Effect of guiding policy on urban residents' behavior to use recycled water

Bing Zhang, Hanliang Fu*

School of Management, Xi'an University of Architecture and Technology, Xi'an 710055, China, email: fu_hanliang@126.com

ABSTRACT

At present, the promotion policy for the reuse of recycled water adopted in China gives priority to mandatory administrative orders but ignores the policy guidance for residents' behavior to use recycled water. Based on the above practical problems, this research combines the characteristics of recycled water reuse, then reduces the behavior guiding policy for the potential use of recycled water to environmental motivation stimulating policy, demonstration guiding policy, and combined with the mechanisms of different policies, the extreme shortage of water resources, the promotion degree of regional recycled water reuse, and the reuse of recycled water in a natural environment are selected as the abstract indicators of environmental motivation stimulating policy, demonstration guiding policy, and knowledge popularization policy. The above indicators are taken as control variables, and control groups are set to simulate the mechanisms of different policies. The residents' willingness to accept the reuse of recycled water is taken as a dependent variable, and a structural equation model is used for a variance analysis of data between different control groups. Finally, it is verified under the natural state that the three types of policies have a significant guiding effect on the reuse of recycled water.

Keywords: Recycled water reuse; Behavior guiding policy; Stratified sampling; Structural equation modeling

1. Introduction

Recycled water reuse in China is still in the ascendant. Nonetheless, due to late starting, the reuse and technology promotion of recycled water is still at a lower level, well below the level of developed countries in the same period [1]. As a result, there are few chances for Chinese residents to encounter recycled water reuse and thus there are few large-scale events going against recycled water reuse projects, but this does not mean that we can ignore this hidden trouble. In China, recently all we hear are genetically modified food, waste incineration projects, and PX projects, which are similar to recycled water reuse (i.e., beneficial to the environment and society but potentially harmful to the users) but more influential. The open questioning of genetically modified foods represented by Cui, the objection of constructing waste incineration projects happened occasionally all through the nation and 2012 Ningbo anti-PX project by residents all serve as good evidences. With the development of social economy and the progress of urbanization, problems of water pollution and the widening gap between water supply and demand become more and more prominent. As one of the best solutions to these problems, recycled water reuse will undoubtedly attract increasing attention. With the further promotion of recycled water reuse in China, the population involved in this project will get larger and larger, and the influence of it will be correspondently expanded. Consequently, more and more residents will show similar objection to recycled water reuse. Residents' acceptability of recycled water (ACC), therefore, will exert prominent effect on the promotion of recycled water reuse. In this sense, how to scientifically and effectively improve the final consumers, that is, residents' acceptance of recycled water reuse is the key to promoting policy development in the future. The residents should be changed from passive acceptance to spontaneous and active participation in recycled water reuse.

So far, the recycled water reuse has developed for over 30 years in China. Since 1986, recycled water reuse has been incorporated into the national "7th Five-year Plan", "8th Five-year Plan" and "9th Five-year Plan" key scientific and

* Corresponding author.

technological programs. And China has obtained rich experimental data in recycled water production processes, technical and economic policies, which have been applied to a large number of productive experiments, providing scientific support for follow-up technical standards setting of recycled water reuse[1] and laying a solid foundation for the promotion of recycled water reuse in China. And the background "11th Five-year Plan", "12th Five-year Plan" and "13th Five-year Plan" national urban sewage treatment and recycling facilities construction planning[2] further promote the reuse of recycled water to be the state will. All localities also issue relevant policies and regulations to answer the call of the central government's promotion plan of recycled water reuse, among which only Beijing has introduced as much as nine local management approaches [2].[3] These policies are all based on mandatory administrative orders. They are either the stage objectives of promoting recycled water reuse or orders for specific water consuming organizations to implement recycled water reuse. These regulations and measures have played a certain policy-oriented role in the initial stage of the development of recycled water reuse industry in China, and promoted the reuse of recycled water, but they still lack the guiding of the final consumers' behavior. From the above problems, we can see that the current promotion policies of recycled water reuse in China is dominated by administrative orders. However, the solely dependence on administrative orders, on the one hand, is much costly in implementation, which will result in social resources waste due to unchecked construction. On the other hand, it is difficult to real social support [3] because of the coerciveness of administrative orders. Therefore, the use of appropriate behavior to guide the policy so as to activate residents' coerciveness in using recycled water is undoubtedly a good complement to executive orders.

