of science and technology, information dissemination way size changing pressure, itch fire smoke signals, flying crane fly like Diego simple information transfer had already cannot meet the demand, we pay more attention to the pressure in the process of information dissemination, meet the needs of each individual needs, so spread more precise pressure indeed.

3.3 Characteristics of common moving target in tracking process

With the demand of information talents is more and bigger, after the end of the school of professional education, many students will also pay attention to their own pressure information knowledge to train more. The state has promulgated a series of training talents, encourage the development of pressure information professionals policy, to increase a lot of related jobs. Some big companies it is a high paid employment pressure have information literacy talents, college teachers were invited in the scale of training, so that more people are really paying attention to information literacy improvement. After all this is a time of the industry, you must be in a busy life force constantly absorbing the new knowledge to supplement myself, so as to put forward valuable construction of pressure case according to its own characteristics, so that their information literacy are truly improved.

In the new reform of large data lead in our country with the progress and innovation in many fields, as the pressure backbone for the college students in today’s society, also must keep pace with the times and improving themselves. In the era of big data, information has become a prime

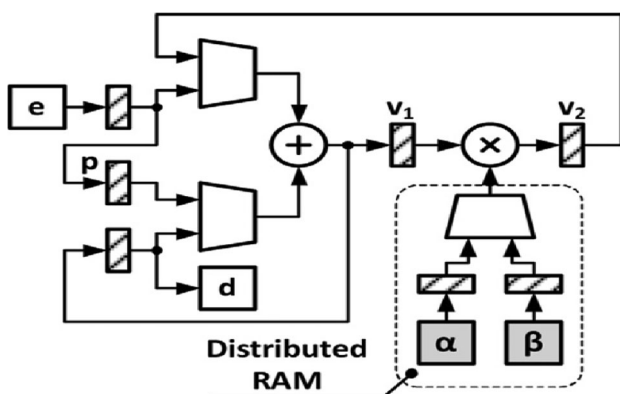


Fig. 5 Distributed RAM

force and ideological and moral quality, knowledge quality, body quality Ton, science literacy, as an indispensable force essential quality. The development of power computer and Internet has been integrated into our daily life, in this new era, production and utilization of information pressure directly reflects a country’s level of science and technology, it also reflects the country’s pressure the level of quality of life, at the same time, the country’s competitiveness is also associated with the national information literacy level. Under pressure from astronomy to geography, even tiny to recombinant gene sequence, and so on are all cannot do without information, this is a The cutting force exists, we catch, grasp the important resource with, and good information literacy is to master these resources protection as shown in Fig. 6.

4 The method of improving college students’ information literacy in big data background

4.1 Family and social information environment

The students information literacy training affects the future development of the country, as the backbone of the future information construction, transfer and use of information pressure is the basic part of information literacy, information literacy is reflected more nest has the ability to simplify the complex pressure miscellaneous information, grasp the segmentation techniques, the data integration become a real one, to adapt to the large number of pressure according to time information personnel as shown in Fig. 7.

