Investigation on the Current Situation of Information Technology Education in Rural Primary Schools in Hainan

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Abstract. The paper is to explore the development status of rural primary schools in Hainan Province under the background of information education. The significance of this study is to understand the existing problems in the information education of rural primary schools in Hainan Province, analyze the causes of the problems, and then provide solutions and ways, and provide experience reference for the future information education of rural primary schools, and help the better development of information education of rural primary schools. This study adopts questionnaire survey, literature method and in-depth observation method, and analyzes the whole process of information education. The results show that students' unreasonable media usage habits, the absence of media literacy education and the lack of interaction and feedback mechanism in rural primary school information education led to less interaction and communication between students and teachers, which affects teachers' lack of understanding of feedback on information education results.

Keywords: Information technology · Internet media · Education · Rural · Primary school

1 Introduction

Under the background of informatization education, rural primary schools are faced with many challenges in the classroom teaching process. In the field of education and teaching, there are still problems such as insufficient integration of informatization teaching resources and subject teaching, and insufficient development and application ability of teachers in informatization teaching resources. Nowadays, rural teachers' ability to apply informatization teaching resources is still relatively weak. The key and difficult points of education are still in rural areas [1]. The teaching quality of rural primary schools needs to be improved through the construction and application of informatization teaching resources, and good informatization teaching resources should also be integrated into the classroom teaching process of rural primary schools.

According to existing studies, researchers have made in-depth discussions on the application of informatization teaching resources in rural schools, the current situation

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of classroom teaching in rural schools, and the application of informatization teaching resources to improve classroom teaching in rural schools, which has a great enlightenment for this research [2]. This paper introduces the application experience of informatization teaching resources in rural schools and some problems existing in the application process. It not only has a thorough analysis in theory but also has a concrete exploration in practice. It has great significance to develop more effectively and thoroughly in this research. This paper expounds the current situation of classroom teaching in rural schools, reveals the problems existing in the process of classroom teaching in rural schools, as well as relevant countermeasures and suggestions, and lays a good foundation for this study to clearly understand all aspects of classroom teaching in rural primary schools: In view of the improvement of classroom teaching in the real situation, we have also carried out a lot of beneficial practice and exploration, which provides some reference for the development of this research and the selection of specific research methods.

However, there are still some deficiencies, which are mainly reflected as follows: some research on the current situation of information teaching in rural schools are relatively shallow, and the proposed solutions are also relatively broad, and the guidance for the practice of information teaching in rural schools is not practical [3]. Although education authorities attach great importance to the balanced development of education between rural and urban areas, issues related to improving digital teaching in rural primary schools have not been fully studied. According to the existing relevant research, most of them take the whole rural primary and secondary schools as the research object in a broad way [4], without conducting empirical research on specific rural schools. Therefore, on the basis of existing research, this study tries to explore the status quo of informatization teaching in rural primary schools and the reasons behind it in the microenvironment, so as to better solve the existing teaching problems and find a new way to improve the classroom teaching quality of rural primary schools.

The main issues of this study are the development status of informatization education in rural primary schools in Hainan under the new media environment. It is divided into three objectives: to understand the current situation of informatization education in rural primary schools, the overall level, and students' media use. Analyze the reasons behind the current situation of informatization education in primary schools and reveal the shortcomings of informatization education carried out by schools and teachers behind the questionnaire data.

The significance of the study objective is that the development of informatization education has been widely promoted in rural areas, but in the process of its implementation and effect, there are still many blind spots which have been ignored by teachers and scholars for a long time, and these blind spots will have a great impact on the education of rural students to a large extent [5]. Therefore, the objective of this study is to enhance the emphasis on media literacy, strengthen the teaching of information education, and cultivate students with media literacy and use ability in the era of information education.

The innovation of this study lies in combining informatization media literacy and education on the basis of using the method of field research, and combines quantitative and qualitative research method, in view of existing problems put forward realistic, practical improvement path available. The research significance and application value

are mainly reflected in the rural informatization education reform and development plays a crucial role in improving the overall level and development of national informatization education. To understand informatization education status of rural primary school, this study based effectively on a primary school in Hainan province as the research object, analyzes the informatization education existing problems and their causes, and in view of existing problems of practical improvement path, available for other areas to provide reference for informatization education of rural primary school.