Based on this, in light of the characteristics of recycled water reuse, this paper mainly attempts to make a research on the policies of environmental protection motivation, demonstration, and guidance policies as well as knowledge popularization polices. With the help of field survey, through searching for abstract indicators representing

different types of mechanisms of recycled water reuse guiding policies as the control variables in the natural environment, this paper subgroups the survey samples and compares the acceptance differences on recycled water reuse among different groups to learn about the effect of differentiated recycled water reuse guiding policies in real environment.

2. Research program design

To obtain the data needed, this research takes the authoritative data of the population distribution in the administrative regions of Xi'an in the sixth national census as the basis for the layered random sampling survey. The survey is made in 10 districts and 3 counties in Xi'an. In the early period, the 10 surveyors were trained to know about relevant fundamental knowledge on survey. And from September 16 to October 16, 2016, the survey was conducted in the streets, central squares, shopping malls, and parks randomly selected from all the districts and counties. And after, each participant was presented a beautiful gift for souvenir.

2.1. Questionnaire data

This research, based on the authoritative data of the population distribution in the administrative regions of Xi'an in the sixth national census, makes random layered survey in 10 districts and 3 counties. Altogether 714 questionnaires were distributed and 584 valid questionnaires were retrieved, with a validity of 82%. The percentage of questionnaire distribution of different districts roughly equals to that of the population. See specific questionnaire data in Table 1.

The basic information of the participants is shown in Table 2.

2.2. The survey location distribution map

The red dot in the map is the location of the questionnaire, as shown in Fig. 1.

2.3. Questionnaire validity control methods

To minimize the interference caused by the misunderstanding and mindless answering of the participants, corresponding measures were taken by the researchers in experimental design and questionnaire release stage so as to ensure that the data collected is the thoughts of the residents of Xi'an.

(1) Ensuring the surface validity of the questions. After the completion of the questionnaire design, people were invited to try to fill the questionnaire to make the questions easy to understand and proper for various participants.

(2) Making sure that the participants can understand the content of the questionnaire. The first page of the questionnaire introduces the purpose of the questionnaire survey. In addition, with plain language, tables and figures, unavoidable professional words such as "recycled water" is described objectively.

(3) Reducing the impact of researchers' subjective factors on research results. Unified training was done to surveyors. And

---

[1] Technical standards for recycled water reuse: related specifications such as *Engineering Quality Acceptance Specification of Urban Sewage Treatment Plant, Design for Water in Construction, Design Specification of Sewage Recycling Project* issued in 2003.

[2] Planning policies involved: *The National Urban Sewage Treatment and Recycling Facilities Construction Specification of the 11th Five-Year Plan, The National Urban Sewage Treatment and Recycling Facilities Construction Specification of the 12th Five-Year Plan* and *The National Urban Sewage Treatment and Recycling Facilities Construction Specification of the 13th Five-Year Plan.*

[3] Policies involved: *Tentative Measures of Beijing Water Facilities Construction and Management* issued in 1987 and revised in 2010, *Beijing Water Resources Management Regulations* issued in 1991, *Beijing Urban Water Conservation Ordinance* issued in 1991, *The Manuscript of Strengthening the Middle-water Facilities Construction and Management* issued in 2001, *Beijing Implementing Measures of Water Law of the People's Republic of China* issued in 2004, *Beijing Water Conservation Measures* issued in 2005, *Beijing Drainage and Recycled water Management Measures* issued in 2010 and *Beijing Water Conservation Measures* as well as *Beijing Rivers and Lakes Protection Regulations* issued in 2012.

