Influencing Factors of Continuous Use of New Agricultural Information Platform

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Abstract. The Chinese government strongly supports the construction of data information sharing platforms, focusing on the domestic scientific research industry. The construction of agricultural scientific data sharing platform will help users more easily obtain agricultural knowledge. This removed the obstacles to agricultural development and had a major impact on the modernization and construction of agricultural practices. However, at the current level of science and technology, it is difficult to collect all data. Sources of agricultural scientific data are more extensive, and more data are generated from agricultural scientific research. The purpose of this article is to study the factors that influence the continued use of new agricultural information platforms. In terms of methods, this article first conducts exploratory and confirmatory research on the scale, uses Kaiser's point of view, and uses eigenvalues greater than 1 as the basic principle for extracting common factors. Perform factor analysis, reliability analysis, validity analysis, correlation analysis. In terms of surveys, the survey methods used are field questionnaires, on-site interviews, and interviews with people. The main survey objects are agricultural producers, farmers, government employees of townships and villages, and employees of agricultural enterprises and cooperative organizations. A total of 300 questionnaires were distributed and 268 were recovered, of which 226 were valid, with a recovery rate of 89.3% and an effective rate of 84.3%. It is concluded that the main factors affecting the continued use of the new agricultural information platform are farmers' demand for agricultural market information, learning knowledge, policies and regulations, and soil and fertilizer.

Keywords: Information Platform, Agricultural Knowledge, Agricultural Market, Shared Data

1. Introduction
China has one of the largest rural populations in the world, which has improved the lives of farmers and improved state affairs and welfare. The "digital divide" between urban and rural areas has increasingly deepened the gap between urban and rural economic development levels, improved farmers' access to information, and realized rural informatization. The realization of informatization is a long-term process. Only a built platform cannot mobilize the continuous use of farmers. The
realization of informatization can only be empty talk. Therefore, analyzing the behaviors adopted by the farmer user information service platform can have a clearer understanding of the behaviors of rural farmer users, and it is of great significance to guide the information service providers to adopt targeted strategies to improve the sustainable use of farmer users. The continuous use of the information service platform by rural peasant users can make the information service platform truly a good helper for farmers, help improve farmers' production and life, and reduce the gap between urban and rural areas. The grouping function lays the foundation for better communication. They also decided that the demand for information was more urgent and more active than the previous generation of farmers. In all aspects of the daily life of a new farmer, information collection is essential for all communication including shelter, culture, entertainment and health. However, in reality, there are still many restrictions and the ability to obtain information is very weak. Reducing access to information is a very important factor, except that the institutional barriers to obtaining information are different. Generally, there are three basic ways to obtain information.

At present, the Chinese government and domestic academic circles attach great importance to and support the construction and research of new agricultural information platforms, and the construction of new agricultural information platforms is as fast as the sky [1]. The new agricultural information platform is of great significance to improving the way farmers obtain information and reducing the "digital divide" between urban and rural areas. Promoting the construction of the new agricultural information platform is an important means to promote China's rural informatization and modernization. However, in the long run, building a new type of agricultural information platform is only the basis and premise for improving the quality of rural information services and solving the information asymmetry between cities and rural areas. Farmers can make full use of the new type of agricultural information platform to obtain qualitative and quantitative information, which is a powerful guarantee for achieving information symmetry between urban and rural areas [2, 3]. Therefore, it is practical to study the current status of the use of new agricultural information platforms and the influencing factors of their continued use.

In terms of methods, this article first conducts exploratory and confirmatory research on the scale, adopts Kaiser's point of view, and uses eigenvalues greater than 1 as the basic principle for extracting common factors. Perform factor analysis, reliability analysis, validity analysis, correlation analysis. In terms of surveys, the survey methods used are field questionnaires, on-site interviews, and interviews with people.

