

# Evaluation of a Career Resiliency Intervention for Special Education Teachers in China: Effects of Healthy Teachers Program

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**Background/Objective:** This mixed-methods research aimed to examine the impact of the *Healthy Teachers Program* (HTP) on special education teacher career resilience.

**Methods:** Forty special education teachers recruited from Jilin, China, were randomly assigned to the intervention group (n =20) and the control (n =20) group. Data were collected using self-report questionnaires. The intervention group was taught eight program lessons by a school psychology teacher, which covered topics related to understanding career resilience, supporting self-awareness, changing career goals, and establishing interpersonal relationships. The researchers statistically analyzed the data collected at three-time points with repeated-measures analysis of variance and also conducted the focus group method to collect qualitative data for the social validity of HTP.

**Results:** The HTP positively influences the career resilience of special education teachers and has a high degree of social validity in the social significance of the goals and the social importance of the effects but an insufficient degree in the social appropriateness of the procedures. The findings of this study indicate the feasibility and applicability of the HTP to enhance the career resilience of teachers and its limitations in Chinese special school settings.

**Conclusion:** The health teachers program can effectively improve the career resilience of special education teachers and has a high degree of social validity.

**Keywords:** career resilience, intervention program, Chinese special education school teachers, social validity

## Introduction

Previous research has indicated that Chinese special education teachers are vulnerable to mental health issues like depression, anxiety, and job burnout.<sup>1-3</sup> Special education teachers were at a higher risk for mental health issues than the national norm.<sup>4</sup> Compared with ordinary teachers, special education teachers who serve special children with physical and mental disabilities are more likely to suffer from greater pressure and burnout.<sup>5,6</sup> As a result, it is hard for them to obtain a sense of career achievement and satisfaction from students, and it is also easy to overconsume emotional resources excessively.<sup>7-9</sup>

Several international programs exist to improve special education teachers' mental health. Based on Rational Emotive Behavior Therapy (REBT) and mindfulness training (MT), these programs are efficacious in preventing mental health problems among teachers in special education schools.<sup>10-13</sup> However, it is difficult to systematically implement such programs within the school system because of the stigmatization of mental health problems in mainland China.<sup>14</sup> In addition, due to the lack of supportive resources and policies and the heavy workload of teachers, few teachers can attend the whole process of mental health intervention programs.

London defined career resilience (CR) as person's resistance to career disruption in a less than optimal environment "(p. 621).<sup>15</sup> It emphasizes that individuals can also be positive when dealing with work difficulties, overcoming difficulties, and going out of adversity.<sup>16</sup> CR is negatively associated with individuals' mental health issues, and it is

helpful to individuals who release work pressure and adapt to the working environment flexibly.<sup>17–19</sup> Researchers regarded career resilience as a changeable, extensible, expandable psychological ability or advantage that can be cultivated or developed.<sup>20,21</sup> They mainly use career counseling methods such as Career Stories,<sup>22</sup> Career Construction Interview,<sup>23,24</sup> Active Listening,<sup>25</sup> the cognitive reappraisal of stress situations<sup>26,27</sup> and other psychological and behavioral strategies based on positive psychology<sup>28</sup> to improve career resilience. However, CR is a complex phenomenon involving individual characteristics and context interaction.<sup>29</sup> These interventions focus on individuals and do not provide specific information about the interaction between individuals, families, and communities.<sup>30</sup>

The Career Resilience Framework (CRF) is a belief system for career development practitioners. In the context of CRF, they can help clients with career development obstacles by focusing on four main themes: (a) theme acceptance, (b) support for self-awareness, (c) conversion, and (d) connection.<sup>31</sup> Theme acceptance denotes actively promoting resiliency theory throughout the organization by establishing policy and staff professional development strategies around the resiliency theme. Through these policies and professional development opportunities, employees can better deal with stress and any career-inherent change processes. Support for self-awareness refers to selecting or modifying career counseling processes or tools that improve the clients' deep inner understanding of their core "values and interests". Values and interests are fundamental components that must be considered when seeking to cultivate resilience. Conversion denotes helping clients identify and overcome barriers to convert their dreams into career realities—action planning through intrinsic motivation. Achieving this goal requires enhancing individuals' intrinsic motivation, which encourages the development of action plans that enable them to overcome obstacles that may hinder their career goals. Connectedness refers to fostering a sense of community within a work environment and encouraging meaningful interactions among individuals.<sup>32</sup> Through this connection, clients can better cope with daily sources of stress related to employment conditions, are more likely to develop strong problem-solving skills and grow professionally.<sup>31</sup>

The CRF can guide career development practitioners to select career counseling models and intervention methods and create environments in which clients can be truly motivated, build relationships, explore work possibilities, make decisions, set goals, and create action plans.<sup>31</sup> Because of the complex working environment and working requirements that special education teachers often face, CRF may be particularly useful in studying the career development of special education teachers.<sup>33</sup> Although many career development centers have successfully applied some themes of the CRF model, there needs to be empirical research to systematically explore the application of CRF in the special education teacher population.

