

## How Do Teachers Implement the Policy of ICT Education for Older Adults? A Study on Policy Implementation in China

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#### KEYWORDS:

ICT education

Policy implementation

Policy implementer

Older adults

#### CITATION:

Jinglin Dai. (2022). How Do Teachers Implement the Policy of ICT Education for Older Adults? A Study on Policy Implementation in China. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 7(5), e001396.

<https://doi.org/10.47405/mjssh.v7i5.1396>

### ABSTRACT

As information and communication technology (ICT) becomes more prevalent in daily life, the digital gap between the older and younger groups is increasingly huge. ICT education policy for older adults has been issued in China since 2021 to face that challenge. While previous research mainly focuses on the policymakers and older adults, the teachers, regarded as the core implementer at the street level, need to be more concerned. This research uses qualitative research methods to understand the complexity of the implementation process and identify the influence factors in the view of teachers. It found that the number of faculties and suitable teaching equipment is generally ignored. Besides, the awareness of caring for older adults is the most potent factor in achieving the policy. Along with that, the efforts of learning institutions have a positive impact on teachers belief in policy. Recommendations are also threefold: firstly, learning institutions should deliver and express policies, even if they are available online. Secondly, the features of ICT education should consider the faculties and suitable equipment. Finally, cultivating an age-friendly environment is crucial for ICT education and the aging society.

**Contribution/Originality:** The paper's primary contribution is providing a bottom-up approach to understand ICT education policy. Based it, the smallest unit of teachers and learners gain more concerns. Furthermore, this study provides empirical data for the implementation of ICT education policy. It contributes strategies and suggestions for policymakers and implementers.

## 1. Introduction

With the development of information and communication technology (ICT), digital technology is widely used in public services and social management. Entering a digital society is an opportunity to keep pace with the times and a need of daily life. Due to the global COVID-19 pandemic, online services have been developing rapidly, such as scanning code, online ordering, Artificial Intelligence (AI) inquiry, et al. Compared with the young group, the situation of older adults is at a disadvantage on using intelligent

services. Therefore, education is the most powerful strategy to narrow the digital gap, to ensure they inclusively enjoy the convenience and intelligence of an intelligent society.

Notably, many countries initiative policies and plan to make their citizen acquire ICT skills, such as America's Emerging Online Experience (NTIA & ESA, 2013) and Colombia's AdulTiCoProgram (UNESCO, 2017). Moreover, the Ministry of Education issued the Notice of Widely Carrying out ICT Education Policy (ICTEP) in 2021 to address older adults' daily difficulties using intelligent services in China (The Chinese Ministry of Education, 2021). It is a subordinate policy of the Plan for Solving the Difficulties of Older Adults in Using ICT (The Chinese State Council, 2020). Most Chinese cities have promulgated plans in the past two years and implemented them accordingly.

However, the research shows that the implementation effect does not meet expectations. Many older adults still do not participate in ICT education (Gao & Gao, 2020; Liu & Yuan, 2022). A question has surfaced: Why does ICTEP have a deviation? However, the situation of older adults using ICT has not received sufficient concern (Fondevila Gascón et al., 2015; Lam & Chung, 2009). Furthermore, little research has been performed on teachers to explore their situation in ICTEP. Therefore, the study aims to understand the complexity of the implementation process in the view of teachers. It can help third-age education researchers, University of Third Age (U3A) directors, policymakers, and teachers to create a friendly environment for older adults to learn ICT.

## 2. Literature Review

### 2.1. Education for older adults

Education for older adults, namely third age education, senior education, and silver education, is a series of educational activities targeting the elderly, including ICT, healthy, arts, and history (Dong, 2008). It is crucial for both lifelong education and an aging society.

Firstly, it is an integral part of lifelong learning (Brian & Marvin, 2011; Frstrup & Grut, 2016; Hachem & Vuopala, 2016). It claims to satisfy older adults' needs for education to enjoy their right to lifelong personal growth and enrichment (United Nations, 1982). Secondly, as society ages, the number of older adults increases, and accordingly, their learning needs become diversified. Education for older adults takes the responsibility to respond to those demands (Formosa, 2021c; Hachem & Vuopala, 2016; Marois et al., 2021). Moreover, previous studies of third-age education have formed a wealth of fields. Among them, the research on teachers is mainly three parts. Firstly, the learning activity is more voluntary.