Table 1
Questionnaire data

District/ county	Questionnaire validity	Valid questionnaires	Invalid questionnaires	The percentage of valid questionnaires	District population (persons)	The percentage of the district population
Yanta District	0.82	86	19	0.15	1,178,529	0.14
Xincheng District	0.89	64	8	0.11	589,739	0.07
Zhouzhi County	0.84	41	8	0.07	562,768	0.07
Yanliang District	0.89	24	3	0.04	278,604	0.03
Baqiao District	0.88	42	6	0.07	595,124	0.07
Chang'an District	0.84	53	10	0.09	1,083,285	0.13
Weiyang District	0.82	59	13	0.10	806,811	0.10
Gaoling District	0.68	17	8	0.03	333,477	0.04
Lantian County	0.84	37	7	0.06	514,026	0.06
Hu County	0.78	42	12	0.07	556,377	0.07
Lintong District	0.85	45	8	0.08	655,874	0.08
Lianhu District	0.69	41	18	0.07	698,513	0.08
Beilin District	0.77	33	10	0.06	614,710	0.07
Total	0.82	584	130	1	8,467,837	1
		Total questionnaires: 714				

Note: The population data is from the sixth national census o State Council census in 2010.

Table 2
The basic information of the participants

Variables	Variable description	Total
Age	43 and above	120
	Below 43	454
Gender	Male	127
	Female	447
Educational background	Bachelor degree or above	301
	Others	280

Note: To avoid antipathy of the survey participants, private information is not compulsory, so some questionnaires may found to be blank in this part.

surveyors were asked to wear a unified real-name survey certificate and inform the participants that the results would be used only for research. The survey team has no personal expectation to the results and they only wished the participants could answer the questions according to their real ideas.

(4) Avoiding the impact of question sequence on the results. Considering that inconsistent options may occur in answering the questions influenced by the participants' distraction and fatigue, the researchers have adjusted the question sequence for three times to minimize this impact.

(5) Reducing the data loss caused by unanswered questions. Researchers are asked to check the question answering situation carefully and ask the participant to make it up when there is any question forgotten to be answered.

(6) Preventing the effect of research time on the randomness of the sample. The survey is chosen to be made in the all day of weekend and half day of each of the week days. The purpose is to avoid sample structure imbalance caused by office workers. Additionally, both morning and afternoon time are
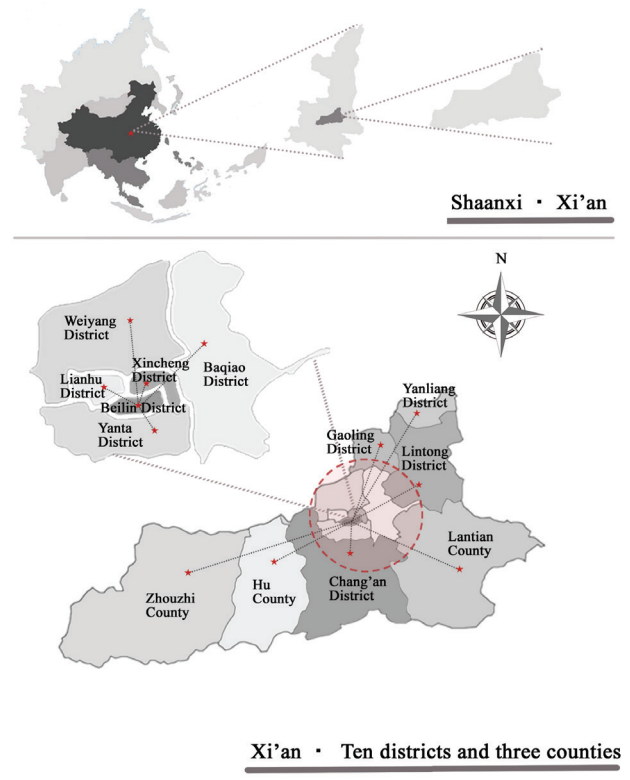

Fig. 1. The survey location distribution map.

chosen to prevent the influence of different daily routines on randomness of the sample.

(7) Preventing the overall interference of the tourists on the researchers and participants. As the survey area Xi'an is an

important tourist city in China, and the survey time went across the "Golden Week" with the largest amount of tourists, the survey was called for a suspension in the period of September 27 to October 10 to avoid tourists' influence (not residents in Xi'an) on the results.