2. Method

2.1. Exploratory Study of the Scale
In order to test the structural validity of the scale, an exploratory factor analysis of the research scale is needed. Among them, structural validity refers to the degree to which a research scale can measure the characteristics or concepts of a theory [4-5]. The purpose of exploratory factor analysis is to discover the underlying structure of the scale, and to optimize the research scale by reducing the number of items, so as to obtain a small set of research variables with a large correlation with each other [6]. In the process of factor analysis, this article uses Kaiser's point of view, and uses eigenvalues greater than 1 as the basic principle for extracting common factors. In specific factor analysis methods, this article uses principal component analysis, whose main role is to interpret several difficult to explain But there are related variables, which are transformed into factors that are less conceptual and relatively independent of each other [7-8].

2.2. Validation Study of the Scale
In structural equation model analysis, if only regression analysis of measurement model is included, it is confirmatory factor analysis. Among them, the measurement model consists of latent variables and observed variables. From the perspective of mathematical interpretation, a measurement model is a linear function of a group of measured variables [9]. The role of confirmatory factor analysis is to test
the extent to which observed variables can constitute potential variables, that is, to check whether the measured variable data of the measurement model matches the potential variables in the model. For the fitting results of research data and measurement models, it is necessary to judge whether the measurement model is compatible with the data, and there are many different opinions on the evaluation of model fitness [10]. Different evaluation indexes have their own advantages and disadvantages. In the process of use, the appropriate index should be selected based on the theory and the specific situation of the research.

2.3. SPSS Statistical Analysis Method

2.3.1. Factor analysis. An analytical method for examining latent variables is called factor analysis, that is, whether direct observation can be made between related variables, but it plays a major role in observable variable changes [11-12]. Factor analysis is a method to find a factor model that may play a leading role. We mainly searched the factor table that affects the sustainable use of agricultural information platforms, and obtained the main factors for each variable in the research model, and derived an effective scale that did not include items with lower relevance.

2.3.2. Reliability analysis. Reliability is the reliability of the test. It mainly indicates the consistency, repeatability and stability of the test results. Correlation represents many reliability indicators, but they can be roughly divided into three types [13]. Inherent consistency, stability and equivalence factors. The reliability of surveys that we are usually interested in depends on whether we are measuring the set of questions (or the entire survey) being investigated. In addition, with the development and widespread application of structural equation models, reliability tests using structural equation models combined with quantitative tables can overcome the shortcomings of using coefficients for reliability checks. Therefore, the reliability of the coefficients and their combinations is used to verify the reliability of the formal inspection data of the scale.

2.3.3. Efficacy analysis. Efficiency is a measure of accuracy, which is the closeness of the observed variables to the actual situation in the questionnaire. For research purposes, there are different types of effects, as well as different effects, including content effects, effect associations, and structural effects. In this article, we conducted an effect analysis on the official survey data of the scale [14].

2.3.4. Correlation analysis. The closeness of the variables studied by various parties is a commonly used statistical method. Linear correlation analysis examines the strength and direction of the linear relationship between the two variables. The correlation coefficient is a statistical description of the strength and direction of this linear relationship, and is usually represented by $r$.

3. Experiment

3.1. Survey Method
The questionnaire survey methods involved in this article include field questionnaire survey methods, on-site interviews and personal interview methods.

3.1.1. Field survey method. The field survey method is the main survey method adopted in this survey. The preliminary analysis of the questionnaire was conducted on the spot, and the questionable options were exchanged with the farmers to make sure that the farmers correctly understood each question and its options in the questionnaire, and then made the correct choice to obtain real and reliable data.

3.1.2. On-site interviews and interviews. On-site interviews and interviews with people are the supplementary methods for this survey. In this survey, some questions are difficult to express clearly in the form of a questionnaire. Therefore, during the field visit, personal interviews were used to obtain data. The interviewees were mainly local village cadres and farmers’ representatives.
3.2. Survey Object
The survey objects in this study were set up by agricultural producers, farmers, government employees of townships and villages, and employees of agricultural enterprises and cooperative organizations.

3.3. Data Statistics
Based on the previous data collection, questionnaire design, and pre-survey, this article focuses on the formal survey from June 2019 to 18, 2019, which lasted nearly 2 months. A total of 300 questionnaires were distributed and 268 were recovered, of which 226 were valid, with a recovery rate of 89.3% and an effective rate of 84.3%.

