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# **Best Evidence in Chinese Education**

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# Best Evidence in Chinese Education

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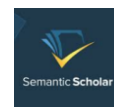
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# Impact of Pet Companionship on Student Development: A Meta-Analysis

Peixuan Li, Jijun Yao, Yifan Xu, Fangru Zhou

*Nanjing Normal University, Nanjing 210024, China*

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**Abstract:** *Animal companionship has been found to have a positive influence on human well-being, and the presence of pets can have a subtle yet significant impact on the healthy development of students. Pet companionship takes various forms across different fields in China and other regions worldwide, and the impact of such companionship remains uncertain. Hence, it is imperative to investigate the impact of diverse forms of companionship and animals on multiple facets of student growth and development. This study employed meta-analysis methodologies to examine 47 effect sizes derived from 12 domestic and international studies on pet companionship. The aim was to investigate the overall trends of the influence of pet companionship on student development as well as the effects of diverse types of companionship and pets on different aspects of student development, including physical and mental health, social-emotional abilities, and academic performance. The objective was to enhance the exploration of approaches for maximizing the utilization of various forms of pet companionship. Furthermore, this research suggests a systematic and incremental approach to enhancing the function of pets within households, educational institutions, and medical facilities. Adequate content and organization are essential for scientific advancement and the development of students. In this particular context, it is possible to optimize the impact of pet companionship on the development of students.*

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## Introduction

**P**ETS serve as companions to children in various ways, including by providing constant companionship at home, participating in animal-assisted classes at school, and engaging in animal-assisted therapy. They are valuable friends for students.

However, there are certain opinions that challenge the efficacy of pet companionship. Parents express concerns that the act of raising pets may have adverse effects on the physical well-being and socio-emotional growth of students, ultimately impeding their overall healthy development. Furthermore, the adoption of pet companionship is confronted with various uncertainties and hazards, including but not limited to the potential harm that pets' self-defense mechanisms may pose to infants and young children, gender-based discrepancies in attitudes towards pets among male and female students (Bosacki & Tardif-Williams, 2019), and the adverse impact that inadequate pet raising and care by families may have on student growth and development. Given the ambiguity surrounding the effects of pet companionship on student development, parents and society require empirical data to address inquiries pertaining to the potential benefits of pet companionship on student development, as well as the optimal type of pet companionship that may promote students' holistic growth, in order to facilitate informed decision-making. This study employs a meta-analysis methodology to investigate the influence of pet companionship on student development, drawing on both domestic and international research on the subject. The study aims to examine the effects of various types of companionship and provide insights into the role of pet companionship in promoting healthy development among students in family, school, and medical contexts.

## Literature Review

### *Definitions of Core Concepts*

#### Pet Companionship

The teenage period is a crucial life stage that has the potential to positively impact an individual's lifelong physical health, learning behavior, and emotional well-being. Additionally, pets can play an important role in adolescents' learning, therapies, families, and overall quality of life.

Studies on the subject of pet companionship have been carried out in multiple countries, focusing mostly on three areas. The first is having pets in daily life. According to statistics, at least one pet is owned by 68% of US families (American Pet Products Association, 2016) and 46% of UK families (Pet Food Manufacturers Association, 2016). According to epidemiological studies, families with children are more likely than other types of households to own pets (Westgarth et al., 2010; Melson, 2003). Since most students spend their time at home, companion animals play a significant role in daily human interaction. The second is animal-assisted therapy, which dates back to the founding of the Quaker Rehabilitation Center in the UK in 1792, where patients might

feel joy and responsibility through the employment of animals in treatment plans (Boris & Gerald, 1997). Animals act as co-therapists in animal-assisted therapy, collaborating with medical professionals to establish a secure therapeutic environment that treats hospitalized children with serious illnesses by lowering their anxiety (Lang et al., 2010). The third is bringing dogs into the classroom. Human-animal interaction (HAI) social support theory contends that pets can be a source of comfort and safety for students, acting as transitional objects to ease pain and problematic behaviors (Peter et al., 2002; Triebenbacher, 1998). Students' stressful experiences at school can result in maladaptive behaviors in their homes and social lives. Students may benefit from the motivation and education that come from having animals in the classroom.

In contrast to other nations, pet companionship has recently gained popularity in China. People's spiritual and material worlds have increasingly become richer as China's economic development and urbanization intensify. Pets are deeply involved in different parts of students' lives in such a setting. According to Huang Qin, young students' attachment to dogs can help them cope with loneliness (Huang, 2009). Meanwhile, Wang Jiaojiao and her colleagues work on dog-assisted intervention in reading for special education children, employing methodologies like one-on-one reading and dialogue-based reading (Wang et al., 2020). However, there is still a scarcity of research in this sector in China, and some parents fear that having a pet interferes with their child's growth.

The present study delineates the notion of pet companionship as a tripartite construct encompassing the following components: cohabitation in daily routines, animal-assisted therapy, and academic accompaniment. The assessment of students' social adaptation, physical health, and learning ability constitutes the measurement of these three distinct dimensions.

## Student Development

In Mingyuan Gu's (1998) *Education Dictionary*, "development" is defined as a persistent and irreversible change in cognition, personality, physical condition, and socialization that occurs over the course of an individual's entire existence. In the context of education, student development theory is an extension of human development theory. Education, whose primary purpose is to cultivate individuals, encompasses a variety of activities that contribute to the formation and development of knowledge, abilities, physical and mental health, and ideological and moral qualities.

The level of a student's physical and mental health is the basis of their development. Individuals who are physically and mentally healthy actively experience positive emotions such as happiness, have excellent social adaptability, and are able to realize their full potential. They are vital and capable of contributing to society (Liu, 2001).

Studies have indicated that in certain nations and regions, the development of comprehensive abilities has consistently placed emphasis on knowledge acquisition as a key priority and a fundamental criterion for talent quality. In light of societal progress and its consequent transformations, it is insufficient to depend solely on the cognitive capacities of individuals to fulfill their developmental requisites (Wang & Tan, 1998). Within this particular context, social-emotional competencies have garnered significant attention from the general public and have emerged as a central and focal point for de-

veloping talent in the 21st century. Social-emotional skills pertain to the intrinsic attributes of individuals that are indicative of their personality traits. In contrast to academic achievement, there is a lack of consensus on the definition of social-emotional competencies. The framework for social-emotional skills developed by the OECD is the most commonly employed among the diverse definitions available. The framework is founded upon the Big Five personality traits, encompassing five distinct dimensions, namely task performance, emotional regulation, collaboration, open-mindedness, and interactions with others. The aforementioned domains provide a systematic summary of the trajectory of non-cognitive skill development in students.

In China, there was a time when academic performance was the primary measure of student development, and the concept of holistic student development was not given much consideration. This lack of understanding at the practical level of education has led to intense competition, which is not conducive to the establishment of a positive educational environment. The demand for the incorporation of non-cognitive factors and the advancement of holistic student development has been on the rise. In light of this context, the Chinese government has released a series of official papers aimed at advancing the reform of enhancing the comprehensive competencies of students. In 2021, a set of guidelines was implemented to alleviate the onerous workload of compulsory education students, including the Double Reduction Policy, with the aim of mitigating the burden on students and fostering their holistic growth.

This study categorizes student development into the growth of cognitive and non-cognitive abilities based on physical and mental health, depending on the aforementioned analyses. Non-cognitive abilities are assessed using the OECD framework of social-emotional skills, which includes self-control, emotional control, sociability, self-efficacy, and other abilities in social-emotional domains. Cognitive abilities are assessed by students' learning capacity and academic performance.