2 Materials & Methods

2.1 Research Procedure

- Briefly describe the basic situation of small informatization education in rural areas at the present stage, including the use of informatization media, curriculum arrangement and teaching situation of informatization education, the acceptance of informatization education from the perspective of students and the evaluation of informatization teaching in rural primary schools.
- Analyze the overall level and differences of informatization education in rural primary schools.
- Analyze the correlation between influencing factors (student evaluation) and informatization teaching.
- Analyze the existing problems and causes of informatization education in rural primary schools, and put forward feasible solutions accordingly.

2.2 Research Methods

- Questionnaire survey

In this paper, we use the method of questionnaire investigation, using the questionnaire to study the status quo of informatization education of school, through a questionnaire to fill in, issue and recycling, and got the information about informatization school education, and through the SPSS statistical data of the valid questionnaires collected in consolidation analysis, sorting and analysis data, shows the structure of the survey group.

- Literature method

It is mainly used to understand relevant research, through searching relevant literature on platforms, including but not limited to periodicals and other relevant research on informatization education and rural primary school teaching.

- In-depth interview method

Considering the factors such as the degree of conceptual understanding, the degree of clarity of expression, the degree of media exposure and the degree of classroom activity, and fully considering its representativeness, the author selected a student among the candidates. The interview content includes but is not limited to the basic information of oneself, family environment and situation, teaching observation of the school, teaching observation and evaluation of teachers, media use, media literacy and other related content.

2.3 Results

The respondents were students from Grade one to grade six in rural primary schools. In order to have a more specific and comprehensive understanding of the current situation of digital education in rural primary schools, this study adopts the method of stratified sampling. All the students in the school are divided into grades, and each grade is assigned the quota according to the proportion of the total number of students, and then the students in each grade are randomly sampled according to the quota.

According to Table 1, a total of 110 questionnaires were distributed and 104 were actually collected. After the examination of the questionnaire content, 6 invalid questionnaires were generated due to unclear handwriting or non-compliance with the requirements, and 98 valid questionnaires could be used for research. Among them, there were 52 female students, accounting for 53.06% of the total sample, and 46 male students, accounting for 46.94% of the total sample. 29 students owned their own mobile phones, accounting for 29.59% of the total sample. There are 69 students who do not have their own mobile phones, accounting for 70.41% of the total sample. During the epidemic, 96 people used computers or mobile phones for online classes, accounting for 97.96% of the total sample. The number of people who have never used computers or mobile phones for online classes is 2, accounting for 2.04% of the total sample. The basic information of the respondents of informatization education in schools is shown in Table 1.

This questionnaire was filled in anonymously, and the content was mainly related to the use of media such as daily informatization teaching and electronic equipment. The first part is to fill in the basic information of students, mainly including gender, grade, informatization teaching subjects, electronic equipment, duration of electronic equipment uses, software use category, online course development, and proficiency of electronic equipment use. The second part is the family situation, the third aspect is the school situation, including information class, multimedia teaching, multimedia equipment and so on. The fourth part is about the teachers, mainly to obtain the evaluation of teachers' teaching pace, teaching methods, teaching models and other aspects. Questionnaires with SPSS software for data analysis, the second part to the fourth part USES the Likert five-point scale method, the questionnaire of the fill in the option is set to "completely in line with", "satisfied", "general accord with", "more is not in conformity with the", "don't conform to" the five options, respectively, of the five options for assignment 5,4,3,2,1, Students make choices according to their actual situation, and the score of these five points is $4.5 \leq X, 3.5$.

To confirm the rigor and feasibility of the study, according to Table 2, the validity of the questionnaire was tested, and its structure is shown in the following Table 3 and Table 4.

It can be seen that the reliability of the total scale is 0.753, which is relatively good. The family factor, school factor and teacher factor were all greater than 0.7, indicating that the questionnaire had a good reliability and credibility. According to the Table 5, the reliability of individual variables below each dimension is greater than 0.7, indicating that variable attributes within the dimensions have internal consistency and stability.