4. Discussion
4.1. Occupation Distribution
In order to ensure the representativeness and credibility of the sample of the questionnaire, make it have a more credible survey purpose and research significance, and exclude the influence of sample biases such as younger or older age on the initial research purpose. Descriptive statistical analysis of the questionnaire samples was made for occupational aspects. From the perspective of occupational distribution, in the sample of this questionnaire, farmers accounted for about half of the total number, accounting for 46.5%, followed by employees of agricultural enterprises, accounting for 23.4%, and again, village government staff, accounting the percentage is 18.6%, and finally the person in charge of the agricultural enterprise accounts for 11.5%. The specific data is shown in Table 1.

| Person in charge of agribusiness | Agribusiness organization employees | Village government staff |
|----------------------------------|-------------------------------------|-------------------------|
| People                           | percentage                          |                         |
| Farmer                           | 105                                 | 53                      |
| percentage                       | 46.5%                               | 23.4%                   |
| Person in charge of agribusiness | 26                                  | 42                      |
| percentage                       | 11.5%                               | 18.6%                   |

4.2. Information Requirements
According to survey data, the most needed information for farmers in this area is agricultural product market information and soil fertilizers, with demand ratios of 81.9% and 67.7%, followed by policies and regulations, and garden management. The demand ratio is 49.6%, 27.0 from high to low %.

| Policies and regulations | Garden management | Soil fertilizer | Agricultural product market information |
|--------------------------|-------------------|-----------------|----------------------------------------|
| People                   | 112               | 61              | 153                                    |
| percentage               | 49.6%             | 27.0%           | 67.7%                                  |

4.3. Purpose of Using New Agricultural Information Platform
The new agricultural information platform provides farmers with a variety of information, and farmers use this information to solve multiple problems. This article investigates the purpose of farmers using the new agricultural information platform, and the results are shown in Table 3 below. More than half of the farmers said that the use of the new agricultural information platform is to expand their horizons in learning knowledge; 51.8% of the farmers said that the new agricultural information platform can meet their information needs in daily life; and 23.5% of the farmers said The new agricultural information platform is also helpful to their daily work; survey data show that the new agricultural information platform provides limited services and assistance to farmers in leisure and entertainment, and only 17.3% of farmers choose this option.

| Leisure and entertainment | Planting | Jobs | Learn |
|---------------------------|----------|------|-------|
| People                    | 185      | 23.5%| 51.8% |
| percentage                |          |      |       |
The above data shows that: first, farmers in the region have greater demand for policy and regulatory information, agricultural market information, and soil and fertilizer information; second, planting is a major component of agriculture in rural areas, and farmers hope that new agricultural information platforms can provide Industry-related information services and assistance.

4.4. Reasons for Browsing Agricultural Websites

Currently, there are countless agricultural websites, and farmers selectively browse agricultural websites. In addition to being affected by their own behaviors, the behavior of farmers browsing websites is also affected by the external environment, including the characteristics and performance of agricultural websites. The survey data of this study shows that 51.5% of farmers prefer to browse websites with high information quality, the highest proportion; followed by websites with more functions that require more, accounting for 26.1%; and finally, the websites are safe, reliable, and easy to operate. The proportion of the two is 13.3% and 9.1% respectively. Obviously, in the work of agricultural website, the collection and processing of website information is very important.

![Figure 1. Reasons for investigators to browse websites](image)

5. Conclusion

In terms of methods, this paper first conducts exploratory and confirmatory research on the scale, uses Kaiser's point of view, and uses eigenvalues greater than 1 as the basic principle for extracting common factors; and uses SPSS statistical analysis methods to analyze and analyze the scale. Perform factor analysis, reliability analysis, validity analysis, correlation analysis. In terms of surveys, the survey methods used are field questionnaire surveys, on-site interviews, and interviews with people. The main survey objects are agricultural producers, farmers, government employees of townships and
villages, and employees of agricultural enterprises and cooperative organizations. A total of 300 questionnaires were distributed and 268 were recovered, of which 226 were valid, with a recovery rate of 89.3% and an effective rate of 84.3%. It is concluded that the main factors affecting the continued use of the new agricultural information platform are farmers' demand for agricultural product market information, learning knowledge, policies and regulations, and soil and fertilizer.