Guided by the CRF and the actual working environment of Chinese school settings, the researchers promoted *Healthy Teachers Program* (HTP) to improve the career resilience of special education teachers. The researchers first translated the relevant materials into Chinese to better understand the four themes of CRF. Then, the researchers integrated the CRF with the specific content of previous intervention studies,<sup>34</sup> flexibly adjusted and implemented the intervention plan based on the working environment of Chinese special teachers, and prepared the intervention content of HTP. For example, due to the frequent raids by relevant government departments on school safety, teaching, catering, and other work, some school leaders or teachers must participate in the entire process. As a result, HTP courses need to be adjusted or delayed. The program aims to improve special education teachers' career resilience, self-consciousness, and interpersonal communication ability. Moreover, encourage them to have a strong awareness of their career goal, obtain more social support, and establish more harmonious interpersonal relationships.

The researchers used the HTP's courses on career resilience (see Table 1) and intended to examine the impact of the HTP on special education teacher resilience in this study. We adopted a total of eight sessions as the intervention program. Each section was approximately 45 minutes long and was taught once per week. Researchers hypothesized that special education teachers who completed HTP would show (1) increased career resilience and its maintenance effect, (2) a high degree of the social validity of HTP.

## Methods

A pretest, posttest, and follow-up test randomized control group design was used to determine whether completing the HTP would increase special education teachers' career resilience and whether the effects would last over time.

**Table 1** Career Resilience Lessons of HTP for Special Education Teachers

Themes of CRF	Intervention Session	Session Title	Example of Session Contents Introduction	Materials Lesson Plan
Theme acceptance	Lesson 1	What is career resilience?	The introduction of career resilience	Materials of career resilience
	Lesson 2	How to deal with the stress of work?	Stress identification and emotion management	Stress and emotional assessment tools
Support for Self-Awareness	Lesson 3	How to know yourself at work?	Support self-awareness and cultivate career interests	Pictures related to teachers' daily job
	Lesson 4	How to know and establish career values?	Tear up negative self-labels and build career values	"Negative self-labels" Worksheet
Conversion	Lesson 5	How to develop career goals and build a mutual help platform?	Share teaching experiences and build a peer support platform	"Tell us your teaching stories" Worksheet
	Lesson 6	What are growth incentives?	Improvement of self-growth	Metaphor play
Connectedness	Lesson 7	What is the base of interpersonal communication?	Using the theory of interpersonal relationships in the work environment	Interpersonal relationship Worksheet
	Lesson 8	How to build a good Interpersonal relationship	Case analysis	Interpersonal relationship cases

Researchers collected the three-time test data in November 2020, January 2021, and March 2021. In addition, one week after finishing the intervention, focus group interviews were conducted to collect the experience and feelings of teachers from the intervention group to obtain qualitative data on the social validity of HTP.

## Statements of Ethical Consideration

This study was approved by the Ethics Committee of Beihua University (No: 20200928) on September 28th, 2020. All study procedures involving human participants followed the ethical standards of institutions and the national research committee, the 1964 Helsinki Declaration, and its subsequent amendments or similar ethical standards. In addition, all participants in the study provided written informed consent before participating. All the participants were given a capital letter (eg, A, B, C, etc.) during the interview, and their confidential data will be published using the letter to protect their identity.

## Participants

The participants were 46 special education teachers (7 males, 39 females) aged 26–55 years from special education schools in Jilin Province, China. They had previously participated in an extensive sample survey on the career resilience of special education teachers.

However, six teachers withdrew from the study due to work or family changes (such as business trips, sick leave, and the need to pick up their children from school in advance).

After excluding these incomplete data from analyses, a total of 40 teachers (5 males, 35 females) were included as participants, of whom 20 were randomly allocated to the intervention group (2 males, 18 females) and 20 to the control (waitlist) group (3 males, 17 females). All teachers had complete data at three time points (see Table 2).