3. Determining the policy effect based on field survey

In order to effectively compensate the malpractice of Implicit Association Test (IAT), this section first abstracts the guiding policy into variables easy to be controlled in the natural state, and sets up the experimental control group in the process so as to compare the ACC of the participants among groups. The ultimate purpose is to verify the effect of different types of policies on the residents' reuse of recycled water.

3.1. The selection of variables

To achieve the purpose of determining the effect of different types of policies in natural state, variables that both can represent the principles of the policy and easy to be controlled in natural state should be selected as the control variables. Based on the above two considerations, abstract variables selected are shown as follows.

(1) Selecting the experience of extreme water resources shortage as the abstract variable of environmental protection motivating policy. The environmental protection motivation aims to strengthen residents' environmental crisis awareness and then to guide their reuse of recycled water. The experience of extreme water resources shortage will surely strengthen their environmental crisis awareness. Therefore, taking the experience of extreme water shortage as a control variable can help to get the control groups of significantly different environmental crisis awareness. And comparing the ACC of the participants among the control groups, the effect of environmental protection motivating policy would be effectively predicted.

(2) Selecting the degree of recycled water reuse promotion in different areas as the abstract variable for guiding policy. The purpose of guiding policy is to create an atmosphere that residents compete to reuse the recycled water. Residents' conformity, therefore, is used to guide their behavior. The actual situation of the recycled water reuse in different areas is able to effectively reflect the recycled water reuse atmosphere in these areas. This survey is made in different districts and counties in Xi'an, and through grouping the participants in the districts of various promotion degree, the variables of recycled water reuse promotion degree. On the basis of this, the ACC of the participants is compared among groups to

determine the effect of the promotion degree on residents' ACC, the ultimate purpose of which is to predict the effect of guide policy.

(3) Selecting the experience of recycled water reuse as the abstract variable for knowledge popularization policy. Knowledge popularization policy is intended to improve residents' knowledge about the recycled water reuse so as to guide them to participate in using recycled water. The experience of recycled water reuse undoubtedly will greatly enrich residents' knowledge about recycled water reuse. And meanwhile, the indicators of the experience of recycled water reuse are relatively objective, and the variables are easier to be controlled in the natural state. Therefore, in this part of the research, the experience of recycled water reuse is taken as the abstract variable of knowledge popularization policy, based on which participants are grouped and compared in terms of ACC among groups. And then the effect of knowledge popularization policy on residents' recycled water reuse behavior is determined.

3.2. Variable introduction

(1) Acceptability (ACC) of recycled water. In this part of the research, residents' ACC is taken as the dependent variable. By comparing the ACC of the participants between the control groups and the baseline group, the guidance effect of various policies on the reuse of recycled water is measured. In selecting the measurement indicators of residents' ACC, the classification of urban recycled water is referred and finally the urban miscellaneous use of recycled water is selected as the measurement indicator for it is closely related to the urban residents and easy to be understood by them. The questions of ACC are shown in Table 3.

(2) The experience of extreme water resources shortage. By asking the question "Have you ever had the experience of extreme water shortage?", to obtain the data "1" (a total of 269 people), showing "yes" and data "0" (315 people), showing "no". Based on this, the sample is divided into two groups with differentiated experience.

(3) The promotion degree of regional recycled water reuse. As far as we have learned, the current reuse of recycled water in Xi'an is dominated by centralized recycled water reuse model, in which the water is transported by the municipal recycled water pipe network. Small-scaled decentralized recycled water reuse models only play a supplement role. The current centralized promotion of sewage treatment mode mainly surrounds the large-scale sewage treatment plants and recycled water transporting pipelines, that is, in Lianhu District, Weiyang District, Baqiao District and Yanta

Table 3
Measurement table of ACC

Name	Definition	Question no.	Questions
ACC	The acceptability of the use of various recycled water	ACC1	Used for residential flushing
		ACC2	Used for urban road sprinkling
		ACC3	Used for fire fighting
		ACC4	Used for residential community greening
		ACC5	Used for car washing

District.[4] At the same time, some large-scale units such as colleges and universities gradually begin to use recycled water, mainly in Chang'an District. Therefore, the survey data collected in the districts with higher degree of promotion such as Lianhu District, Weiyang District, Baqiao District, Yanta District and Chang'an District is put in one group (281 people) and the data of other districts with lower degree of promotion is put in another group (303 people). In this way, the promotion degree of recycled water reuse is then taken as the control variables to group the participants.