Even in the French model of U3A, in which the organization method is closer to a traditional university, the course types can be negotiated, and the exam is unnecessary (Formosa, 2021a). Secondly, the teaching methods are more flexible. In the British model of U3A, community libraries, stadiums, and even learners' living rooms are teaching places (Formosa, 2021b). The interaction between teachers and learners is emphasized, as one classmate may become a teacher in the afternoon (Midwinter, 1984). In addition, the learner is physically weaker but has stronger self-esteem and understanding than young people (Ye, 2014, p.75). As the learning center learners'

experience should be a concern by educators (Formosa, 2021). Then, an older adult in the rural area needs more support (Hu & Ren, 2021).

However, compared with learners, not much research put those teachers as a center in elderly education. Moreover, most teachers in U3A are part-time job employing from other learning institutions and lack teacher qualification certificates in China (Ma & Rong, 2019, pp.147-148). Importantly, teachers are crucial to the empowerment of older learners by leading the challenge against ageism (Maulod & Lu, 2020), and the complexity of policy implementation can cover to explore their working procedure.

## 2.2. The policy implementation

In the 1950s, political science extent the research limitation of public policy that its process cannot be analysed. After the 1960s, public policy research gained more concerns as a part of international politics (Lasswell & Kaplan, 2017). Since Pressman and Wildavsky (1983) explored why policy could be failed, the factors contributing or deviating to realizing policy have been widely researched during the implementation process (Van Meter & Van Horn, 1975).

Initially, researchers observed the implementation process from a top-down perspective and found the local factors “such as size, intra-organizational relations, commitment, capacity and institutional complexity molded policy responses” (McLaughlin, 1987). The policy resources gain complete concern, such as learning equipment, funds, and faculties (Birkland, 2016). In this approach, teachers are passive policy receivers and implementers. At the end of the line of officials, teachers’ implementing skills and teaching equipment are prioritized for policy implementation (Fowler, 2013, p.206).

Since the 1980s, the implementation research shifted to a down-top perspective (Piacentini, 2015). Based on the theory of street-level bureaucrats, the critical role of teachers in policy implementation has been covered (Lipsky, 2010, p.3). Thus, teachers’ interpretations, motivation, emotions, and policy beliefs are defined as power factors affecting implementation (McLaughlin, 1987; Piacentini, 2015).

In the 1990s, the awareness of both the macro and the micro perspectives influences the implementation process increasingly come out (Fowler, 2013, p.211). The implementation is defined as a negotiated process within the national government, local districts, implementers, and clients (Honig, 2016). Thus, the interaction between directors, teachers, and learners has become a broader view to understand the implementation of educational policy. Moreover, the implementer is a perceptual individual in the specific situation, not just an entirely rational person or a series of statistics in the research. In policy implementation, multiple contexts influence teachers from learning institutions, learners, and individuals. Moreover, only by entering the view of teachers can we more understand the implementation process of ICTEP. Furthermore, those factors are explained by three categorifies, belief, desire, and alief to understand the implementation of education policy (Zhu, 2019).

Previous research gives three implications: Firstly, as teachers and learners are the minor units, their interaction affects teachers’ behavior to implement policy. Secondly, teachers are not simply passive implementation. They play a crucial role in policy implementation through actively understanding and creating policies. Finally, the environment supports teachers’ teaching process. However, Zhu (2019) tries to form

three types to explain the teacher's behavior of an implementation. There lacks the empirical research. Moreover, different education policies' implementation processes and influencing factors are different. Thus, the research on implementing ICT education policy for older adults needs more concern.

### 3. Methodology

As the research is to understand the complexity of the implementation process and identify the influence factors in the view of teachers, three questions are as below: (1) How do teachers implement the ICTEP? (2) What factors hinder their implementation? (3) What factors promote them to do better?

Consequently, this study adopted qualitative research methods to obtain multiple perspectives and build variation into the analytic schemes (Corbin & Strauss, 2008, p.8). Then, qualitative data were collected via interviews who are teaching in U3A. Four of these respondents were women, and two were men. Their basic information is as follows (see Table1).