## Measures

### Career Resilience Scale (CRS)

The Career resilience scale (CRS), a 21-item scale developed by Chinese researchers, comprises six subscales that relate to different aspects of career resilience: (1) career initiative- exploring the development trend of the field and seeking better task assignments in work, (2) career vision- A clear career goal, clear direction, and clear understanding of what skills you have and how much value you can bring to the company, (3) learning ability- the ability to continuously learn new knowledge and professional skills by participating in professional meetings, reading books, etc., (4) achievement motivation- undertaking challenging work, (5) psychological resilience- controlling emotions, facing difficulties and not

**Table 2** Distribution of Basic Demographic Variables in Intervention and Control Group

	Gender		Age			Total
	Male	Female	26–35	36–45	Above 45	
Intervention group	2	18	5	10	5	20
Control group	3	17	5	11	4	20

being easily defeated by setbacks, and (6) flexibility- welcoming changes in work or organization and being willing to work with a wide range of people.<sup>35,36</sup> Teachers rate each item on a Likert 5-point scale ranging from 0 (never) to 4 (always). The total score of the CRS represents the “career resilience” variable. The higher the total score of CRS, the better the individual’s career resilience. In this study, the CRS scale displayed good internal consistency (Cronbach’s  $\alpha = 0.80, 0.90$ , and  $0.89$  at the pretest, the post-test, and the short-term follow-up test, respectively).

### Qualitative Measures of Teacher’s Focus Groups

Social validity studies analyze the social relevance of public health intervention goals, the appropriateness of their strategies, and the social significance of their impact, as perceived by the target audience, including the participants and the facilitators of the intervention.<sup>35</sup> One quality indicator of intervention research is the extent to which the intervention has a high degree of social validity or practicality.<sup>37</sup> In 1978, Wolf proposed a three-part framework for validating the social importance of interventions. In the framework, Wolf posited that intervention goals must be what society wants; procedures must be considered acceptable and feasible, and consumers should be satisfied with the intended and unintended effects.<sup>38</sup> Qualitative designs are well-suited for examining social validity as they are based on ascertaining consumers’ perceptions in authentic contexts and also help researchers uncover unanticipated findings or further exploration.<sup>37,39</sup>

In this study, the researchers drew on Wolf’s framework for social validity. They used qualitative data to ascertain intervention group teachers’ perceptions and experience of attending the program to obtain the social validity of the HTP. Based on previous research on social validity,<sup>37,40</sup> we designed the content of focus group interviews. The questions of which are listed in Table 3.

## Procedures

### Intervention Procedures

After obtaining ethical approval from the ethics committee of the researchers’ university, the researchers contacted principals from five special education schools and explained the program. Then, the researchers invited these schools to participate in the study and received replies from the principals. Ultimately, all special education schools took part in the study. Researchers explained the purpose of the HTP to the research assistants and asked them to assist special education teachers in completing the tasks in the whole process of HTP. After the participants understand the purpose of the study and respond to their informed consent, researchers implement HTP formally.

In addition, the researchers adapted the materials of CRF to improve their applicability to Chinese culture and special education schools.

**Table 3** Teacher Focus Group Interview Content

Wolf’s Framework for Social Validity	Questions of Teachers’ Focus Groups
The social significance of the goals	1) How important HTP is to you?
The social appropriateness of the procedures	2) What do you believe that the value of HTP is?
The social importance of the effects	3) What was your experience during the entire intervention process?
	4) What contents or modules do you think are not suitable for special education teachers?
	5) What are the advantages of participating in HTP for you?
	6) Will you continue to use what you learned from HPT in the future? Why?

Career-resilient characters denote some psychological traits, including coping with problems and changes, social skills, interest in novelty, optimism about the future, and willingness to help others cope with risks and facilitate career development.<sup>41</sup> The researchers incorporated these psychological traits into the intervention program to help teachers understand the concept of career resilience. To provide HTP content to special education teachers, the research implementers should encourage them to share their professional development experiences. The second author (a school psychology teacher) and two research assistants completed all courses during the weekly teacher's group activity time (the sixth and seventh classes). Two research assistants were both graduate students of mental health education. The lessons covered eight units from the Healthy Teachers Program Achieve Career resilience lessons for special education teachers.

### Data Collection Procedures

Owing to the school's schedule, we administered the pretest questionnaire to the intervention and control groups in November 2020, one week before the program began (Table 3; Time 1). One week after the program ended in December 2020, all special education teachers participating in this study completed the post-test questionnaire (Table 3; Time 2). Finally, two months after the end of this program, in March 2021, they completed the short-term follow-up questionnaire task (Table 3; Time 3).