(4) The experience of recycled water reuse. By asking the question "Have you ever used recycled water?" to obtain the data "1" (a total of 182 people) to show "yes" and data "0" (402 people) to show "no". Based on this, the sample is divided into two groups with differentiated experience in recycled water reusing.

3.3. Research assumptions

In this section, three groups of abstract variables are selected in natural state to simulate the work principles of different types of policies. According to the purpose of the experiment, before the experiment, it is assumed that all the different policies will positively guide residents' recycled water reuse, and therefore, the following research hypotheses are put forward:

Hypothesis 1: Residents who experienced extreme water shortage are more willing to accept recycled water reuse.

Hypothesis 2: Residents in the districts where recycled water reuse is more popular are more willing to accept recycled water reuse.

Hypothesis 3: Residents with experience of using recycled water are more willing to accept recycled water reuse.

3.4. Data analysis and hypothesis testing

To determine the effect of different control variables on residents' ACC of recycled water, this section makes a comparative research on the ACC of participants in different groups with variance analysis. Considering that the structural equation model can deal with potential variables to reduce the loss of data [4], we first establish the structural equation model for the single potential variable of residents' ACC and then adopt AMOS software to conduct variance analysis.

(1) Reliability and validity analysis. To judge whether the reliability of the questionnaire is up to relevant standards, this part first measures Cronbach's α, which represents the reliability, and the results are shown in Table 4. All the values of Cronbach's α are beyond the standard of 0.7, demonstrating that the questionnaire is of sound reliability. The most widespread testing items in this field, namely, convergence validity and discrimination validity are adopted. In convergence validity test, Fornell and Larcker's recommendations are followed. Therefore, the standardized factor loading, combined reliability (CR) and average variance extraction (AVE) are noticed [5]. The standardized factor loading is greater than 0.6, and non-standardized tests were all significant. CR values are greater than 0.7, in line with the recommended standard of Fornell and Larcker [5] and Hair et al. [6].

At the same time, the AVE values are greater than or close to 0.5, also in line with Fornell and Larcker' recommended standard. It can be concluded that the convergence validity of each area is good.

(2) Model fitting analysis. After the verification of the reliability and validity of the data as well as the number of samples, in this section, with the help of AMOS21.0 software, 292 samples randomly distributed are used to develop model (Fig. 2). And then the fitting of the model is also tested. At last, another 292 samples are used to retest the developed model.

Before using the structural equation model in the research, the fitting of the model is needed to be tested. The higher the fitting degree is, the closer the simulation model is to the actual situation of the sample [7]. Jackson et al. [8] found in an overview on researches adopting structural equation as the research method that the fitting indexes reported in these researches are 10 indexes (in the order of frequency): χ^2, degrees of freedom (df), χ^2/df ratio, root-mean-square error of approximation (RMSEA), standardized RMR, goodness of fit index (GFI), adjusted GFI, normed fit index (NFI), Tucker-Lewis index (TLI), and comparative fit index (CFI). Therefore, this research also uses the 10 indexes, and the specific fitting indexes are shown in Table 5.

---

[4] The message is from the official website of Xi'an Qingyuan Co., Ltd. of Recycled Water (http://www.qingyuanzhongshui.com/). Xi'an Qingyuan Water Co., Ltd. is a major state-owned individual proprietorship in recycled water supply market in Xi'an.

Table 4
The reliability and convergence validity of ACC structure model

Latent variable	Questions	Estimation of parameter significance				Factor loading (Std.)	Question reliability (SMC)	Combined reliability (CR)	Convergence validity (AVE)	Cronbach's α
		Unstd.	S.E.	*t*-value	*P*					
ACC of recycled water	ACC1	1.000				0.907	0.823	0.957	0.816	0.956
	ACC2	1.085	0.042	25.745	***	0.917	0.841			
	ACC3	1.012	0.041	24.407	***	0.899	0.808			
	ACC4	1.010	0.041	24.526	***	0.900	0.810			
	ACC5	0.989	0.041	23.992	***	0.893	0.797			

According to Table 5, the structural equation model has good fitting indexes, indicating that the model and the data fit well.