Table 1: Details of Research Interviews

Pseudonym	Age	Gender	Education background	Curriculum
T1	30	female	Bachelor's degree, significant in social security	ICT, cooking, crafting, healthy et al. courses
T2	36	female	Master's degree, significant in Finance	Finance, ICT courses
T3	40	female	High school education, nursing worker certificate	ICT, cooking, crafting, healthy et al. courses
T4	28	Male	Bachelor's degree, significant in social work	Garbage classification course
T5	42	Female	Bachelor's degree, Hotel Management	Cooking, crafting, healthy et al. courses Photography Course
T6	29	Male	Master's degree, significant in art design	

Research interviewers were notified that the study promised them complete confidentiality, in that at no point will their identity be revealed in the writing outcomes, and that the interviews were to be recorded in an encrypted format, not kept on cloud storage. The guide for the semi-structured interviews was as follows, reproduced in Table 2.

Table2: Semi-structured interview guide

What courses do you teach for older adults?
Can you share courses related to ICT education?
What difficulties did you encounter in teaching?
How much does this course account for the total workload?
What benefits can the courses bring to work?
How do you comment on the ICTEP?

There were two stages of collecting the qualitative data.

Four teachers were interviewed in the first stage, including three females from October 2021 to February 2022. Based on the familiarity with the researcher, the four teachers were selected. The interview method is through informal interviews to understand the recognition of policy and daily work process.

In the second stage, six teachers were interviewed from December 2021 to February 2022, including four in the first stage. According to the research findings of the first stage, the interview outline is designed mainly for the three dimensions of belief, desire, and alief. Through the formal interview, six teachers were interviewed one by one. Finally, the qualitative data from interviews were analyzed to determine the influential factors to answer research questions.

## 4. Findings

### 4.1. Belief-implementation

The belief of implementors can promote policy implementation (Heineman et al., 2011, p.59). The teachers' belief in the policy can be expressed as acceptance, recognition, and support. (Liu, 2020). Even on the policy research using the top-down approach, teachers' understanding and recognizing policy are the key factors of policy implementation (Fowler, 2013, p.206). Moreover, the street-level bureaucrats should have enough beliefs to guarantee to achieve the policy goals (McLaughlin, 1987; Piacentini, 2015).

As we all know, teachers with higher education levels can easily accept and identify the policy. In this study, teachers with master's degrees generally understand the policy well. After reading and discussing it, they can realize the policy's value and guide their work. Interviewers marked T2 with a master's degree commented on the ICTE policy in this way:

We will work by the current policies, such as the intelligent finance course held this time. That is, it has brought new and different job opportunities. The state will offer financial courses related to the elderly in the next plan. We will continue to do this work, although it will cost us much time. (2-B-4)

On the contrary, teachers with bachelor's degrees or high school degrees generally think the policy is irrelevant. Most of them hold that national policies are very far from their work and life. They do not care about the policy, even if they implement the policy's provisions. Then, these teachers' understanding, or recognition of the policy mainly comes from the work arrangement of learning institutions.

Furthermore, the effort of learning institutions can make up for this gap of teachers' education attained. If directors pass relevant documents to teachers and require them to read, teachers will try to achieve it. One of the undergraduate respondents has a better understanding of ICTEP due to the requirements from the learning institution. She can say the general content of the policy and understand its significance. The role of the learning institution to increase policy acceptance and identification of teachers has not been highlighted accordingly.

## 4.2. Desire-implementation

Based on the theory of stakeholder, the implementation of education policy fills with the exciting game, which is a complex process full of continuous transactions, negotiations, and political interaction (Hill, 2001, p.129). Whether the desire or interest of the executor is met determines the effect of policy implementation, the desires are consenting various factors, including promotion post, salary increase, honor and opportunity (Shi, 2015).

Firstly, most learning institutions did not evaluate the ICT coursework. It means that for teachers, ICT course is unnecessary compared with those courses that must be implemented, such as the health course (Ma & Rong, 2019). Even carrying out the ICT course, the work evaluation of teachers is not benefited. For most learning institutions, learners' complaints are essential to work evaluation. It put learners' preference on the crucial stage, especially in the private institution. Based on that evaluation system, entertaining courses are more likely to be praised, such as singing, cooking, craft. Besides, some teachers defined this evaluation system as fewer courses fewer complaints. Thus, even funds are sufficient. The ICT education course is not a priority. Interviewer T4's experience can show this:

The courses we offer for the elderly do not specifically in documents. There is not a particular course which must be offered. Nevertheless, courses or activities must be organized every month and every festival. Even if the work is average, there will be no problem. The most important thing in work is not to make mistakes and no complaints. (4-D-2)

Secondly, the relevant working resources are often ignored. Those teachers who have implemented the ICL education curriculum encountered two problems they had not predicted. The first is the lack of suitable teaching equipment. ICT course teaches older adults how to use smartphones or other intelligent platforms. It needs teachers to show the application way step by step. It requires a big screen to make every learner watch it clear, especially most of the learners' eyesight is weak.