To obtain the social validity of HTP, most teachers (3 males, 9 females) in the intervention group accepted the invitation and agreed to participate in a one-hour focus group. Due to the teachers' daily schedule inconsistency, focus groups were conducted with teachers in small groups (three focus groups; four teachers per group) to obtain information about their opinions about the HTP. All discussion of focus groups was recorded and transcribed into electronic text.

### Data Analysis

Researchers carried out all quantitative data analyses using IBM SPSS Statistics version 21.0. First, the researchers conducted preliminary analyses to ensure the groups were homogeneous at the pretest. The standard of homogeneity was that there was no significant difference between the two groups regarding gender, age, and career resilience. Next, repeated measure ANOVA was used to compare changes in the two groups' career resilience at three-time points.

Researchers evaluated the social effectiveness of HTP by analyzing the experience and beliefs of special education teachers, following the six steps recommended by Braun and Clark for qualitative analysis:

1. Read and become familiarized with the data;
2. Generate initial codes in a systematic method;
3. Identify themes based on available codes;
4. Review codes and themes for accurate data representation;
5. Define and name themes;
6. Select vivid examples to illustrate the findings.<sup>42</sup>

Two research assistants transcribed verbal data into a written format and conducted a thematic analysis. Any information about the participant's identity, such as their name and location, was deleted to ensure respondents' privacy and the coding team members' objectivity.

## Results

### Preliminary Results

A chi-square analysis revealed no significant differences in gender distribution between groups,  $\chi^2 (1, n=40) = 0.229$ ,  $p=0.633$ , and there were no significant differences in age distribution between groups,  $\chi^2 (1, n=40) = 0.159$ ,  $p=0.924$ . Furthermore, the *t*-test for analyzing group differences in the pretest indicated there were significant differences between the two groups in all but one subscale of CRS (career initiative:  $t (38) =0.952$ ,  $p =0.347$ ; career vision:  $t (38) =0.670$ ,  $p =0.507$ ; learning ability:  $t (38) =0.269$ ,  $p =0.790$ ; achievement motivation:  $t (38) =1.250$ ,  $p =0.219$ ; psychological

resilience:  $t(38) = 1.288, p = 0.125$ ; flexibility:  $t(38) = -3.953, p = 0.0347$ ; career resilience:  $t(38) = 0.511, p = 0.612$ . These results showed that the intervention and control groups were homogeneous in CRS in the pretest.

Next, the researchers tested whether the sample met the assumptions for repeated measure ANOVA and found that the findings met the assumptions of normality and homogeneity of the variance. Thus, researchers performed all subsequent analyses requiring a repeated measure ANOVA.

## Intervention Effects

### The Increased Career Resilience and Its Maintenance Effect

Table 4 presents the means, standard deviations, and significance testing for the intervention and control groups across time. In addition, a repeated measures ANOVA was carried out to examine the pretest, post-test with short-term follow-test changes in the performance of both groups on all dependent measures.

This analysis confirmed that there were significant differences in all but one subscale score of CRS between the intervention group and the control group (career initiative:  $F(1,38) = 2.738, p = 0.069$ ; career vision:  $F(1,38) = 10.341, p = 0.003$ ; learning ability:  $F(1,38) = 5.329, p = 0.027$ ; achievement motivation:  $F(1,38) = 18.102, p < 0.001$ ; psychological resilience:  $F(1,38) = 21.112, p < 0.001$ ; flexibility:  $F(1,38) = 11.338, p < 0.001$ ; career resilience:  $F(1,38) = 14.721, p < 0.001$ ). However, these results showed that in terms of career vision, learning ability, achievement motivation, psychological resilience, flexibility, and career resilience, the intervention group scored significantly higher than the control group.

The results of repeated measures ANOVA showed that the main effect of test time on flexibility was significant,  $F(2,76) = 10.014, p < 0.01$ . The post hoc test showed that the flexibility of T1 was significantly lower than those of T2 (mean diff: 0.575,  $p = 0.001$ ) and T3 (mean diff: 0.475,  $p = 0.005$ ), but the difference between the two post-tests was not significant. The result showed that the intervention could improve the flexibility of the participants, and this change can be maintained until about two months after the intervention.