## ***The Impact of Pet Companionship on Student Development***

The impact of pet companionship on student development has been extensively researched, yielding varying conclusions.

On the bright side, there are studies that show how having a pet can positively impact student development. Interacting with animals in settings like home, school, or hospital can have a positive impact on students' emotional regulation, empathy, and stress relief, according to research by Anderson et al. (2006), Chubak et al. (2017), and Paul & Serpell (1996). It's great to see that animal-assisted education has become increasingly popular in recent years. This approach has been shown to have many positive effects on students, including the development of empathy, stress reduction, positive emotional development, stronger classroom cohesion, increased pro-social behavior, and fostering better attitudes toward learning (Brelsford et al., 2017; Nancy et al., 2017). This is a promising trend that can benefit students in many ways. It's great to know that early pet ownership can potentially reduce the risk of allergies and asthma in students, according to studies. It's great to know that exposure to pets in the first year of life can lower the risk of allergic rhinitis at age 7-9 and asthma at age 12-13 (Hesselmar, 1999).

In hospital settings, the presence of animals can help alleviate pain during medical procedures and make hospitalization easier for pediatric patients (Hoffmann et al., 2009).

Conversely, alternative evidence suggests that the companionship of pets may not be advantageous or may even have adverse effects on the growth and progress of students. Salo et al. (2004) conducted research on Chinese adolescents and revealed a higher incidence of persistent coughing in households that owned cats and dogs, particularly among children under the age of six. A study conducted on Bulgarian students aged 2–8 years revealed a favorable association between the existence of cats or dogs in their households during birth and their present-day susceptibility to asthma, rhinitis, and eczema, as reported by Naydenov et al. (2008). Pets have the potential to elevate the concentration of airborne allergens, thereby amplifying the susceptibility to allergic respiratory ailments such as asthma.

Therefore, it can be argued that the effects of pet companionship on student development are ambiguous. This uncertainty is largely attributable to multiple factors. In other words, other factors moderate the effect of pet companionship on student development. Based on this, this study used CMA 3.0 to conduct a comprehensive meta-analysis of domestic and international studies on pet companionship and student development in order to identify the general patterns of the effect of pet companionship on students' physical and mental development.

## **Research Process**

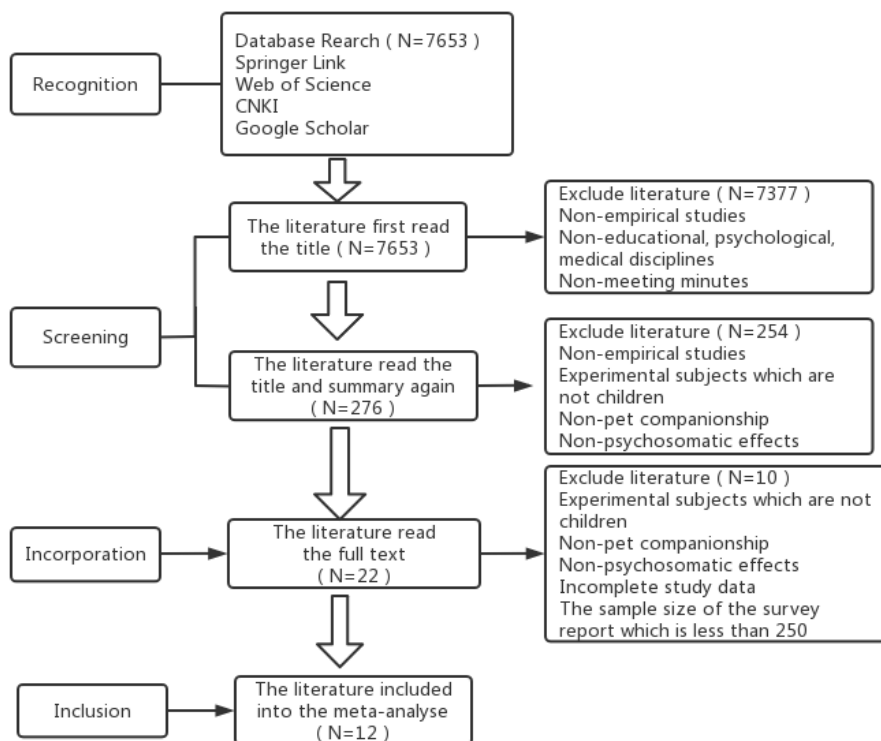
### ***Literature Retrieval***

Meta-analysis is a secondary analysis that re-analyses the findings by incorporating data from the extant literature (Zeng & Yao, 2020).

The following keywords are crucial to the literature search: “pet raising,” “student development,” “physical health,” “mental health,” “higher order thinking skills,” “social emotion,” “animal assisted therapy,” “school,” and “study” on various databases like the China National Knowledge Infrastructure (CNKI), the Web of Science, SpringerLink, and Google Scholar. After retrieving 7,127 pertinent studies, 12 were ultimately added to produce 47 effect sizes (**Figure 1**).

### ***Literature Inclusion Criteria***

Meta-analyses require consistent inclusion criteria to retrieve and screen studies related to a particular topic and then to construct a literature pool that satisfies the requirements of the research topic and meta-analysis in order to support subsequent research. In order to better select relevant literature for this study, it was necessary to first define pet companionship and the research topic. This study defines pet companionship as activities in which pets accompany humans, such as the raising of pets at home, the incorporation of pets in the classroom, and animal-assisted therapy. The focus of this study is the influence of pet companionship on student development, and the intervention is whether or not pet companionship will be utilized. The target audience consists of students younger than 18 years of age. On this basis, the following inclusion criteria were developed:



**Figure 1. Literature Screening Process.**

definition of pet companionship, research topic, research subjects, literature characteristics, and statistical requirements for the meta-analysis.

- i. The study's intervention measures are pet companionship or animal-assisted therapy, and the target population is students under the age of 18.
- ii. The research findings should pertain to student development, including aspects such as academic achievement, physical and mental health treatment, motor skills, and the enhancement of social and emotional skills.
- iii. For the purpose of this study's timeliness, the included studies must have been published between 2000 and 2021, regardless of form, in Chinese or English.
- iv. The design of the study should be experimental or quasi-experimental, with experimental and control groups. The sample size for large-scale survey reports should be greater than 250.
- v. The sample sizes of the experimental and control groups should be comparable to prevent biases resulting from a significant difference between the two categories of groups.
- vi. To calculate effect sizes, the study should provide information such as the mean, standard deviation, sample size, t-value, and p-value.
- vii. Pretest differences should not be excessively large, and the effect size  $d$  should not exceed 0.5.