(3) Cross-validity test. To verify whether the structural equation model has a good cross-validity, the group comparison method is applied in this part [16] to bring the previously randomly distributed group (292 samples) into model and compare it with the present model so as to determine whether the structural equation model has cross-group consistency. In the process, Kline's recommendation is followed and the Moderate

Replication Strategy[5] is adopted to test the group consistency. Measurement weights, structural weights, and structural covariances in it are tested to see whether they are complete.

Assume that the model is right, first, make the factor loading of two groups be consistent, and the test result $P = 0.221$, which is much higher than 0.05. It can be proved that the factor loading of the structural model is cross-group consistent. And then, at the same time of maintaining the factor loading consistent, set the path coefficient the same. At the time, the test result $P = 0.368$, also far higher than 0.05, proving that the path coefficient of the structural model is cross-group consistent. Based on all the above settings, make all the factor covariance equal, then $P = 0.231$, which is higher than 0.05, indicating that the covariance of the structural model has the consistency among groups.

Table 6 shows that in the group consistency test, the various indexes of the model are all consistent with each other, so that the structural model has cross-group consistence between the two groups. That is, the structural equation model passes the cross-validity test, and the settings of the model are correct.

(4) Analysis of variance. After affirming that the model has a high fitting with the data, AMOS software is used to make analysis of variance.

The results in Table 7 demonstrate that through carrying out variance analysis to participants' ACC of recycled
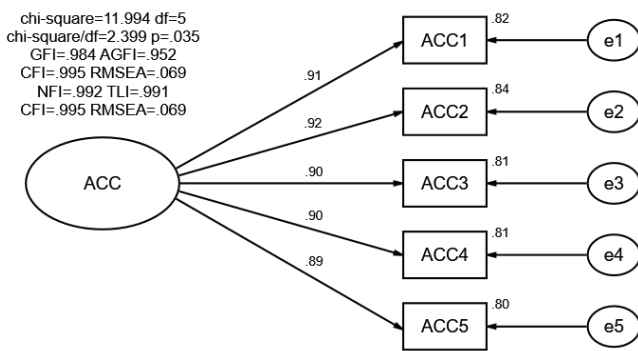
---

[5] Kline believes that the Residual Consistency Test is too strict, so the Moderate Replication Strategy is suggested to be used in group consistency test.

chi-square=11.994 df=5
chi-square/df=2.399 p=.035
GFI=.984 AGFI=.952
CFI=.995 RMSEA=.069
NFI=.992 TLI=.991
CFI=.995 RMSEA=.069

Fig. 2. The standard estimation of residents' ACC of recycled water structure model.

Table 5
ACC structure model fitting

Fitting indexes	Measured value	Ideal value	The origin of the standard
χ^2	11.994		
df	5		
χ^2/df	2.399	≤3	Schumacker and Lomax [9]
			Iacobucci [10]
RMSEA	0.069	<0.08	Schumacker and Lomax [9]
SRMR	0.010	<0.08	Kenny [11]
GFI	0.984	>0.8	Doll et al. [12]
			Bentler et al. [13]
AGFI	0.952	>0.8	MacCallum and Hong [14]
NFI	0.992	>0.9	Schumacker and Lomax [9]
TLI	0.991	>0.95	Hu and Bentler [15]
CFI	0.995	>0.95	Bentler et al. [13]

Table 6
Cross validity test of ACC structural model

Model	Δdf	ΔCMIN	*P*	ΔNFI	ΔIFI	ΔRFI	ΔTLI	ΔCFI
Measurement weights	11.000	15.322	0.221	0.001	0.003	0.000	0.001	0.001
Structural weights	5.000	4.621	0.368	0.002	0.001	0.001	0.000	0.000
Structural covariances	1.000	0.932	0.231	0.001	0.000	0.000	0.000	0.001

water of the three control group, it is found that the ACC of recycled water of the three groups differ each other significantly (the difference is significantly below the confidence level of 0.05). Among them, the experience of extreme water shortage will significantly enhance the participants' ACC of recycled water. The promotion of recycled water reuse in the district where the participants live also exerts an obvious influence on participants' ACC. The participants with experience of reusing recycled water are more willing to reuse recycled water than those who never used it.

