



# Exploration and Practical Innovation of Red Culture Education Activities in Linyi University Library Based on Weighted Average Algorithm

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**Abstract.** Relying on rich cultural resources, university library has become the "second classroom" for quality education of college students and an important base for training talents in universities. In this paper, we study the implementation effect of the library's red culture education activities by quantitative method. The researchers took Linyi University students as the respondents and conducted stratified sampling by faculties and departments, and a total of 395 people were sampled. Then, the survey data were analyzed by weighted average algorithm. At the same time, this paper studies the challenges encountered in the red culture education activities by qualitative methods. The results show that most of the red culture education activities organized by the library have ideal education effects. At the same time, it is also found that there are restrictive factors such as inadequate publicity and insufficient innovation. Therefore, librarians should implement measures such as establishing online and offline publicity platforms and recruiting high-quality library professionals to promote cultural activities effectively, thus fulfilling their educational functions and truly impacting college students.

**Keywords:** University libraries; Red culture; Education activities.

## 1 Introduction

College students are essential for national modernization and the invaluable human capital of the country <sup>[1]</sup>. The moral quality of contemporary college students is predominantly positive, healthy, and progressive. However, there are also instances of varying degrees of confusion in political beliefs, vague ideals and values, poor psychological well-being, and other issues <sup>[2-3]</sup>. Therefore, the improvement of college students' moral quality is an extremely urgent and important task.

Yimeng red culture is an outstanding cultural phenomenon in China, with numerous scholarly articles emphasizing its educational value <sup>[4-5]</sup>. University libraries play a crucial role in the collection and preservation of red resources, as well as the inheritance of red culture. Campus activities are an important supplement and beneficial

extension of college classroom teaching. Through personal participation and experience, students enhance their cognition, gain deeper insight, and cultivate practical emotions [6]. The current educational activities on red culture in libraries primarily focus on promoting the reading of red literature. Additionally, some scholars have conducted research on the promotion of red literature reading within library settings [7-8].

Linyi University, located in Linyi City, Shandong Province, is the only comprehensive university in Yimeng old revolutionary area. Yimeng region accumulated rich Yimeng red cultural resources in the arduous revolutionary process. In recent years, Linyi University Library has used red literature, high-speed digital library media and good environment to carry out various kinds of red culture education activities. Based on this, how to scientifically and quantitatively evaluate the completion degree of the red culture education activities in Linyi University Library in terms of political knowledge, thought and mental health, and effectively optimize the design of the activities so that Linyi University Library can make full use of existing resources and combine regional characteristics to play its all-round education function is a topic worthy of discussion and research. Through the comprehensive qualitative and quantitative research on the red culture education activities of university libraries, it is helpful to fully grasp the completion of the education activities of university libraries, find the challenges in the practice of red culture education, and promote the synergistic effect of the education functions of various departments in universities, which has important practical significance and research value.

## **2 Research Methodology**

### **2.1 Research Design and Methodology**

Quantitative research describes phenomena in terms of numbers and measures and focuses on quantitative statistical analysis. Its standardization and precision degree is higher, logical reasoning is more rigorous, and therefore more objective and scientific.

Qualitative research is a kind of flexible, inductive and consensus research that describes phenomena with words. It can understand the problem, find out the situation and get perceptual knowledge.

### **2.2 Research Subjects**

The respondents of the quantitative analysis were the students of Linyi University. There are 24 departments and colleges in Linyi University with more than 32,650 students, and the researchers carried out sampling statistics according to the sample size calculation formula (1), and the final sample size was determined to be 395 (Table 1). About 4,300 students enter the library every day. According to the total number of students in different departments and the number of students entering the library every day, we carried out stratified sampling based on faculties and departments, so as to ensure the fairness and objectivity of the findings.

$$n = \frac{N}{1+N(e)^2} \quad (1)$$

Where, n is the sample size, N is the total number of students, and e=0.05.