The interaction effect between test time and groups was significant,  $F(2,76) = 23.114, p < 0.001$ . A simple effect analysis was further conducted, and the results showed that the flexibility of the intervention group on T2 ( $t = -6.296, p < 0.001$ ) and T3 ( $t = -8.342, p < 0.001$ ) were significantly higher than T1, and the flexibility scores between T2 and T3 were not significant. The flexibility of the control group was similar at the three-time points. Although the flexibility of the control group scored significantly higher on T1 than the intervention group ( $t = -3.947, p < 0.001$ ), the flexibility of the intervention group scored higher on T2 ( $t = -2.686, p = 0.008$ ) and T3 ( $t = -6.323, p < 0.001$ ) than the control group, as

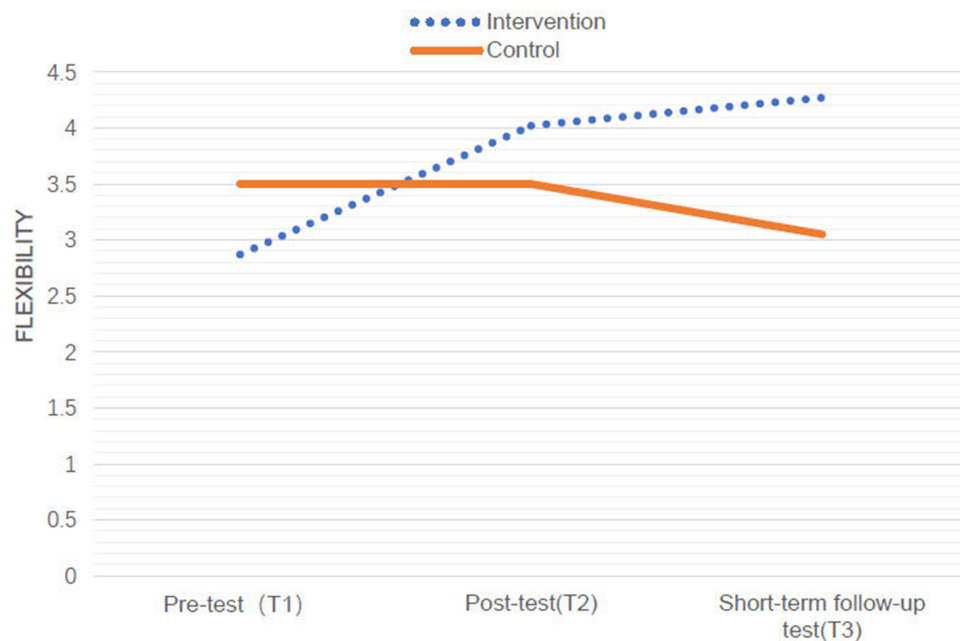
**Table 4** Means, Standard Deviations, and Significance Tests for the Intervention and Control Groups Across Time

CRS	Group	Time			F		
		T 1	T 2	T 3	T	T × Group	Group
Career initiative	IG	4.00±0.87	4.00±0.51	4.13±0.63	0.604	1.644	2.738
	CG	3.78±0.52	4.07±0.61	3.71±0.48			
Career vision	IG	3.93±0.90	4.20±0.62	4.37±0.49	1.121	0.720	10.341**
	CG	3.77±0.66	3.78±0.78	3.82±0.67			
Learning ability	IG	3.98±0.86	4.20±0.68	4.55±0.53	2.039	1.745	5.329*
	CG	3.91±0.70	4.00±0.75	3.95±0.41			
Achievement motivation	IG	4.08±0.74	4.28±0.46	4.40±0.47	0.606	0.968	18.102***
	CG	3.83±0.50	3.87±0.77	3.78±0.42			
Psychological resilience	IG	4.02±0.81	4.22±0.58	4.28±0.44	0.095	0.939	21.112***
	CG	3.72±0.66	3.65±0.86	3.55±0.70			
Flexibility	IG	2.87±0.50	4.02±0.64	4.27±0.56	10.014**	23.114***	11.338***
	CG	3.50±0.51	3.50±0.61	3.05±0.78			
Career resilience	IG	3.84±0.58	4.13±0.48	4.30±0.43	1.874	3.440*	14.721***
	CG	3.76±0.45	3.85±0.57	3.65±0.40			

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

Abbreviations: CRS, Career resilience Scale Spence; IG, Intervention Group; CG, Control Group.





**Figure 1** The change of flexibility across time.

shown in Figure 1. These results showed that the improvement of flexibility in the intervention group mainly caused positive changes in flexibility.