(5) Hypothesis testing. To sum up, the hypothesis testing results on the survey participants' ACC of recycled water reuse are shown in Table 8.

4. Results and discussion

4.1. Results analysis

This research has verified that in natural state, environmental protection motivating policy can effectively guide residents' recycled water reuse. According to the experimental results, it has been found that the participants who have experienced the extreme water shortage are more willing to accept recycled water reuse. These residents have a stronger sense of water crisis, so they will be more motivated in protecting water resources and water environment. Similarly, the environmental protection motivating policy also intends to stimulate people's motivation of environmental protection so as to further guide them to participate in recycled water reuse. Therefore, the verification of hypothesis 1 can well prove that environmental protection motivating policy will have a good guiding effect in reality.

It has verified in natural state that guiding policy can effectively guide residents' reuse of recycled water. The experimental results indicate that the participants living in the districts with more popular recycled water reuse show a higher ACC of recycled water reuse. The author believes that this is because the atmosphere in these districts has greatly influenced these residents. The purpose of guiding policy is to create such atmosphere of recycled water reuse. Therefore, hypothesis 2 can provide a strong evidence for the practical effect of guiding policy.

It has also verified that knowledge popularization policy can effectively guide residents' reuse of recycle water. The research results demonstrate that the residents with experience of using recycled water are more willing to accept recycled water reuse. This is because these residents would be willing to learn about more relevant knowledge about recycled water reuse. Therefore, they would have a good knowledge of it. Hence, this result can be the theoretical basis of knowledge popularization policy that is believed to be able to improve residents' ACC of recycled water reuse [17–23].

4.2. Discussion

This research, by abstracting the principles of different policies, in natural state, chooses the experience of extreme water shortage, the popularity of recycled water reuse in districts and the experience of reusing recycled water to be the control variables of environmental protection motivating policy, guiding policy, and knowledge popularization policy, respectively. At the same time, structural equation model is adopted, under the condition of minimizing the loss of data, to carry out variance analysis to ACC of recycled water reuse of the participants in different control groups. The results show that the experience of extreme water shortage, higher promotion of recycled water reuse in districts and the experience of reusing recycled water all could significantly affect the survey participants' ACC of recycled water in a positive way. And thus this it proves that the three types of policies can play a guiding role in residents' ACC of recycled water reuse in a natural state.

Table 7
Variance analysis of different control groups on residents' ACC of recycled water

Control variables	Estimate	S.E.	*t* Value	*P*
The experience of extreme water shortage	0.498	0.161	3.086	0.002
District recycled water reuse promotion	0.492	0.136	0.619	***
Experience of reusing recycled water	0.352	0.143	2.467	0.014

Note: In the process of analyzing variance by structural equation software, the observed variables in latent variables are not averaged. Instead, variance analysis is carried out directly to the latent variables. Therefore, the results are unable to show descriptive statistical values (such as mean, etc.) as the traditional statistical methods do.

Table 8
Hypothesis testing results

Research hypothesis	Hypothesis testing
Hypothesis 1: Residents who experienced extreme water shortage are more willing to accept recycled water reuse	Support
Hypothesis 2: Residents in the districts where recycled water reuse is more popular are more willing to accept recycled water reuse	Support
Hypothesis 3: Residents with experience of using recycled water are more willing to accept recycled water reuse	Support

References

[1] V. Uhlmann, B.W. Head, Water Recycling: Recent History of Local Government Initiatives in South East Queensland, Urban Water Security Research Alliance Technical Report Number 45, 2011.

[2] C. Bao, C.L. Fang, Water resources flows related to urbanization in china: challenges and perspectives for water management and urban development, Water Resour. Manage., 26 (2012) 531–552.