**Table 1.** Table of Sample Size of Respondents by Schools

	Schools	College Student Numbers(CSN)	Daily Attendance (DA)	Percentage of Attendance (PA, %)	Attendance Contribution (AC, %)	Questionnaire Quantity(QQ)
1	School of Business	1989	475	23.88	7.49	30
2	School of Information Science and Engineering	2270	356	15.68	4.92	19
3	Communication School	1790	324	18.10	5.67	22
4	School of Foreign Languages	1800	270	15.00	4.70	19
5	School of Mechanical and Vehicle Engineering	2000	264	13.20	4.14	16
6	School of Chinese Language and Literature	1125	239	21.24	6.66	26
7	School of Education	1777	232	13.06	4.09	16
8	School of Logistics	1500	205	13.67	4.28	17
9	School of Law	1300	202	15.54	4.87	19
10	School of Chemistry and Chemical Engineering	1400	190	13.57	4.25	17
11	School of Life Sciences	1021	182	17.83	5.59	22
12	School of Physical Education and Health	1200	173	14.42	4.52	18
13	School of Mathematics and Statistics	1000	160	16.00	5.02	20
14	School of Automation and Electrical Engineering	1782	147	8.25	2.59	10
15	School of Civil Engineering and Architecture	1600	139	8.69	2.72	11
16	School of Physics and Electrical Engineering	1115	132	11.84	3.71	15
17	School of Agriculture and Forestry Science	1572	132	8.40	2.63	10
18	School of Resources and Environment	1000	126	12.60	3.95	16
19	School of Pharmacy	1000	125	12.50	3.92	15
20	School of Fine Arts	1427	114	7.99	2.50	10
21	School of History and Culture	1200	108	9.00	2.82	11
22	School of Marxism	200	45	22.50	7.05	28
23	School of Music	1100	30	2.73	0.85	3
24	School of Materials Science and Engineering	482	16	3.32	1.04	4
	Total	32650	4386	318.99	100.00	395

In the formula (2), College Student Numbers (CSN) is the number of students in each college in 2020. The number of daily attendance (DA) is the average number of daily attendances in 2020, which comes from the data of library card swiping. The percentage of attendance (PA) is the ratio of daily attendance (DA) to college students' numbers (CSN). That is, the PA of the *i*th college is:

$$PA(i) = \frac{DA(i)}{CSN(i)} \tag{2}$$

Attendance contribution (AC) is the standardized value of percentage of visitors. The total attendance contribution of all colleges is 100%. The AC for the *i*th college is represented as:

$$AC(i) = \frac{PA(i)}{\sum_j PA(j)} \times 100 \tag{3}$$

In the formula (3),  $\sum$  is the sum of the PA of all colleges.

In the formula (4), questionnaire quantity (QQ) is determined by the product of the total number of questionnaires (TNQ) and attendance contribution (AC). For the calculation of the questionnaire quantity of the *i*th college, the specific formula is:

$$QQ(i) = AC(i) \cdot TNQ \tag{4}$$

### 2.3 Data Processing

The researchers will use the general weighted average to answer the level of accomplishment of the library's red cultural education activities in terms of political knowledge, thought and mental health (Table 2).

**Table 2.** 4-point Likert scale

Value	Statistical limit	Description	Interpretation/Meaning
4	3.25 – 4.00	Fully Attained	The activities organized by the library fully achieved the goals of educating students.
3	2.50 – 3.24	Moderately Attained	The activities organized by the library basically achieved the goals of educating students.
2	1.75 – 2.49	Slightly Attained	The activities organized by the library slightly achieved the goals of educating students.
1	1.00 – 1.74	Not Attained	The activities organized by the library not achieved the goals of educating students.

### 3 Results and Discussion

#### 3.1 The Implementation Effect of the Library of Linyi University in the Red Culture Education Activities

**Table 3.** Level of Attainment of the Library Activities in Political Knowledge Education

Items	W.A.	Q.V.
Patriotism	3.74	Fully attained
Collectivist concept	3.68	Fully attained
Love the Communist Party of China	3.62	Fully attained
Concept of revolutionary heroism	3.48	Fully attained
National defense concept	3.21	Moderately attained
General Weighted Average	3.55	Fully attained

Overall, from the survey of respondents (Table 3), it can be found that library activities have fully attained the purpose of educating students in political knowledge (3.55).

This implies that library activities are an important way to improve students' political knowledge. Modern students have a strong curiosity about society, the country and even politics. They are very eager to participate in social life, explore and accept new things. In order to meet the needs of students, the Librarians of Linyi University have organized various activities, including visiting the Red Document Museum and the cultural and art corridor. Various activities can guide students out of the classroom, so as to understand the society, national conditions and history, and promote students to purify their hearts, improve their consciousness and contribute to the society.