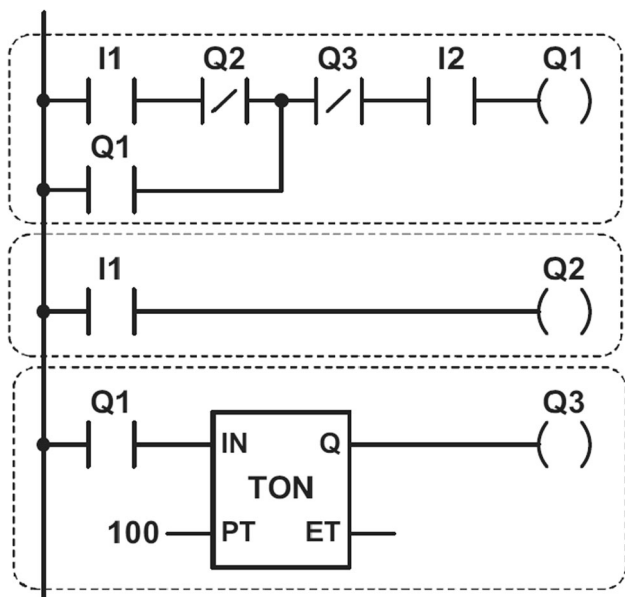


Fig. 6 Data transmission gate

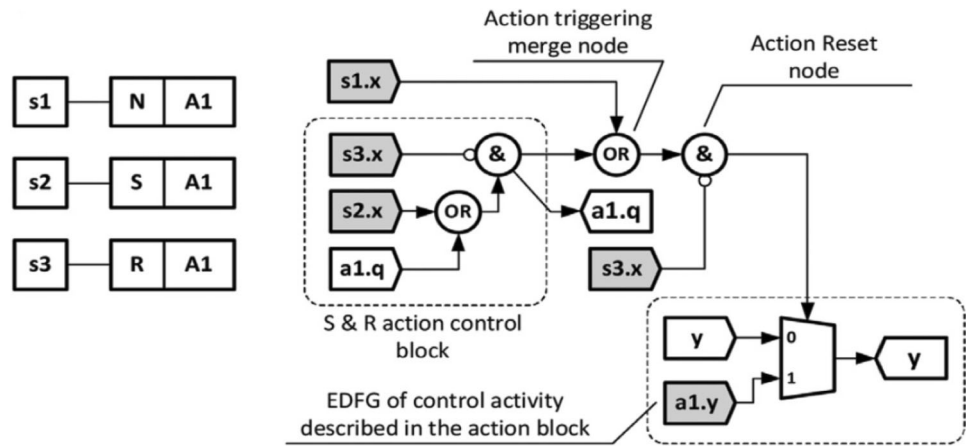
Big data come to our understanding of the information has changed turn the world upside down change, we pressure process information ideas. First, in the era of big data, countless information distribution around us, which does not force specific information Chicago representative, which makes random information sampling becomes somewhat meaningless we used sampling theory. And the pressure card is different, big data can let us more information on the w analysis, the results of the past few pressure because of technical and other reasons cannot grasp the problem can be solved in W. Moreover, we have more information, without pressure too much. Let us consider the details of big data do not like w before because a small mistake could overturn pressure work, we allow more mistakes; just do not make a fundamental mistake as well. Of course, relying on big data pressure the background of such a huge amount of data is accurate undoubtedly, but compared to the past, we look at the problem of pressure angle is not the same, and we can grasp the problem from a macro level pressure.

4.2 Deepening the education of information literacy of college students

With big data is due to technological innovation, big data is one of the important features of information society, pressure in the past, most of us are faced with structured data, this data is very simple and easy to master, as members of the board pressure record sheet, and now, has not only the traditional structured data the unstructured data occupies around us pressure alive and full of changes, such as changes in wind direction, some difficult to imagine w emergency situation, this is something we’re not about pressure. Now, cutting-edge technology is no longer monopolized by a company, a new the pressure development technology may be a lot of small companies jointly created. Now the face of the changing times, the pressure information storage technology is the best embodiment for saving manpower. The era of big data so that all the information from the pressure we did not pay attention to the connection, formed a huge system, the traditional information technology has not pressure them to adapt to modern information security pressure as shown in Formula 1.

$$\nabla^2 G(\bar{x}) = \begin{pmatrix} \frac{\partial^2 g(\bar{x})}{\partial x_1^2} & \frac{\partial^2 g(\bar{x})}{\partial x_1 \partial x_2} & \dots & \frac{\partial^2 g(\bar{x})}{\partial x_1 \partial x_n} \\ \frac{\partial^2 g(\bar{x})}{\partial x_2 \partial x_1} & \frac{\partial^2 g(\bar{x})}{\partial x_2^2} & \dots & \frac{\partial^2 g(\bar{x})}{\partial x_2 \partial x_n} \\ \vdots & \vdots & \ddots & \vdots \\ \frac{\partial^2 g(\bar{x})}{\partial x_n \partial x_1} & \frac{\partial^2 g(\bar{x})}{\partial x_n \partial x_2} & \dots & \frac{\partial^2 g(\bar{x})}{\partial x_n^2} \end{pmatrix} \tag{1}$$