Another problem is that the learning characteristics of older adults are neglected. In the process of teaching, elderly learners' reaction is relatively slow. Thus, they need additional guidance from teachers or teaching assistants during the teaching process. That requires more teachers or teaching assistants in class to help them on time. In the study, many teachers do not consider this when preparing courses.

Finally, a sense of honor can bring satisfaction to teachers. While the ICT course does not promote and increase salary, teachers can be encouraged by social affirmation or others' appreciation. In the interview, teachers often mention honor. They have gained social recognition by recording and sharing their courses, inspiring them to continue to engage in this work. However, they are encouraged by the honor, which comes from positive recognition, such as newspapers internet websites.

## 4.3. Alief-implementation

The alief is a mental state which is representational, affective, and behavioral. It was first proposed by Tamar Szabó Gendler, a professor of philosophy at Yale University, in 2008.

It is consciously or unconsciously activated by the internal or environmental characteristics of the subject (Gendler, 2008; Zhu, 2019). As the implementation is negotiated between implementors and clients, teachers' mental states are easily affected by learners (Honig, 2016). Students' performance in the classroom will change the teacher's predetermined teaching plan (Lin, 2015, p.642). At the same time, the study found that teachers' mental state is influential when older adults tell the difficulties due to a lack of ICT knowledge.

Firstly, empathy is the most potent factor in promoting ICT education courses. As there are no mandatory requirements in the specific implementation of the policy, teachers' empathy has become the driving factor to implementation it. Teachers with empathy are more concerned about the living conditions of the elderly, so they can implement courses to meet the needs of the elderly. In the study, T1 started teaching ICT courses before issuing the policy as the empathy factor. The reasons for implementing this course are as follows:

When we went to the older people's house, he told us that he rejected going to the museum. Because he and his wife did not know how to scan the health code through smartphones, he said he did not ask for help as he did not want to bother other people (1-A-1).

On the other hand, the poor performance of learners plays a negative role. Due to the strong voluntariness of third age education, the elderly chooses the learning courses according to their preferences. If learners are unwilling to participate in ICT educational courses, it is hard for teachers to implement relevant policies. We told the older people about it (ICT course), but they had little interest. Less than ten older adults attended the first class, and we think this should be what they need. However, the process of the class is not ideal. Another reason is that the elderly does not want to learn because this class is boring and not as attractive as other courses. (3-A-3)

Moreover, if learners' performance does not meet teachers' expectations, they will have self-doubt about whether they are qualified for the course. Teachers' emotions weaken teachers' teaching motivation and make it difficult for them to continue teaching. Thus, the implementation of ICT will face stagnation.

Since the COVID-19, many services have been transferred online. The situation of older adults is more vulnerable as they lack ICT knowledge (Brooke & Jackson, 2020). Importantly, implementing policies is the most powerful strategy to promote ICT education for them. However, despite the growing interest in ICT research, there have been few studies on the implementation process of ICTEP. This study is qualitative to analyze the factors influencing teachers' behavior to implement the ICTEP. From the study, three recommendations submit. Firstly, learning institutions should deliver and express policies, even if they are available online. Secondly, the features of ICT education should consider the faculties and suitable equipment. Last but not least, cultivating an age-friendly environment is crucial for ICT education and the aging society. Teachers and other citizens should be aware that caring for the elderly is caring for themselves in the future.

## 5. Conclusion

The limitations of this study should be considered when using these findings. Firstly, the research sample size was small, considering the size of the teachers in Chinese U3As. Second, other factors may influence older adults' behavioral intentions besides the factors discussed in this research. Third, on the research of implementation process, only teachers were invited for interviews. The learners, directors, and relevant officials should be considered in future research.

## Funding

This study received no funding.

## Conflict of Interests

The authors declare no conflict of interest in this study.

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