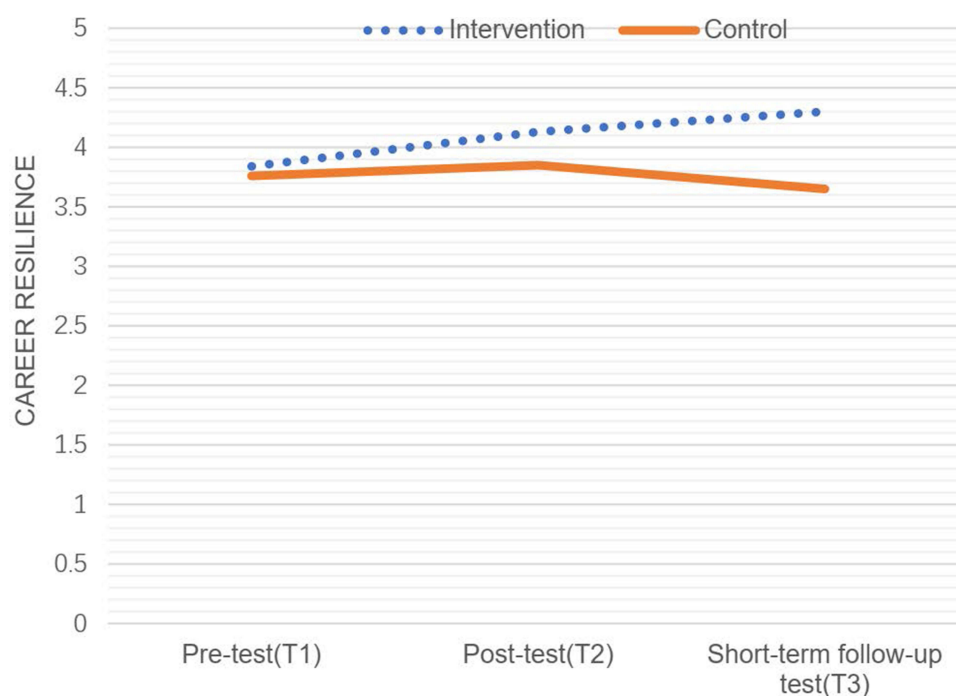
The results of repeated measures ANOVA showed that the main effect of test time on career resilience was insignificant. The interaction effect between test time and groups was significant,  $F(2,76) = 3.440$ ,  $p = 0.037$ . Simple effect analysis showed that the intervention group scored significantly higher on the total score of career resilience in T3 than T1,  $t(38) = -2.884$ ,  $p = 0.006$ , and there was no significant difference between the career resilience score in T2 and T3. There was no significant difference in the total score of career resilience in the control group at the three-time points. The average total score of career resilience in T3 of the intervention group was significantly higher than that of the control group ( $t = -4.212$ ,  $p < 0.0005$ ), as shown in Figure 2. The results indicated that HTP could significantly improve the career resilience of the intervention group, and this maintenance effect can last until two months after the intervention.

### The Social Validity of HTP

A summary of qualitative results regarding the social validity of HTP was displayed in Table 5, including themes about the social significance of the goals, the social appropriateness of the procedures, and the social importance of the effects.

### The Social Significance of the Goals

Most teachers expressed their high acceptance and satisfaction with HTP. They believed that the program had broadened their horizons and increased their understanding of and ability to cope with problems in their career development. “The objectives and contents of the program are clear and professional”. (Teacher F). “I was lucky to insist on participating in this program. The content was exciting and meaningful, so there was a high attendance rate. If there is such an opportunity the next time, my other colleagues also want to participate” (Teacher H). “I heard about the concept of career resilience for the first time through a program. It is of great importance for our special education teachers to cultivate the ability of career resilience”. (Teacher D). “The curriculum design is very reasonable. The problems teachers encountered in the examples are my problems in my daily work”. (Teacher A). “This is the first time I have participated in a program related to career confusion, and I think it is very beneficial for me”. (Teacher K). “It is necessary to deal with some related issues in the early stage of career development in the future, such as career vision, work pressure, and interpersonal relationship between colleagues”. (Teacher E).



**Figure 2** The change of career resilience across time.

## The Social Appropriateness of the Procedures

Most teachers expressed their high acceptance and satisfaction with the procedure of HTP. They believed that HTP is a feasible and well-designed program that can be implemented in China's special education schools. "This is a structured program. Every theme and activity are related, which I like very much". (Teacher F). Teacher H said:

Unlike ordinary teachers, as special education teachers, we have to face students with various disabilities every day, and sometimes we cannot communicate with students or appropriately guide students. Therefore, We need to participate in more professional programs like HTP.

"I feel that I can completely relax in the relaxing setting and methods in HTP and establish a relationship of mutual trust and support with other unfamiliar colleagues". (Teacher H). "My greatest gain is the learning process to support the development of self-consciousness, in which we can re-recognize ourselves and understand our potential in the interaction process". (Teacher E). "In the process of label tearing, I can truly feel the negative emotions in my work, explore my own internal need, and re-establish my personal, professional attitude". (Teacher A).