[3] W.L. Zhang, W.P. Chen, W. Jiao, Policy evaluation and analysis on reclaimed wastewater reuse in Beijing, Acta Sci. Circumst., 33 (2013) 2862–2870.

[4] M.T. Stephenson, R.L. Holbert, A Monte Carlo simulation of observable versus latent variable structural equation modeling techniques, Commun. Res., 30 (2003) 332–354.

[5] C. Fornell, D.F. Larcker, Evaluating structural equation models with unobservable variables and measurement error, J. Market Res., 18 (1981) 39–50.

[6] J. Hair, R. Anderson, R. Tatham, W. Black, Multivariate Data Analysis, 5th ed., Prentice Hall, Upper Saddle River, NJ, USA, 1998, pp. 677–679.

[7] B.B. Byrne, Structural Equation Modeling with AMOS. Basic Concepts, Applications, and Programming, 2nd ed., Routledge, New York, 2010.

[8] D.L. Jackson, J.A. Gillaspy, R. Purcstephenson, Reporting practices in confirmatory factor analysis: an overview and some recommendations, Psychol. Methods, 14 (2009) 6–23.

[9] R.E. Schumacker, R.G.A. Lomax, Beginner's Guide to Structural Equation Modeling, 3rd ed., Lawrence Erlbaum Associates, Mahwah, NJ, USA, 2010.

[10] D. Iacobucci, Structural equations modeling: fit indices, sample size, and advanced topics, J. Consum. Psychol., 20 (2010) 90–98.

[11] D.A. Kenny, Measuring model fit [EB/OL]. Available at: http://davidakenny.net/cm/fit.htm, 2012.

[12] W.J. Doll, W. Xia, G. Torkzadeh, A confirmatory factor analysis of the end-user computing satisfaction instrument, MIS Quarterly, 18 (1994) 125–131.

[13] P.M. Bentler, D.G. Bonett, Significance tests and goodness of fit in the analysis of covariance structure, Psychol. Bull., 88 (1980) 588–606.

[14] R.C. Maccallum, S. Hong, Power analysis in covariance structure modeling using GFI and AGFI, Multivar. Behav. Res., 32 (1997) 193–210.

[15] L. Hu, P.M. Bentler, Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives, Struct. Eq. Model. A Multidiscip. J., 6 (1999) 1–55.

[16] G.W. Cheung, R.B. Rensvold, Testing factorial invariance across groups: a reconceptualization and proposed new method, J. Manage., 25 (1999) 1–27.

[17] H. Fu, X. Liu, A study on the impact of environment education on individuals' behaviors concerning recycled water reuse, Eurasia J. Math. Sci. Technol. Educ., 13 (2017) 6715–6724.

[18] N. Ebrahimi, M. Gharibreza, M. Hosseini, M.A. Ashraf, Experimental study on the impact of vegetation coverage on flow roughness coefficient and trapping of sediment, Geol. Ecol. Landscapes, 1 (2017) 167–172.

[19] W. Gao, M.R.R. Kanna, E. Suresh, M.R. Farahani, Calculating of degree-based topological indices of nanostructures, Geol. Ecol. Landscapes, 1 (2017) 173–183.

[20] S.M. Hejazi, F. Lotfi, H. Fashandi, A. Alirezazadeh, Serishm: an eco-friendly and biodegradable flame retardant for fabrics, Environ. Ecosyst. Sci., 1 (2017) 5–8.

[21] N. Hashemi, Recognizing the potential of sustainable use of pasture resources in South Khorasan province with approach of carrying capacity, Environ. Ecosyst. Sci., 1 (2017) 9–12.

[22] M. Bahmani, A. Noorzad, J. Hamedi, F. Sali, The role of bacillus pasteurii on the change of parameters of sands according to temperature compression and wind erosion resistance, J. CleanWAS, 1 (2017) 1–5.

[23] W.L. Wun, G.K. Chua, S.Y. Chin, Effect of palm oil mill effluent (pome) treatment by activated sludge, J. CleanWAS, 1 (2017) 6–9.