## Literature Coding

As previously stated, a meta-analysis is a statistical technique that involves synthesizing an extensive body of literature, albeit with inherent heterogeneity across various studies. Consequently, it is imperative to encode the pertinent research for subsequent examination, and the precise codes are explained as follows:

- i. *Type of literature*: Journals are coded as Q, whereas other types are coded as X.
- ii. *Type of pet companionship*: Home pet ownership is recorded as FAM, whereas animal-assisted therapy, animal-assisted education, multifaceted content, and unreported are coded as AAT, EDU, mix, and un, respectively.
- iii. *Type of output*: academic ability is coded as study, social skills are coded as social skill, physical health is coded as physical health, mental health is coded as mental health, and other elements are coded as other.
- iv. *Type of companion animal*: dogs are coded as dog, horses as horse, mixed animal species are coded as mix, and unreported animals are coded as un.
- v. *Gender*: Males are coded as M, females as F, males and females together are coded as mix, and those who were not reported are coded as un.
- vi. *Students at risk*: Students who have a low health level are coded as PD, those who have behavioral issues (such as truancy, violence, etc.) are coded as BD, those who have both of the aforementioned issues are coded as mix, and those who have not been reported are coded as un.
- vii. *Length of research*: Research that is not less than 12 weeks in length is coded as > 12, less than 12 weeks in length is coded as < 12, and not reported is coded as unreported.
- viii. *Intervention intensity*: low ( $\leq 30$  minutes per week), medium (30-75 minutes per week), or high ( $> 75$  minutes per week). According to the literature, the precise information should be written down, and the unreported data is coded as unreported.
- ix. *Age group*: pre-adolescent years (6-12) are coded as preadolescence, adolescence (13-18) is coded as adolescence, and a combination of various stages is coded as mix, in accordance with the age distribution in established studies and the typical developmental model proposed by Broderick and Blewitt (2003).
- x. *Sample size*: Studies with sample sizes of less than 100, between 100 and 250, and greater than 250 are coded as < 100, 100-250, and > 250, respectively.

## Research Results and Analysis

### Heterogeneity Testing

Although there is heterogeneity among different studies, a meta-analysis provides an opportunity to integrate a large body of literature and gain valuable insights. There are several effective methods for conducting heterogeneity tests, such as the Q statistic, H statistic, and  $I^2$  values. This study successfully utilized the Q statistic and  $I^2$  values to analyze the heterogeneity between the studies (Zeng & Yao, 2020). The Q statistic showed that there is some heterogeneity among the samples ( $Q = 80.563$ ,  $p < 0.001$ ), but the  $I^2$  values indicate that it is only moderate ( $I^2 = 42.902$ ).

**Table 1. Margaret Coding Table.**

Literature	Companion-ship Type	Doc Type	Output Type	Animal	Gender	Age	Sample Size	Students in Crisis	Program Length	Intervention Intensity
Amy, 2017a	AAT	Q	Mental	Dog	Mix	Mix	<100	PD	<12	Low
Amy, 2017b	AAT	Q	Mental	Dog	Mix	Mix	<100	PD	<12	Low
Amy, 2017c	AAT	Q	Mental	Dog	Mix	Mix	<100	PD	<12	Low
Andrea, 2013b	EDU	Q	Mental	Dog	Mix	pre-adolescence	<100	un	>12	High
Andrea, 2013c	EDU	Q	Mental	Dog	Mix	pre-adolescence	<100	un	>12	High
Andrea, 2013d	EDU	Q	Behavior	Dog	Mix	pre-adolescence	<100	un	>12	High
Andrea, 2013e	EDU	Q	Behavior	Dog	Mix	pre-adolescence	<100	un	>12	High
Andrea, 2013f	EDU	Q	Behavior	Dog	Mix	pre-adolescence	<100	un	>12	High
Andrea, 2013g	EDU	Q	Mental	Dog	Mix	pre-adolescence	<100	un	>12	High
Anne, 2015	FAM	Q	Mental	Dog	Mix	pre-adolescence	>250	un	un	un
Carie, 2009a	AAT	Q	Physical	Dog	Mix	Mix	<100	PD	<12	Low
Carie, 2009b	AAT	Q	Physical	Dog	Mix	Mix	<100	PD	<12	Low
Carie, 2009c	AAT	Q	Physical	Dog	Mix	Mix	<100	PD	<12	Low
Carie, 2009d	AAT	Q	Physical	Dog	Mix	Mix	<100	PD	<12	Low
Carie, 2009e	AAT	Q	Physical	Dog	Mix	Mix	<100	PD	<12	Low
Cristiano, 2021	EDU	Q	Mental	Dog	Mix	pre-adolescence	<100	un	<12	High
Deborah, 2017	EDU	Q	Study	Dog	Mix	pre-adolescence	<100	un	<12	Medium
Davis, 2009a	AAT	Q	Mental	Horse	Mix	Mix	<100	PD	<12	Medium
Davis, 2009b	AAT	Q	Mental	Horse	Mix	Mix	<100	PD	<12	Medium
Davis, 2009c	AAT	Q	Mental	Horse	Mix	Mix	<100	PD	<12	Medium
Davis, 2009d	AAT	Q	Mental	Horse	Mix	Mix	<100	PD	<12	Medium
Davis, 2009e	AAT	Q	Mental	Horse	Mix	Mix	<100	PD	<12	Medium
Davis, 2009f	AAT	Q	Mental	Horse	Mix	Mix	<100	PD	<12	Medium
Davis, 2009g	AAT	Q	Mental	Horse	Mix	Mix	<100	PD	<12	Medium
Edward, 2017a	EDU	Q	Study	Dog	Mix	pre-adolescence	<100	un	<12	Medium
Edward, 2017b	EDU	Q	Study	Dog	Mix	pre-adolescence	<100	un	<12	Medium
Edward, 2017c	EDU	Q	Study	Dog	Mix	pre-adolescence	<100	un	<12	Medium
Edward, 2017d	EDU	Q	Study	Dog	Mix	pre-adolescence	<100	un	<12	Medium
Christian, 2012a	FAM	Q	Physical	Dog	M	pre-adolescence	>250	un	un	un
Christian, 2012b	FAM	Q	Physical	Dog	M	pre-adolescence	>250	un	un	un
Christian, 2012c	FAM	Q	Physical	Dog	F	pre-adolescence	>250	un	un	un
Christian, 2012d	FAM	Q	Physical	Dog	F	pre-adolescence	>250	un	un	un
Christian, 2012e	FAM	Q	Behavior	Dog	M	pre-adolescence	>250	un	un	un
Christian, 2012f	FAM	Q	Behavior	Dog	F	pre-adolescence	>250	un	un	un
Christian, 2012g	FAM	Q	Behavior	Dog	M	pre-adolescence	>250	un	un	un
Christian, 2012h	FAM	Q	Behavior	Dog	F	pre-adolescence	>250	un	un	un

Jessa, 2016a	FAM	Q	Mental	Dog	Mix	adolescence	>250	un	un	un
Jessa, 2016b	FAM	Q	Mental	Dog	Mix	adolescence	>250	un	un	un
Jessa, 2016c	FAM	Q	Mental	Dog	Mix	adolescence	>250	un	un	un
Julie, 2008a	EDU	Q	Behavior	Dog	Mix	pre-adolescence	>250	BD	<12	Middle
Maria, 2016a	AAT	Q	Mental	Dog	Mix	Mix	<100	mix	>12	Low
Maria, 2016c	AAT	Q	Social Skill	Dog	Mix	Mix	<100	mix	>12	Low
Marta, 2017a	FAM	Q	Mental	Dog	Mix	adolescence	>250	un	un	un
Megan, 2021	FAM	Q	Mental	Mix	Mix	Mix	100-250	un	un	un
Shu li, 2016a	FAM	Q	Physical	Mix	Male	Mix	>250	un	un	un
Shu li, 2016b	FAM	Q	Physical	Mix	F	Mix	>250	un	un	un

**Table 2. Overall Effect Size and Heterogeneity Testing Results of the Impact of Pet Companionship on Students' Development.**

	K	Q	I <sup>2</sup> (%)	ES	95%CI	p-value	
Fixed-effect model	47	80.563 (p = 0.001)	42.902	0.222	0.189	0.256	0.000
Random-effect model	47			0.237	0.183	0.291	0.000

## *Analysis of the Effects of Pet Companionship on Student Development*

The heterogeneity test results revealed that the samples in this study had a modest amount of heterogeneity. **Table 1** displays the results of the study using the fixed-effect model, with a combined effect size of 0.222 ( $p < 0.05$ ), and **Table 2** displays the results using the random-effect model, with a combined effect size of 0.237 ( $p < 0.05$ ). Cohen defines small, medium, and high impact sizes, respectively, as 0.2, 0.5, and 0.8. Therefore, having a pet as company has a minor but distinctly positive effect on students' growth.