According to Table 6, the results show that the three dimensions of family factors, school factors and teacher factors are all significantly correlated at the 0.01 level, which

Table 1. Statistical table of the survey object structure of informatization education in schools.

Project	Dimension	Quantity	Ratio
Gender	Male	46	46.94%
	Female	52	53.06%
Grade	Grade 1	12	12.24%
	Grade 2	14	14.29%
	Grade 3	14	14.29%
	Grade 4	19	19.39%
	Grade 5	18	18.37%
	Grade 6	21	21.43%
Informatization teaching subjects	Chinese literature	12	12.24%
	Mathematics	19	19.39%
	English	68	69.39%
	Morality	15	15.31%
	Science	62	63.27%
Electronic equipment installation	Possessed	29	29.59%
	Unpossessed	69	70.41%
Span	Almost no	22	22.45%
	1-3h/week	46	46.94%
	4-6h/week	15	15.31%
	7-9h/week	13	13.27%
	10h-/week	2	2.04%
Software Utility	Calls and Texts	2	2.04%
	Entertainment	33	33.67%
	Social contact	57	58.16%
	Learning	6	6.12%
Online course	Yes	96	97.96%
	No	2	2.04%
proficiency	Very	36	36.73%
	Little	28	28.57%
	Ordinary	17	17.35%
	Not a bit	11	11.22%
	Not very much	6	6.12%

indicates that the questionnaire has a certain validity. In conclusion, the questionnaire has relatively reliable reliability and validity.

In this questionnaire survey, a total of 110 questionnaires were distributed, and the actual number of questionnaires was 104, with a recovery rate of 94.54%. After the examination of the questionnaire content, 6 invalid questionnaires were generated due to unclear handwriting or non-compliance with the requirements, and 98 valid questionnaires could be used for research, with an effective rate of 94.23%.

According to Table 7, the total mean of school factor is 2.67, which is in the general level. The average value of information course teaching quality is 2.78, and the usage

Table 2. Questionnaire composition of the current situation of informatization education in rural primary schools.

Dimension of the questionnaire	Project	Title number
Family factors	x1—x7	7
Reliance	x1—x3	3
Family attitude	x4—x5	2
Net class participation	x6—x7	2
School factors	x8—x14	7
Teaching quality	x8—x9	2
Degree of attention	x10—x12	3
Multimedia Device Usage	x13—x14	2
Teacher factors	x15—x21	7
Proficiency	x15—x16	2
Teaching efficiency	x17—x19	3
The teaching feedback	x20—x21	2

Table 3. Reliability statistics of the questionnaire on the status of informatization teaching in rural primary schools.

Variable	Cronbach's Alpha	Number of terms
Reliance	0.712	3
Family attitude	0.769	2
Net class participation	0.706	2
Teaching quality	0.821	2
Degree of attention	0.903	3
Multimedia Device Usage	0.780	2
Proficiency	0.807	2
Teaching efficiency	0.818	3
The teaching feedback	0.827	2

Table 4. Reliability statistics of the questionnaire on the status of informatization teaching in rural primary schools.

Cronbach's Alpha	Cronbach's Alpha based on standardization term	Number of terms
0.753	0.792	21

of multimedia equipment is 3.06, which is at a moderate level. The average value of school attention is 2.62, which is at a lower level, indicating that schools need to attach importance to multimedia teaching. In addition, in terms of teachers, the mean value of teacher factor is 2.75, the mean value of teacher's teaching proficiency is 2.91, the mean value of teaching efficiency is 2.86, and the mean value of teaching feedback is 2.04, which indicates that the teaching proficiency of primary school teachers is at a good

Table 5. Correlation between influencing factors and informatization education (N = 98).

		Influence factor	Informatization education
Influence factor	Pearson correlation	1	0.613
Informatization education	Pearson correlation	0.613	1

Table 6. Correlation between family/school/teacher factors and informatization education (N = 98).