**Table 4.** Level of Attainment of the Library Activities in Ideological Education

Items	W.A.	Q.V.
Social responsibility	3.70	Fully attained
Law-abiding awareness	3.57	Fully attained
Sense of unity and cooperation	3.44	Fully attained
Ideals and beliefs	3.43	Fully attained
Honest and trustworthy quality	3.19	Moderately attained
General Weighted Average	3.46	Fully attained

In general, respondents believed that library activities fully attained their purpose of educating students in terms of the ideological (3.46) (Table 4).

This means that library activities are an important way to improve the quality of students' thinking. Chinese colleges and universities mainly conduct ideological education for students in the form of classroom teaching. Students are the masters of learning and should be active participants in knowledge acquisition, rather than passive recipients. In order to give full play to the initiative of students, the library actively organizes various types of activities, including participation in Living Library, library volunteer service activities. Participating in campus practice activities can strengthen the formation of students' character, guide students to establish correct ideological concepts, and thus promote students' comprehensive and healthy development. Students expressed their preference for engaging in activities that can evoke their inner

emotions, facilitate a deeper understanding and perception of the subject matter through experiential learning and communication, ultimately leading to transformation in knowledge, emotions, and behavior.

**Table 5.** Level of Attainment of the Library Activities in Psychological Health Education

Items	W.A.	Q.V.
Interpersonal skills	3.65	Fully attained
Self-reflection ability	3.55	Fully attained
Intelligence level	3.49	Fully attained
Social adaptability	3.45	Fully attained
Ability to control emotions	3.13	Moderately attained
General Weighted Average	3.45	Fully attained

Overall, respondents felt that library activities fully attained their purpose of educating students in the area of psychological health (3.45) (Table 5).

This implies that library activities are an effective measure to maintain and promote students' psychological health. Today's college students are facing the dual pressure of further education and employment, so psychological health is very important for them. In order to meet the spiritual and psychological needs of college students, the library has carried out many activities, such as book exchange activities, red book reading promotion activities and red literature works reading activities. All kinds of activities not only increase the good communication between students, but also establish a harmonious classmate relationship. These help students relieve the pressure of learning, learn to face themselves correctly and cultivates students' good psychological quality.

### **3.2 The Challenges Encountered in the Implementation of the Activities to Attain the Goals of Moral Education**

#### **3.2.1 Lack of Adequate Publicity in Activities**

The coverage of the event publicity is not wide, and its posters are generally placed at the entrance of the library, which will cause students who do not come to the library to learn about the event. There is no special person to give a detailed explanation next to the poster, so some students saw the poster but did not know the purpose of the activity. The publicity of library activities is mainly offline, and its coverage is small.

#### **3.2.2 Lack of Innovation in Activities**

Some activities of the library are relatively fixed in form. Activities like lectures are similar to classroom teaching. Students attend classes every day, hoping to get a different experience by participating in activities, but the result is that the teacher mainly teaches, and the students are not interested.

### **3.2.3 Low Professional Quality of Librarians**

Librarians in Linyi University are aging seriously. The library has 64 faculty members, 67% of whom are over 50 years old. As a result, the library's knowledge updating speed is relatively slow, which leads to the lack of new ideas in its activities. Moreover, there are only about 10 librarians in the corresponding profession, so some librarians do not understand the planning, organization and innovation of library activities.

### **3.2.4 Lack of Time for Students**

In Chinese colleges and universities, the course teaching of students is generally concentrated in the freshman and sophomore stages, and the third, third and fourth stages are mainly for preparing for postgraduate entrance examinations and looking for jobs. It seems that students have a lot of free time, but students have a variety of things, so the time to participate in library activities is limited.

## **4 Conclusions and Suggestions**

### **4.1 Conclusions**

Taking advantage of its resources and space, Linyi University library offers various activities, and closely integrates them with education, which effectively enriched students' political knowledge, improved their ideological quality, and promoted students' psychological health.

Inadequate publicity, lack of new ideas, low professional quality of librarians and lack of time for students have a significant restrictive effect on the smooth running of the activities.

### **4.2 Recommendations**

Based on the findings, the following are recommended:

1. Librarian need to promote the existing moral education activities and strengthen the optimization and adjustment of the contents and forms of knowledge lectures.
2. Library managers should establish online and offline publicity platforms, arrange activities according to students' time. Library should innovate the content and form of activities. In addition, school should actively introduce high-quality library professionals and strengthen the continuing education of existing librarians.

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