## *Analysis of the Moderating Effects*

As mentioned previously, the samples in this study were heterogeneous ( $Q = 80.563$ ,  $p < 0.001$ ), which may be closely related to the type of pet, the type of pet companionship, and the diverse backgrounds of the participants. In order to identify the origins of heterogeneity, it was necessary to assess the moderating effects in this study. Based on the results of the random-effect model analysis and the subgroup analysis, this study investigated the origins of heterogeneity in pet companionship at both the individual and research project levels.

As previously stated, student growth is primarily represented in physical health, mental health, academic output, social-emotional abilities, and behavior. **Table 3** shows the results of an in-depth analysis of the types and forms of student development outputs undertaken in this study to investigate the unique effects of pet companionship on student development. Pet companionship has a significant favorable impact on academic output ( $d = 0.098$ ,  $p = 0.667$ ), physical health ( $d = 0.199$ ,  $p < 0.001$ ), mental health ( $d = 0.259$ ,  $p < 0.001$ ), and behavioral performance ( $d = 0.244$ ,  $p = 0.018$ ), but the effect sizes are small. Pet companionship has a medium impact size and has a considerable beneficial influence on social-emotional skills ( $d = 0.595$ ,  $p < 0.001$ ). The findings indicate that pet companionship improves students' academic achievement while also encouraging physical and mental health as well as behavioral performance, and it plays an important role in strengthening students' social-emotional abilities. Previous research has focused on the effects of pet companionship on students' physical health rather than the development of social-emotional abilities, according to the current study. Some of the studies included in this investigation did not report potential influencing factors such as participants' families' economic situation and the gap between times of pet companionship, resulting in the loss of some sources of heterogeneity in this study.

As indicated in **Table 4**, characteristics including participant gender, age, and physical and mental health may contribute to heterogeneity at the individual level. The beneficial effect on male participants among teenagers ( $d = 0.189$ ,  $p < 0.001$ ) is marginally bigger than that on female participants ( $d = 0.152$ ,  $p < 0.001$ ). Participants who are preadolescent ( $d = 0.280$ ,  $p < 0.001$ ) and adolescent ( $d = 0.205$ ,  $p < 0.001$ ) in age do not experience any negative effects from pet companionship. In particular, it has a modest effect on preschool participants and a large favorable effect with relatively moderate effect sizes on preadolescent and adolescent participants. The strongest effect of pet companionship is on elementary school kids ( $d = 0.399$ ), with a small effect size in the preadolescent period, whereas the poorest effect is on secondary school students ( $d = 0.099$ ). Regarding the hazards that teenagers face, pet companionship has a statistically significant favorable effect on students who are at health risk ( $d = 0.215$ ,  $p < 0.001$ ) and behavioral risk ( $d = 0.717$ ,  $p < 0.001$ ). Pet companionship also has a good impact on children who are at risk for both physical and mental health, with an effect size of 0.207. The effects on students with behavioral risk and mental health crises are medium.

As demonstrated in **Table 5**, heterogeneity at the research project level may be related to elements like the kind of pet, the kind of pet partner, and the degree of the intervention. Horses, a common form of pet, have a beneficial impact on participants and have an effect size that is statistically significant ( $d = 0.344$ ,  $p < 0.001$ ), although dogs and other pets similarly significantly improve student development but with smaller effect sizes ( $d = 0.239$ ,  $p < 0.001$ ). Animal-assisted therapy, animal-assisted education, and pet companionship at home all had substantial benefits on various aspects of pet companionship; the corresponding effect sizes are 0.215, 0.385, and 0.202, with animal-assisted education surpassing the other two. Low-intensity interventions ( $d = 0.245$ ,  $p = 0.005$ ), medium-intensity interventions ( $d = 0.259$ ,  $p < 0.001$ ), and high-intensity interventions ( $d = 0.345$ ,  $p < 0.001$ ) all significantly affect student development, and the effect is stronger as the intensity rises.

This study also examined the moderating effects of literature type, sample size, and the period of publication in order to further understand how the characteristics of

**Table 3. Analysis of Heterogeneity of Student Development Output Types.**

	K	Q	ES	95% CI		p	
Type of output	Physical	12	3.245 (p = 0.518)	0.199	0.143	0.256	0.000
	Mental	21		0.259	0.186	0.332	0.000
	Social skill	5		0.595	-0.038	1.228	0.000
	Behavior	8		0.244	0.042	0.446	0.018
	Study	5		0.098	-0.362	0.558	0.677

**Table 4. Analysis of Heterogeneity at the Individual Level.**

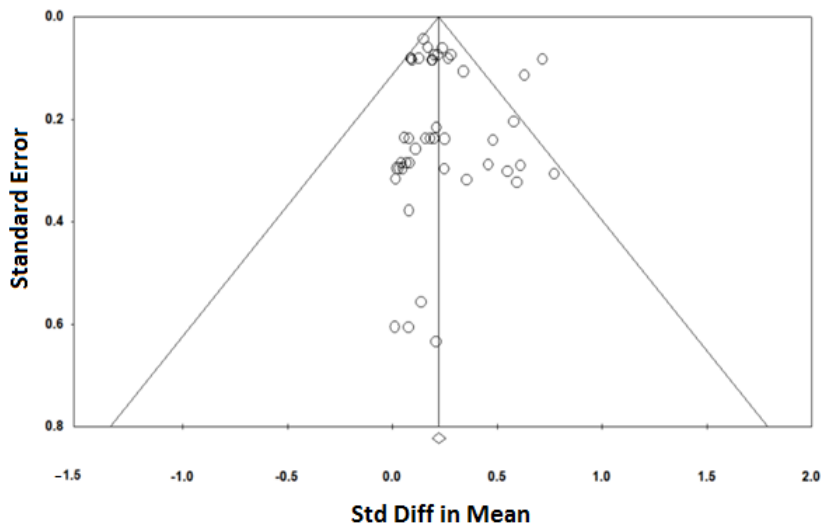
	K	Q	ES	95% CI		p	
At-risk Students	PD	15	35.766 (p < 0.001)	0.203	0.075	0.330	0.001
	HD	1		0.717	0.555	0.880	0.000
	Mix	3		0.319	-0.043	0.680	0.084
	Un	28		0.207	0.159	0.246	0.000
Age	Pre-adolescence	22	0.858 (p = 0.651)	0.262	0.153	0.371	0.000
	Adolescence	5		0.205	0.145	0.266	0.000
	Mix	20		0.208	0.139	0.277	0.000
Gender	F	5	Q=9.828 (p = 0.007)	0.152	0.086	0.218	0.000
	M	7		0.189	0.121	0.258	0.000
	Mix	53		0.291	0.208	0.374	0.000