**Table 5** Summary of Qualitative Results About the Social Validity of HTP

Themes	Codes	Findings
The social importance of the goals	<i>Acceptance of the goals</i> <i>Satisfaction of the goals</i>	Teachers reported high level participation and involvement with HTP. Teachers viewed HTP as highly applicable to daily life, representing real scenarios and potential situations that they might have to face.
The social appropriateness of the procedures	<i>Acceptance of the procedures</i> <i>Satisfaction of the procedures</i>	Teachers perceived HTP as well-designed to enhance teachers' career resilience in Chinese special education school. Some teachers reported challenges in participating in the program, such as a schedule conflict, so many tasks, the online courses, and the school's concern and support for the program.
The social importance of the effect	<i>Acceptance of the effect</i> <i>Satisfaction of the effect</i>	Teachers reported positive changes at work or in daily life after finishing HTP. Teachers reported high satisfaction with the experience of participating HTP and showed high willingness to continue using what they learned from HTP program in their future working life.



In addition, teachers mentioned some issues that affect the procedures or implementations, such as the time conflict, the complexities of program implementation, and other factors that restrict the program's effectiveness. For example, "the eight-week long timeline (one lesson per week) or the schedule posed some challenges". (Teacher H). "Teachers usually participate in the program after finishing class, so we had to manage the time to address overlapping school activities". (Teacher B). "There are too many tasks to do, and I am sorry for always being late". (Teacher N). "Because of our heavy work task and limited time, if the school fails to provide support, it may be rare to participate in the future. Whether some activities in this program can be carried out online?" (Teacher M). "The program duration is too short, which is not conducive to teacher's understanding and experience. Can HTP add more class hours in the future?" (Teacher D).

## The Social Importance of the Effects

Teachers provided positive feedback about the effects of HTP, perceiving it to be a valuable and effective program that can help teachers understand and cope with difficulties encountered in their professional development. "By building a mutual aid platform in HTP, we can discuss with each other when encountering difficulties, which has strengthened my confidence and social support in daily work". (Teacher G). "We can get more strength and new guidance from the program". (Teacher I). "My experience with HTP was very positive, which helped me cope with stress and negative emotion". (Teacher B). "Teachers perceived changes in their work, such as improving their skills for connecting with the students, colleagues, and leaders". (Teacher J). "The program was a decisive experience for me in my life. Because it was the first time unfamiliar colleagues put forward some objective suggestions face to face, I feel warm from the bottom of my heart so that my relationship in the school environment has been significantly improved". (Teacher H). "I found my problems by learning interpersonal communication theory in HTP. The program helped people to learn how to establish good interpersonal relationships". (Teacher F).

Some teachers reported future applications of HTP. For example, there were statements such as "The program should be implemented for all teachers at their start of career development" (Teacher H) and "I would like to learn more about career resilience in the future". (Teacher K). "The experience of participating in HTP has helped me to establish a good friendship with my leader and colleagues. I hope this course will continue". (Teacher B). Through learning in HTP, I recognized that I only cultivated my children's ability and ignored their resilience at work or in daily life". (Teacher L). "The emotional regulation strategies in HTP made me understand that it is normal to generate emotions in teaching, which is not a problem. What is important is my opinion and evaluation of my teaching and how I should properly adjust my emotions". (Teacher F).

## Discussion

This study evaluated the effect of an intervention program designed based on Rickwood's career resilience framework on improving the career resilience of special education teachers. The intervention results showed that: compared with the control group, the career resilience of special education teachers participating in the HTP was significantly improved, and the intervention effect of the two indicators of flexibility and total score of career resilience could be maintained for two months after the end of the intervention. In addition, HTP has a high degree of social validity.

## The Increased Career Resilience and Its Maintenance Effect

The researchers found that HTP can significantly improve the career resilience of teachers in special education schools, and its maintenance effect, including the total score of CRS and flexibility, can last for two months at least. This finding is not surprising. Although the intervention strategies adopted in this study are slightly different, this intervention plan also involves several essential characteristics of career resilience like other similar studies:<sup>43-45</sup> (a) ability to cope with problems and changes, (b) social skills, (c) interest in new things, (d) optimism about the future, and (e) willingness to help others.<sup>46</sup>

Improving flexibility and social skills can be enhanced through internal and external resources and continuous reflection related to participation and personal practice. It can be considered one of the most effective strategies to prevent changes in work life from hindering career development.<sup>46,47</sup> The intervention content of this study fully mobilized internal (individual motivation, desire, growth background, and experience) and external resources (school

environment, interpersonal support). It guided teachers to reflect on the whole process continuously. Therefore, the intervention group had more significant changes in the dimension of flexibility. In addition, we found significant differences in the flexibility dimension between the two groups in the pretest. The reason may be that we did not control demographic variables such as school and major when randomly assigning subjects. To ensure a sufficient sample size for the two groups, we did not consider the inter-group difference in flexibility in the pre-test”.