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References
[1] Jianting Fu, Zhen Zhang, Dan Lyu. Research and application of information service platform for agricultural economic cooperation organization based on Hadoop cloud computing platform environment: taking agricultural and fresh products as an example. Cluster Computing, 2018(10):1-12.
[2] Zhu, Yongsen, Zeng, Yongnian*, Zhang, Meng. Extract of land use/cover information based on HJ satellites data and object-oriented classification. Nongye Gongcheng Xuebao/transactions of the Chinese Society of Agricultural Engineering, 2017, 33(14):258-265.
[3] Sun, Piling, Xu, Yueqing*, Liu, Qingguo. Spatiotemporal differentiation and driving factors of multi-functionality of land use in county scale in poverty belt around Beijing and Tianjin. Transactions of the Chinese Society of Agricultural Engineering, 2017, 33(15):283-292.
[4] PANG Guibin, XU Zhenghe, YANG Shihong. Influence Factors Analysis of Rice Leaf Water Use Efficiency under Controlled Irrigation. Transactions of the Chinese Society for Agricultural Machinery, 2017, 48(4):233-241.
[5] M. UMER ASHRAF, M. SHAHID MAHMOOD, A. RAFIQUE. Factors responsible for the continuous persistence and evolution of low pathogenic avian influenza virus (H9N2). Worlds Poultry Science Journal, 2017, 73(4):1-11.
[6] X. Gong, H. Liu, J. Sun. Variation of evapotranspiration in different spatial scales for solar greenhouse tomato and its controlling meteorological factors. Nongye Gongcheng Xuebao/transactions of the Chinese Society of Agricultural Engineering, 2017, 33(8):166-175.
[7] Martina Slámová, Jana Krčmářová, Pavel Hronček. Environmental factors influencing the distribution of agricultural terraces: Case study of Horný Tisovník, Slovakia. Moravian Geographical Reports, 2017, 25(1):34-45.
[8] Su, Wenhai, Li, Bing, Yuan, Lipeng. Strategy and experiment of attitude control for quadruped mobile platform walking on three-dimensional slope used for agriculture. Transactions of the Chinese Society of Agricultural Engineering, 2018, 34(4):80-91.
[9] X. Zheng, G. Zhu, S. Lu. Ventilation improving drying uniformity of germinated brown rice under continuous microwave conditions. Nongye Gongcheng Xuebao/transactions of the Chinese Society of Agricultural Engineering, 2017, 33(13):280-286.
[10] Cong, Hongbin, Yao, Zonglu, Zhao, Lixin*. Development of carbon, gas, and oil poly-generation pilot system based on biomass continuous pyrolysis. Transactions of the Chinese Society of Agricultural Engineering, 2017, 33(18):173-179.
[11] B. Qu, X. Sun, X. Zhang. Correction model of energy consumption evaluation of cluster motor system based on levenberg-marquardt algorithm. Nongye Gongcheng Xuebao/Transactions of the Chinese Society of Agricultural Engineering, 2018, 34(18):44-50.
[12] Wang, Qiju, Liu, Feng, Gao, Zhongchao. Effect of improving black soil and crop yield by using soil layer up-down fallow technology. Transactions of the Chinese Society of Agricultural Engineering, 2017, 33(6):100-106.
[13] F. Richardson. The enclosure of the commons and wastes in Nantconwy, North Wales, 1540 to 1900. Agricultural History Review, 2017, 65(1):49-73.
[14] L. Castro, L. A. Bonilla, F. González. Continuous metal biosorption applied to industrial effluents: a comparative study using an agricultural by-product and a marine alga. Environmental Earth Sciences, 2017, 76(14):491.