**Table 5. Analysis of Heterogeneity at the Project Level.**

	K	Q	ES	95% CI		p	
Type of Pet Companionship	AAT	18	3.021 (p = 0.221)	0.215	0.095	0.336	0.000
	EDU	13		0.373	0.185	0.585	0.000
	FAM	16		0.195	0.153	0.251	0.000
Pet Breeds	Dog	37	0.276 (p = 0.871)	0.243	0.175	0.312	0.000
	Horse	7		0.200	0.023	0.376	0.026
	Mix	3		0.224	0.144	0.303	0.000
Intervention Intensity	Low	10	1.844 (p = 0.605)	0.245	0.074	0.416	0.005
	Middle	14		0.259	0.066	0.453	0.000
	High	7		0.345	0.119	0.571	0.000
	Un	16		0.202	0.153	0.251	0.000

**Table 6. Heterogeneity Analysis of Literature Characteristics and Study Characteristics.**

	K	Q	ES	95% CI	p
Sample size <100	30	0.897 (p = 0.639)	0.243	0.142 0.344	0.000
Sample size 100-250	1		0.341	0.131 0.551	0.001
Sample size >250	19		0.233	0.158 0.308	0.000



**Figure 2. Funnel Plot of Standard Error by Std Diff in Means.**

the literature and studies may also be significant factors affecting heterogeneity. The outcomes are displayed in **Table 6**. Since all of the included studies were journal articles, this study did not examine them. In terms of sample size, medium sample sizes (100-250 samples) have the largest effect sizes ( $d = 0.341$ ), followed by small sample sizes (< 100 samples) ( $d = 0.243$ ), and big sample sizes (> 250 samples) ( $d = 0.233$ ). Both small and large sample sizes have non-significant effect sizes.

### ***Robustness Testing***

#### **Publication Bias**

Publication bias indicates that the studies included in the meta-analysis are the result of journal selection, and this selective bias typically results in positive meta-analysis results. Consequently, it is essential to evaluate the scientific validity of the results. This

study used funnel plots and Egger's Regression coefficient to assess the results of a meta-analysis, as these are common methods for evaluating meta-analysis results. The funnel plot for this study is depicted in **Figure 2**, which is approximately symmetrical, and the effect sizes of the study samples are primarily concentrated in the middle and upper effective areas of the funnel plot. The Egger's Regression coefficient indicates an insignificant Egger test result ( $t = 0.71642$ ,  $p_1 = 0.23872$ ,  $p_2 = 0.47744 > 0.01$ ) and, consequently, a low probability of publication bias in this investigation.

## Sensitivity Analysis

In this study, the fail-safe N was 1,463 ( $\alpha = 0.05$ ,  $p < 0.000$ ), indicating that 2,622 additional studies would be required to render the results non-significant or to refute the conclusions. As a result, the findings of the study were relatively robust.

## Discussion

Throughout the course of human history, animals have served as valuable aides, confidants, and associates, with such companionship being prevalent across various global societies. Currently, cats and dogs have emerged as the most popular domesticated animals. Several studies have indicated that the presence of pets can potentially augment the physical and psychological well-being of individuals, particularly adolescent students, and foster their social aptitude. However, a counterargument posits that pets may exacerbate the ailments of adolescent students. Hence, there is an exigent requirement for pertinent evidence to address the crucial inquiry of whether the companionship of pets fosters the physical and psychological growth of students. Furthermore, given the significance of pet companionship in facilitating school education and hospital treatment, it is imperative for educational institutions and healthcare facilities to comprehend the specific attributes of pet companionship that can enhance the physical and mental growth of students. This understanding is crucial for the optimization of animal-assisted therapy and animal-assisted education. This study employed meta-analysis techniques to examine the impact of pet companionship interventions on the development of adolescent students. Specifically, the study analyzed 12 studies to identify general patterns and test the effectiveness of various types of pet companionship. The findings may contribute to the optimization of animal-assisted therapy, animal-assisted education, and pet companionship in domestic settings.

The findings of this study suggest that the presence of pets has a noteworthy and favorable influence on the physical health ( $d = 0.199$ ,  $p < 0.001$ ), mental health ( $d = 0.259$ ,  $p < 0.001$ ), and social-emotional skills ( $d = 0.595$ ,  $p < 0.001$ ) of students. Furthermore, its positive impact on social-emotional skills surpasses that of physical and mental health. The study suggests that the effect on academic development is not statistically significant ( $d = 0.098$ ,  $p = 0.677$ ). Regarding the category of animal companions, research indicates that the association between students and horses and dogs as pets yields more substantial outcomes, with effect sizes of 0.200 and 0.243, respectively that are statistically significant. Regarding the category of animal companionship, animal-assisted therapy, animal-assisted education, and domestic pet companionship have notable impacts, exhibiting effect sizes of 0.215, 0.373, and 0.195, respectively. The find-

ings of this study exhibit conformity with certain assessments of the association between humans and pets conducted in other nations. Notwithstanding the uniformity of the impact's orientation, the magnitudes of the effects observed in this study deviate from those reported by certain researchers.

This study places a greater emphasis on China's present circumstances within the Chinese context in comparison to other meta-analyses on pet companionship conducted in other nations. Hence, the outcomes of this investigation hold greater significance for the advancement of pet companionship within the educational and medical domains in the current phase of China. Additionally, they are crucial for the enhancement of pet companionship in the entire country.

## **Conclusions and Suggestions**

The present study employed meta-analytic procedures to scrutinize the phenomenon of pet companionship across a total of 12 studies, with the aim of examining the impact of such companionship on the physical health, mental health, and social-emotional competencies of students. This study conducted an analysis of the sources of heterogeneity present in the individual-level and research project-level studies that were included in the study. The findings indicate that (i) regarding the developmental stage, pet companionship has a better effect on preadolescent students than on adolescent students ( $d = 0.205$ ); (ii) pet companionship has a significant positive effect on students with physical health risk ( $d = 0.203$ ,  $p = 0.001$ ) and behavioral risk ( $d = 0.717$ ,  $p < 0.001$ ), and the effect on those with behavioral risk is more significant and reaches a medium level; (iii) animals such as horses ( $d = 0.200$ ) and dogs ( $d = 0.243$ ) have significant positive effects on adolescent development; (iv) in terms of the type of pet companionship, animal-assisted therapy, animal-assisted education, and pet companionship at home all have significant effects, with effect sizes of 0.296, 0.373, and 0.195, respectively; (v) in terms of intervention intensity, low intensity ( $d = 0.245$ ,  $p = 0.005$ ), medium intensity ( $d = 0.259$ ,  $p < 0.001$ ), and high intensity ( $d = 0.345$ ,  $p < 0.001$ ) all significantly promote student development; (vi) the effect sizes of medium sample sizes (100-250 samples) are the greatest ( $d = 0.341$ ), and the effect sizes of small sample sizes ( $d = 0.243$ ) and large sample sizes ( $d = 0.233$ ) are small.

The identification of overarching trends in the effects of pet companionship on the physical and mental development of students has the potential to enhance the efficacy of pet companionship in domestic settings, animal-assisted education in academic institutions, and pet-assisted therapy in clinical contexts. The analysis indicates that in China, when engaging in pet companionship, it is crucial to consider the physical and mental well-being, as well as the social-emotional growth, of individuals in order to enhance their holistic development. The significance of pets in facilitating the development of children should not be disregarded. Furthermore, it is imperative to enhance the function of companion animals strategically and systematically in various settings, such as households, educational institutions, and medical facilities, when they are in the company of students. The appropriate content and organization of pet companionship are essential for both scientific advancements and the development of students. Furthermore, the lack of proper planning in pet companionship can result in unanticipated outcomes.