We found that the impact of HTP on career initiatives was insignificant. The career initiative subscale is to explore the development trend of the field and seek better task assignments in work. Compared with Western countries, China's inclusive education is just beginning. So far, the mainstream and special education schools are still in a state of separation. In addition, the probability of most special children continuing their education is very low, and their future development is also very rigid. Therefore, teachers' daily work schedules and tasks in special education schools are similar, full of challenges and difficulties, and relatively dull. They have feedback on content involving “professional initiative”, but the effect is insignificant. In addition, due to the inability to change the actual issues related to career initiative (heavy workload, many problems with exceptional children, heavy inspection tasks), our HTP plan is more inclined to improve teachers' cognition and interpersonal relationships. This is also one of the reasons why HTP has no significant impact on career initiatives.

## The Social Validity of HTP

The researchers drew on Wolf's framework for social validity in this study. We used qualitative methods to ascertain 12 special education school teacher's perceptions of the social validity of HTP who came from the intervention group. Based on the sub-components of social validity in Wolf's framework,<sup>37</sup> special education teachers perceived the goals and outcomes of HTP to have a high degree of social validity. Furthermore, despite the social validity of the procedures having some problems, all teachers expressed a strong desire to continue participating in the program. There may be three reasons. First, teachers believe participating in HTP is more beneficial to them. Most teachers reported that they were more active in their work, had more precise goals, and could deal with work and interpersonal problems more flexibly. Second, teachers believe that the difficulties in the procedure they face are temporary and can be solved in the future, but it may take time. Third, the principals of several special education schools involved in this study attach great importance to teachers' physical and mental health and encourage teachers to participate in similar mental health promotion plans.

## Limitation

This exploratory study has several advantages, including a high participation rate, a clear theoretical framework, and a high degree of social validity. However, this study still has several limitations. Firstly, the assessment tool of this study is relatively simple, and only the Career resilience scale (CRS) is selected to quantitatively assess the changes in the level of professional resilience of special education teachers, lacking more detailed qualitative assessment data support such as later observation or interview. Secondly, all the evaluation data are self-reported, and the results may be influenced by social expectations, with deviation. Thirdly, due to the difficulty in collecting follow-up data caused by the epidemic situation of COVID-19, this study only collected short-term follow-up data 2 months after the end of the intervention course and could not continue to track the long-term maintenance effect. Forth, although the HTP is designed based on the theoretical framework proposed by Rickwood, we cannot guarantee that the intervention content is entirely consistent with the theoretical framework. Although Sotomayor, A. E. compiled the Special Education Career Resilience Scale (SECRS) based on CRF, the psychometric characteristics of the scale could have been better.<sup>33</sup> Therefore, we adopted the CRS compiled by Chinese scholars, which is developed based on open-ended interviews with Chinese people with high and low career resilience. Future researchers need to develop tools more suitable for the CR of Chinese special education teachers based on CRF. In this way, verifying the consistency between the intervention plan and CRF may be more beneficial.

Moreover, special education teachers have heavy work tasks, and the intervention group members need more time and energy to share a more profound experience. The frequent occurrence of unexpected events in the school will affect the program's progress. For example, during the program implementation, the intervention course of

this week had to be canceled due to the sudden teaching inspection. Influenced by social approval, special education teachers may be more inclined to give positive feedback when participating in the focus group, thus affecting the social validity of the HTP. Finally, the sample size of this study is small. Of the initial 46 participants, six withdrew from the study. Researchers excluded these incomplete data from the statistical analysis. In order to ensure the implementation of the program, considering the workload and time conflict of special education teachers, it is also impossible to allocate the intervention group and the control group teachers by random sampling. In the future, we will need to expand the sample size, increase the quantitative indicators of the intervention effect and its social validity, and extend them to other schools to enrich further and verify the intervention program.

## Conclusion

The results of this study indicate that implementing HTP in special education schools in China can significantly improve the professional resilience of special education teachers, and this effect can last for two months after the end of the intervention. Therefore, this program has a high degree of social effectiveness, and it is necessary to further promote and verify it in mainstream school environments or other special education school environments in the future.

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## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis, and interpretation, or all these areas; took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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## Disclosure

No potential competing interest was reported by the authors.

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