		Reliance	Family attitude	Participation
Family factors	Pearson correlation Significance	0.506 0.000	0.578 0.000	0.632 0.000

		Quality of teaching	Emphasis	Multimedia equipment utility
School factors	Pearson correlation Significance	0.621 0.000	0.608 0.000	0.532 0.000

		Proficiency	Teaching efficiency	Teaching feedback
Teacher factors	Pearson correlation Significance	0.581 0.000	0.645 0.000	0.597 0.000

Table 7. Statistics of the overall level and dimensions of school and teacher factors in school informatization education.

	Number	Mean	Standard deviation	Rank
School factors	98	2.87	1.029	—
Online teaching	98	2.78	1.098	4
Degree of attention	98	2.62	1.112	5
Multimedia Usage	98	3.06	0.989	1
Teacher factors	98	2.75	1.016	—
Proficiency	98	2.91	1.026	2
Teaching efficiency	98	2.86	0.993	3
Teaching feedback	98	2.04	1.008	6

level, but they do not pay enough attention to teaching feedback. The introduction of multimedia teaching equipment, especially the use of projectors and other media, enables rural primary school classrooms to deeply understand the enormous improvement of its efficiency through experience and observation. Teachers' media use ability can fully meet their classroom needs. However, corresponding to this, unupgraded teaching concepts are becoming a stumbling block to informatization education, and the traditional one-way output education paradigm still becomes an obstacle to the transformation and upgrading of informatization education. Therefore, the biggest difficulty facing rural primary schools is not the teaching facilities, but how to make rural primary school teachers' teaching concepts transform and upgrade with the renewal of informatization education on the basis of making full use of existing informatization education resources.

3 Conclusions

This study draws the following conclusions: the rural primary school informatization education infrastructure has met the basic conditions of media education, and the level of facilities basically meets the requirements of informatization education; School students are not short of information technology courses, nor are they short of opportunities and time to use electronic media. Most of them equate electronic media with entertainment function carriers, and their media usage habits are unreasonable, lack of media use guidance and benign control, and the lack of media literacy is obvious. Informatization education in rural primary schools lacks interaction and feedback mechanism, the interaction and communication between students and teachers, parents and teachers are less, teachers lack understanding of informatization education results and feedback problems, there is no effective mechanism to solve this situation. In the absence of media literacy education, schools do not guide students how to use media correctly, nor do they set up relevant courses or activities to carry out media literacy education.

There are three main ways to solve the problems raised by the research. Firstly, under the condition of ensuring the existing teaching quality and teaching progress, we should pay more attention to multimedia teaching and ensure the investment in the maintenance and upgrade of information-based teaching equipment, rather than just taking it as an evaluation index [6]. Secondly, a digital education evaluation and feedback mechanism suitable for the characteristics of rural primary schools should be established. Suggestions from students and their parents should be included in the teaching quality evaluation process, and online methods such as anonymous online voting should be used to fully listen to students' evaluation of class quality and build a good interactive relationship with students. Thirdly, it's necessary to improve the media literacy of rural educators first. Education departments and universities should assist in teacher training, introduce information teaching into the classroom, and take media literacy education as a long-term work.

References

1. Zhang Zhian, Shen Guolin.(2004). Media Literacy: An Urgent Subject of National Education: A Review and Brief Comment on the research on Media literacy in Mainland China. The News Reporter (05),11-13.

2. David Packingham, Song Xiaowei.(2000). Media Literacy Education in the UK: Beyond Protectionism. Journalism and Communication Research (02),73-79.
3. Laura Manuel Pérez Cervi, Oralia Paredes, José Tornero. Current Trends of Media Literacy in Europe: An Overview. International Journal of Digital Literacy and Digital Competence (IJDLDC). 2010 (4)
4. Zhang L. (2004). Media Literacy Education -- a field in urgent need of research and development. Modern Communication (04),101-102.
5. Zhang Shuyu, Zhao Li & Zhou Ling. (2021). Visual-media Information Literacy: The Concept of New Comprehensive literacy and its educational Practice. Modern Distance Education Research (06),32-39.
6. Song Xiaowei.(2000). Western Scholars on Media Literacy Education. International press (04), 55-58. Doi: 10.13495 / j.carol carroll nki CJJC. 2000.04.012.