## References

- American Pet Products Association. (2016). Pet industry market size & ownership statistics. Available at: [http://www.americanpetproducts.org/press\\_industrytrends.asp](http://www.americanpetproducts.org/press_industrytrends.asp)
- Anderson, K. L., & Olson, M. R. (2006). The value of a dog in a classroom of children with severe emotional disorders. *Anthrozoös*, 19(1):35-49. DOI: <https://doi.org/10.2752/089279306785593919>
- Boris, M. L., & Gerald, P. M. (1997). Pet-oriented child psychotherapy. New York: Charles C Thomas Publications Company Limited. 1997.
- Bosacki, S., & Tardif-Williams, C. (2019). Children's mental state talk, empathy, and attachments to companion animals. *Psychology of Language and Communication*, 23(1):284-301. DOI: <https://doi.org/10.2478/plc-2019-0013>
- Brelsford, V. L., Meints, K., Gee, N. R., & Pfeffer, K. (2017). Animal-assisted interventions in the classroom: A systematic review. *International Journal of Environmental Research and Public Health*, 14(7):669. DOI: <https://doi.org/10.3390/ijerph14070669>
- Chubak, K., Hawkes, R., Dudzik, C., Foose, J. M., Eaton, L., Johnson, R. H., & Macpherson, C. F. (2017). Pilot study of therapy dog visits for impatient youth with cancer. *Journal of Pediatric Oncology Nursing*, 34(05):331-341. DOI: <https://doi.org/10.1177/1043454217712983>
- Gu, M. Y. (1998). *Education Dictionary*. Shanghai: Shanghai Education Publishing House. 1998.
- Hesselmar, B., Aberg, N., Aberg, B., Eriksson, B., & Björkstén, B. (1999). Does early exposure to cat or dog protect against later allergy development? *Clinical and Experimental Allergy*, 29(5):611-617. DOI: <https://doi.org/10.1046/j.1365-2222.1999.00534.x>
- Hoffmann, A., Lee, A.H., Wertenaue, F., Ricken, R., Jansen, J.J., Gallinat, J., & Lang, U.E., (2009). Dog-assisted intervention significantly reduces anxiety in hospitalized patients with major depression. *European Journal of Integrative Medicine*, 1(3):145-148. DOI: <https://doi.org/10.1016/j.eujim.2009.08.002>
- Huang, Q. (2009). Social Theory analysis on the phenomenon of pet companionship among adolescents. *Contemporary Youth Research*, 27(10):10-13. DOI: <https://doi.org/10.3969/j.issn.1006-1789.2009.10.002>
- Lang, U. E., Jansen, J. B., Wertenaue, F., Gallinat, J., & Rapp, M. A. (2010). Reduced anxiety during dog-assisted interviews in acute schizophrenic patients. *European Journal of Integrative Medicine*, 2(3):123-127. DOI: <https://doi.org/10.1016/j.eujim.2010.07.002>
- Liu, H. S. (2001). Reunderstanding the concept and Standard of Mental health. *Journal of Psychological Science*, 24(4):481-480. DOI: <https://doi.org/10.3969/j.issn.1671-6981.2001.04.031>
- Melson, G. F. (2003). Child development and the human-companion animal bond. *American Behavioral Scientist*, 47(1):31-39. DOI: <https://doi.org/10.1177/0002764203255210>
- Nancy, R., Gee, A. H., Aubrey, H. F., & Peggy, M. (2017). *How Animals Help Students Learn: Research and Practice for Educators and Mental-Health Professionals*. New York: Routledge. 2017
- Naydenov, K., Popov, T., Mustakov, T., Melikov, A., Bornehag, C. G., & Sundell J. (2008). The association of pet keeping at home with symptoms in airways, nose and skin among Bulgarian children. *Pediatric Allergy and Immunology*, 19(8):702-708. DOI: <https://doi.org/10.1111/j.1399-3038.2008.00721.x>
- Paul, E. S., & Serpell, J. A. (1996). Obtaining a new pet dog: effects on middle childhood children and their families. *Applied Animal Behaviour Science*, 47(1-2):17-29. DOI: [https://doi.org/10.1016/0168-1591\(95\)01007-6](https://doi.org/10.1016/0168-1591(95)01007-6)
- Pet Food Manufacturers Association. (2016). Statistics. Available at: <https://www.ukpetfood.org/information-centre/statistics.html>
- Peter, H., Kahn, J. R., & Stephen, R. K. (2002). *Children and nature: psychological, sociocultural, and evolutionary investigations*. Cambridge, MA: MIT Press. DOI: <https://doi.org/10.7551/mitpress/1807.001.0001>
- Salo, P. M., Xia, J., Johnson, A., Li, Y. Edward, L. Gong, J., & Stephanie, J. (2004). Indoor allergens, asthma, and asthma-related symptoms among adolescents in Wuhan, China. *Annals of Epidemiology*, 14(8): 543-550. DOI: <https://doi.org/10.1016/j.annepidem.2003.09.015>

- Triebenbacher, S. L. (1998). Pets as transitional objects: Their role in children's emotional development. *Psychological Reports*, 82(1):191-200. DOI: <https://doi.org/10.2466/pr0.1998.82.1.191>
- Wang, J. J., Gao, L., & Zhu, N. (2020). Application and enlightenment of reading education assistance dogs in intervention with students' reading. *Modern Special Education*, 27(6):40-45. DOI: <https://doi.org/10.3969/j.issn.1004-8014.2020.06.009>
- Wang, S. J., & Tan, J. W. (1998). Comprehensive development: The eternal theme of education reform and development-one of the inspirations from overseas higher engineering education investigation. *Liaoning Higher Education Research*, 17(4):75-77. DOI: <https://doi.org/10.16697/j.cnki.xdjygl.1998.04.020>
- Westgarth, C., Gaskell, R. M., Coyne, K. P., German, A. J., Dawson, S., Heron, J., Ness, A. R., Bundred, P., & McCune, S. (2010). Family pet ownership during childhood: Findings from a UK birth cohort and implications for public health research. *International Journal of Environment Research and Public Health*, 7(10):3704-3729. DOI: <https://doi.org/10.3390/ijerph7103704>
- Westgarth, C., Pinchbeck, G. L., Bradshaw, J. W. S., Dawson, S., Gaskell, R. M. & Christley, R.M. (2010). Factors associated with cat ownership in a community in the UK. *Veterinary Record*, 166(12):354-357. DOI: <https://doi.org/10.1136/vr.c1606>
- Zeng, Z. B., & Yao, J. J. (2020). Identifying the "Best Evidence": How to use meta-analysis to conduct a literature review-A case of STEM education's effect on students' academic achievement. *Journal of East China Normal University(Educational Sciences)*, 38(6):70-85. DOI: <https://doi.org/10.16382/j.cnki.1000-5560.2020.06.00>

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# The Growth Mindset and Student Social and Emotional Skill Development: An Empirical Analysis Based on the OECD's SSES

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**Abstract:** *The mindset is a crucial factor influencing the behavior of individuals. This study aims to evaluate the growth mindset of 10- and 15-year-old adolescents and the relationship between their mindsets and social and emotional skills from the viewpoints of students, parents, and teachers, using OECD's SSES 2019 data from Suzhou City. The research results show that the growth mindset of students is affected by their socioeconomic status; and that the growth mindset of students, parents, and teachers can significantly and positively predict student social and emotional skills?*

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**Keywords:** *Adolescents, Growth Mindset, Social and Emotional Skill, Regression Analyses*

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## **Introduction**

The growth mindset is a crucial mental attitude in promoting student social and emotional skill development. This study utilized China-related data from the OECD's Survey on Social and Emotional Skills (SSES) 2019 to explore developmental levels of the growth mindset among Chinese 10- and 15-year-old students and to examine the relationship between their growth mindset and social and emotional skills as well as the influence of the growth mindset of parents and teachers on student social and emotional skill development, in an effort to provide valuable insights for the improvement of future education.