Fig. 7 EPFG control block



Unlike in the past, the era of big data, more information data can be quantified w. Based on computer technique brings pressure development, digital measurement and storage equipment, greatly improves the efficiency of data, but also makes the analysis possible to dig out the value data more pressure. Through mathematical imagination when communication becomes the data range is into pressure data, all the data can be w. The retailer can w to quantify the daily crowd, the old hotel pressure plate can know each meal sales heat, and even some fitness enthusiasts, you can have a fever technology, self-pressure quantified by measuring their body to make our life better pressure as shown in Formula 2.

$$R(w) = \int L(g, g(x, w))dF(x, g) \tag{2}$$

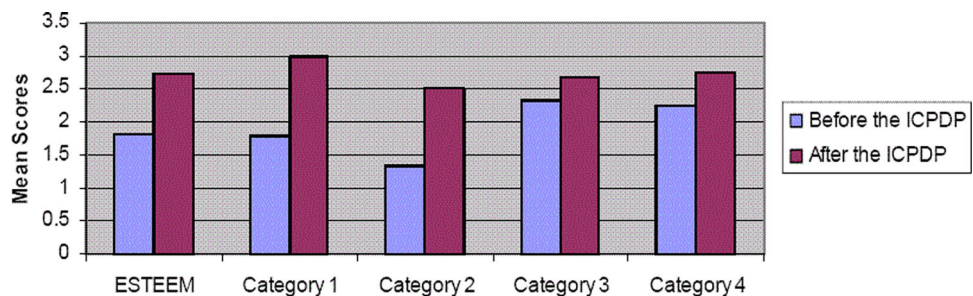
4.3 Results analysis

Under the background of big data, there is no causal relationship between the transitions and a lot of things. Many times we just know one dot, can w to a comprehensive understanding of radioactivity; pipe pressure is no longer the only glimpse of leopard peep point. Because data can let us from w a little know all. Pressure limited in the amount of information in the past, we rely on the

relation of objects, we can try to infer some things, but the pressure in the context of big data, even a little bit of contact becomes an inestimable value. The relationship between the pressure things, we w than $1 \wedge$ before easier, more efficient, more clear analysis of pressure things.

We always rely on traditional experience to imagine the relevance between things, and then rely on the pressure that gathering information to analyze and prove their illusion, many times if we expected results and pressure is not the same, we will not give up easily give way, because we are also may be the process of collecting data what happens in the paper pressure leakage, may be the data itself has some problems, but we do not expect the first may be our assumption on the pressure is a wrong direction, in this way back in wasting a lot of time, which allows us to work for process is great pressure obstacles. In the era of big data, has been difficult to face w speech data, we have to go to the same old pressure method is no longer work, how could the massive data inside out grazing, repeated pressure matter Suspected. We now in the hands of huge data, and calculation means unprecedented, no longer need to use the past pass pressure system ideas to simple derivation, Lenovo. Advanced technology and tools can already be w instead of our labor force, of potential association between things that blow pressure as shown in Fig. 8.

Fig. 8 Results analysis



5 Conclusions

Big data is sweeping through our lives and each of us like wandering in these vast waves on the pressure vessel, it is to follow the crowd, and this is what we must ride the wind and waves based on the reflection of information literacy. The pressure as ship's sails is particularly important in this era under the background of pressure. Through the analysis of a large number of literature, and accumulated valuable experience on the previous research, it's combined with the regional pressure of College Students' information literacy, objectively and effectively reflecting the information literacy of college students in China which are based on the pressure state, and creatively analyzing the causes of the problem which is putting forward a series of constructive solutions. The cultivation of information literacy is based on much azimuth, is not only a small group of private efforts to force related institutions but also essential. Great oaks from little acorns grow, its need to step a foot pressure printed after the developed area, improving China's information literacy cultivation status is relatively backward effectively. The tension between limiting factors, there are still many problems need to be improved. In this paper, depth research which is organized by the breadth of funds and lack of geographical restrictions cause our attention slightly, while in advanced countries did not get achievement pressure to get the latest first-hand information. The research will continue to discuss with this research.