## **Methodologies**

### ***Sample Selection***

Stratified two-stage cluster sampling was employed to obtain data of 10- and 15-year-old Chinese students from primary and secondary schools (excluding schools for children of migrant workers and special education schools) in six districts and four counties of Suzhou City. A total of 7,550 subjects were investigated, with 3,800 students from the 10-year-old group (aged between 10 years and two months and 11 years and one month) and 3,750 students from the 15-year-old group (aged between 15 years and two months and 16 years and one month). Eventually, 7,268 students completed the procedure of the survey, making up 96.26% of the original participants, and were weighted to represent 150,964 primary and secondary students in Suzhou.

### ***Measurement Tools***

#### **(i) Social and Emotional Skills**

Based on the Big Five personality traits model, OECD's SSES developed a 96-item questionnaire, in which student social and emotional skills were categorized into five dimensions: task performance, emotional control, collaboration, openness, and interactions with others.

#### **(ii) The Growth Mindset**

In OECD's SSES, there were three items intended to measure individuals' growth mindset, corresponding to social skills, emotional skills, and intelligence, respectively. This study chose to incorporate the two items pertinent to social and emotional skills as it focused on these two aspects. To be specific, the following two items were used to measure the growth mindset of students, parents, and teachers: (1) You cannot make too much change to your social skills by yourself; (2) You cannot make too much change to your emotional skills by yourself.

#### **(iii) Analysis Methods**

The study conducted descriptive statistics, correlation, and regression analyses on the growth mindsets and social and emotional skills of students, parents, and teachers, using the software SPSS 25.0. The growth mindsets of students, parents, and teachers were the independent variables, skills included in the SSES were dependent variables, and students' gender, age, and socio-economic status (SES) were control variables in this study. Multi-variate linear regression analyses were performed to evaluate the impact of the growth mindsets of students in the two age groups as well as their parents and teachers on their social and emotional skills.

## **Findings**

### ***The Overall Status of Students' Growth Mindset***

In terms of the growth mindset, the 15-year-old group scored slightly higher than the 10-year-old one, students scored higher than parents and teachers on average, and parents and teachers of the 15-year-olds scored higher than those of 10-year-olds.

### ***Differences in the Growth Mindset among Various Student Groups***

There was no significant difference in the rating of the growth mindset between male and female students. The rating of the growth mindset of the 15-year-olds was remarkably higher than that of the 10-year-olds. Students with high SES scored significantly higher than those with low SES.

### ***Correlations between the Growth Mindset and Student Social and Emotional Skills***

The growth mindset was positively correlated with the 15 social and emotional sub-competencies among students, and the correlation between the two aspects was stronger among the 15-year-olds than the 10-year-olds. The correlation between the stress resistance and the growth mindset was weaker among the 15-year-old group than the 10-year-old one. There was a close relationship between parents' growth mindset and the 15 sub-competencies of students, which was, nevertheless, weaker than that between students' own mindset and these competencies. Teachers' growth mindset showed a weak correlation with most social and emotional competencies of students and even a negative correlation with some of them such as sociableness, resilience, optimism, emotional control, and trust.

### ***Influences of the Growth Mindset of Students, Parents, and Teachers on Student Social and Emotional Skills***

Students' growth mindset could significantly and positively predict their social and emotional skills, with a stronger predictive power on 15-year-olds' social and emotional

skills. Overall, parents' growth mindset had a significant positive predictive effect on students' social and emotional skills. Teachers' growth mindset had a positive predictive effect on some of the social and emotional skills of students while it had a negative predictive effect on the other ones, with the overall predictive effect being insignificant.

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# How does Job Crafting Impact on Career Commitment of Rural Teachers?

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**Abstract:** *The purpose of this study is to examine the current state of job crafting and career commitment of rural primary teachers and to analyze the relationship between the two variables as well as the influencing mechanisms through a questionnaire survey of 2,217 primary school teachers in Liaoning, Yunnan, Chongqing, Guangxi, and Guizhou. The research findings showed that rural primary teachers exhibited a moderate level of capacity for job crafting and career commitment; that job crafting positively predicted career commitment among rural primary teachers; and that teachers' self-efficacy and organizational support played mediating and moderating roles respectively in the relationship between the two variables.*

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## **Introduction**

Career commitment is about an individual's identification with the value of their career or occupation and an indicator of the extent to which they engage in their current profession (Meyer et al., 1993). Job crafting is an individually driven work design process which gives full play to individuals' agency in workplace, helping them attain meaning at work and personal development. It is viewed as an important means for teachers to autonomously expand their job resources (Qi, 2016). In the current context of rural education with limited resources, can teachers actively tap endogenous resources to achieve work goals and improve professional commitment? Can job crafting of Chinese rural teachers positively predict their career commitment? This study aims to present the current state of job crafting and career commitment among rural teachers and to explore their relations from the perspective of job redesign, utilizing data of rural primary teachers in five provincial administrative regions in China.

## **Data Sources and Selection of Variables**

The data in this article was derived from a survey in 2020 of compulsory education teachers in five provincial administrative regions: Liaoning, Yunnan, Guangxi, and Guizhou Provinces and Chongqing City. Adopting stratified random sampling, the research team first selected one economically less developed county from each region, and then picked one moderately developed township and one underdeveloped township from each county. After that, one demonstration primary school and two ordinary primary schools from each county, and one central primary school, one village primary school, and two teaching sites from each of the two townships were included in the investigation; a total of 2217 primary teachers were surveyed.

The independent variable in this study was teacher job crafting, measured by the job crafting scale developed by Slemp and Vella-Rodríguez (2013). Teacher career commitment was the dependent variable, measured by the primary and secondary teachers' career commitment scale created by Li (2001). Teacher self-efficacy was the mediator, measured by Yu et al.'s (1995) simplified version of the general self-efficacy scale, while teacher organizational support was measured by the primary teachers' perception of organizational support scale created by the research team according to the actual educational experience of primary teachers.

## **Research Findings**

### ***Common Method Biases Test***

The test results showed that there were seven principal factors that have a greater-than-1 characteristic root and that the variance explained by the top factor was 36.4%, which was less than the critical value of 40%. That indicated that the common method biases were not significant.

## ***Descriptive Statistics of Variables and Relevant Analyses***

(i) The mean value of job crafting of rural teachers was 3.87, with the mean of their cognitive crafting being the highest (4.04) and that of their relationship crafting being the lowest (3.76), both of which were slightly higher than the critical value of 3. The analysis results showed there was no significant difference in job crafting performance between rural and urban primary teachers. (ii) The mean value of career commitment of rural teachers was 3.17, with the mean of their normative commitment being the highest (3.32) and their continuance commitment being the lowest (2.92), both of which were above the critical value of 2, but slightly lower than the level of career commitment among urban teachers. (iii) The self-efficacy of rural teachers was similar to that of urban teachers, and their perception of organizational support was slightly lower than that of the latter, with both being above the critical value of 2.