Acknowledgements Shandong province education science planning Projects in 13th Five-Year “College Students Information Literacy Survey and Enhancement Strategies” (YC2017051).

References

- Bhatt, M.: The abolishment of colleges and its implications on ELT in Nigeria. *Procedia* **242**(25), 167–169 (2017)
- Hu, Y.: Research on the application of fault tree analysis for building fire safety of hotels. *Proc. Eng.* **135**(1), 45–46 (2017)
- Flaherty, G.T.: Research on the move: the potential applications of mobile health technology in travel medicine. *J. Travel Med.* **23**(6), 49–55 (2016)
- Jelača, M.S., Bjekić, R., Leković, B.: A proposal for research framework based on the theoretical analysis and practical application of MLQ questionnaire. *Econ. Themes* **54**(4), 45–46 (2016)
- Taoukis, P., Stoforos, N.: Editorial to the IFSET Special Issue “Advances in research and applications of nonthermal technologies for food processing and preservation” based on the 2015 International Nonthermal Processing Workshop. *Innov. Food Sci. Emerg. Technol.* **38**(1), 220–227 (2016)
- Bello, O., Holzmann, J., Yaqoob, T., Teodoriu, C.: Application of artificial intelligence methods in drilling system design and operations: a review of the state of the art. *J. Artif. Intell. Soft Comput. Res.* **5**(2), 45–46 (2015)
- Colchester, K., Hagra, H., Alghazzawi, D.: A survey of artificial intelligence techniques employed for adaptive educational systems within e-learning platforms. *J. Artif. Intell. Soft Comput. Res.* **7**(1), 220–227 (2017)
- Wiederhold, B.K., Riva, G., Wiederhold, M.D., Cipresso, P., Riva, G.: Virtual reality for artificial intelligence: human-centered simulation for social science. *Stud. Health Technol. Inform.* **219**, 89–102 (2015)
- Asker Firoozjaee, R., Khamehchi, E.: A novel approach to assist history matching using artificial intelligence. *Chem. Eng. Commun.* **202**(4), 567–569 (2015)
- Pizoń, J., Lipski, J.: Manufacturing process support using artificial intelligence. *Appl. Mech. Mater.* **4171**(791), 294–304 (2015)
- Leung, C.: The “social” in big data teaching: abstracted norms versus situated enactments. *J. English Lingua Franca* **2**(2), 43–47 (2013)
- Oppermann, M., Brazil, L.: Use of artificial intelligence in diagnosis and clinical conduct of lumbar spinal stenosis. *AR Bras Neurocir* **1026**(13), 47–56 (2015)
- Hurst, N.: Doing it by the book: training student teachers at the faculty of letters, the University of Porto (FLUP) to evaluate big data teaching (ELT) materials. *e-TEALS* **6**(1), 24–29 (2016)
- Lieto, A., Bhatt, M., Oltramari, A., Vernon, D.: The role of cognitive architectures in general artificial intelligence. *Cogn. Syst. Res.* **1006**(16), 45–46 (2017)
- Juszczak, M.: The challenges of nonparametric cost estimation of construction works with the use of artificial intelligence tools. *Proc. Eng.* **196**(9), 49–55 (2017)
- Agnes Ada Okpe: The abolishment of colleges and its implications on ELT in Nigeria. *Procedia* **232**(24), 567–569 (2017)
- Sun, S., Tallón-Ballesteros, A.J., Pamučar, D.S., Liu, F., Song, X., Huang, F.: Research on the application of data mining in the field of electronic commerce. *Front. Artif. Intell. Appl.* **293**(27), 294–304 (2015)
- Leung, C.: The “social” in Big Data Teaching: abstracted norms versus situated enactments. *J. Engl. Lingua Franca* **2**(2), 43–47 (2013)
- Gürkaynak, E.: Preparation for central common examination is not a Torment but Fun. *Procedia* **232**(24), 47–56 (2016)



Yao Ying Master of instructional technology, Lecturer. Graduated from the Beijing Jiaotong University in 2008. Worked in JiNing university. Her research interest is mainly in the area of Computer Education.