## ***Verification of Hypotheses***

This study constructed structural equation models based on samples of urban and rural teachers to verify hypotheses 1 and 2. The structural equation model based on the sample of rural teachers resulted in a satisfactory goodness of fit: RMSEA = 0.06, CFI = 0.90, TLI = 0.90, SRMR = 0.06; Job crafting of rural primary teachers could significantly and positively predict their career commitment, and their self-efficacy posed a mediating effect on the relation between the two variables. Thus, H1 and H2 were confirmed. The study also constructed latent moderation models based on samples of urban and rural teacher to verify hypothesis 3. The results demonstrated that both teachers' job crafting and perception of organizational support significantly and positively predict career commitment, with the former having a greater effect than the latter.

## **Conclusions**

The rural primary teachers sampled exhibit a moderate level of capacity for job crafting. Job crafting has the potential of enhancing career commitment of rural primary teachers. The effect of teacher job crafting on career commitment is mediated by teacher self-efficacy. Organizational support significantly and positively moderates the positive relationship between job crafting and career commitment of rural primary teachers.

## **References**

- Li, X. (2001). *The Development of a Primary and Secondary Teacher Career Commitment Questionnaire* (master's thesis). Central China Normal University. 2001.
- Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of Ap-*

- Sun & Du. (Hubei & Beijing, China). *Job Crafting and Career Commitment of Rural Teachers*. *Applied Psychology*, 78(4):538-551. DOI: <https://doi.org/10.1037/0021-9010.78.4.538>
- Qi, Y. J., Wu, X. C., & Wang, X. L. (2016). A cross-lagged regression analysis of job crafting and work engagement of primary and secondary teachers. *Chinese Journal of Clinical Psychology*, 2016(5):5.
- Slemp, G. R., & Vella-Brodrick, D. A. (2013). The job crafting questionnaire: A new scale to measure the extent to which employees engage in job crafting. *International Journal of Wellbeing*, 3(2):126-146. DOI: <https://doi.org/10.5502/ijw.v3i2.1>
- Yu, G. L., Xin, T., & Shen, J. L. (1995). Teachers' instruction efficacy: The structure and influencing factors. *Journal of Psychology*, 27(2):159-166. DOI: <https://doi.org/10.1007/BF02006258>

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# Can the Elite Stream Improve the Academic Achievement of Senior Secondary School Students? A Study of High School Students from X City in western China based on Regression Discontinuity Analysis

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**Abstract:** *The fairness and efficacy of the elite stream in general senior secondary education have long been a contentious issue. Based on the longitudinal data of the students who were enrolled in five senior secondary schools in X City in western China in 2017 and 2018, this study examined the effects of elite class streaming in improving student academic performance, using regression discontinuity analysis. The research findings showed that: despite the significant differences in the grade-10 streaming examination results and the grade-12 academic achievement between the elite class and regular class students, the gap was not markedly widened after three years of senior secondary education; the elite stream did not exhibit distinct promotive effects on the advancement of students' overall performance when the cutoff point of elite class admission was utilized as the exogenous variable to evaluate the effects of the elite stream on student performance; both the parameter estimation and non-parametric estimation results demonstrated that the elite stream had no marked effects in improving student performance and there was no gender difference or urban vs. rural difference in the impact of the elite stream on student academic achievement.*

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**Keywords:** Elite Class, Academic Performance, Regression Discontinuity Design

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## **Introduction**

Elite Classes deployed by general high schools have always been an attraction to parents of students of senior secondary level. With elite classes, schools put high achieving students into the fast stream, equipping them with experienced anchor teachers, and implementing more demanding instruction. Under the principle of equitable and efficient education, a scientific evaluation of the impact of the elite stream on student academic advancement is crucial for students and their parents making evidence-based educational decisions and for schools reasonably allotting educational resources. Based on the academic achievement status of both elite class and regular class students from five county-level general high schools in a western city of China, this study focuses on examining the effects of the elite stream, an intra-school education resource allocation strategy, on student performance, employing the quasi-experiment design and regression discontinuity analysis.

## **Research Methodology**

### ***Data Sources***

Data in this article are derived from the longitudinal database of science students in X City in western China who were enrolled in senior secondary school in 2017 and 2018. The sample of the study consists of 3,397 students from county-level schools with 1,669 enrolled in 2017 and 1,728 enrolled in 2018. For the convenience of comparison, normalization was administered to the scores of science students in X City. Data shows that despite the significant differences in the sources of science students as well as the variations in the number and size of elite classes and the student test results among various schools, the cutoff points for elite classes in all schools are similar, with standard deviations ranging from 0.64 to 0.96.

### ***Research Design***

The determination of the cutoff point of elite class admission in each school relies on the number and size of this type of classes prescribed before the admission examination and the performance of all students at the school in the uniform grade-10 final examination in X City. Neither the school nor students can manipulate who will enter the elite classes. Elite class admission can be viewed as an exogenous change administered to sampled students. In principle, students will be accepted by elite classes as long as their examination results reach the cutoff point; otherwise, they will enter regular classes. Yet, in the actual streaming, some students may fail to enroll into elite classes despite having scores surpassing the cutoff point while those with scores below it have the chance to enter them. That may result in the discontinuity jump on the two sides of the cutoff point being neither 1 (denoting elite class admission) nor 0 (denoting non elite class admission). Therefore, the present study employed the fuzzy discontinuity design in the estimation and used the cutoff point as an instrumental variable to estimate the academic performance differences between students who complied with admission rules.

Both parametric estimation and non-parametric estimation were adopted to identify the influences of the elite stream on student academic achievement. Considering the differences in the cutoff point of elite classes between schools and academic years, this study incorporated the fixed effect of school-academic year in the estimation model to control for factors that did not show time difference between schools and academic years but have an impact on student academic performance.

## ***Research Hypotheses***

Based on the relevant conclusions made by previous studies, the following hypotheses were proposed:

H0: The elite stream cannot promote student academic progress.

H1: The elite stream can significantly enhance student performance.

## **Research Findings**

Descriptive statistics showed that there was a considerable difference in the grade-10 streaming examination results and the grade-12 academic achievement between elite class and regular class students, yet the gap did not undergo significant alteration after three school years. That indicated that despite the unbalanced distribution of educational resources between elite and regular classes during this period, there was a limited effect of the elite stream in promoting student academic performance. To identify the causal relation between the elite stream and student academic progress, this study utilized the cutoff point of elite class admission as the exogenous variable to construct quasi-experiment design and employed fuzzy regression discontinuity design to evaluate the effects of the elite stream on students' disciplinary results and their overall performance. The findings showed that the elite stream had no significant promotive effects on the advancement of students' overall performance and disciplinary results. The robustness check demonstrated that the driving variable and control variables verified the continuum hypothesis at the cut-point, and the estimation results are not affected by distinct bandwidth values or the make-up of the sample. No significant positive impact of the elite stream on students' overall performance and disciplinary results were detected. Therefore, the research findings showed strong robustness. The results of the heterogeneity test indicated that the elite stream had no significant positive effect on the academic achievement of students of different genders and with different types of registered residence. As a result, it was concluded that the elite stream in general high schools could not serve as an effective strategy for optimizing education resource allocation and encouraging student academic progress.

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NEWSLETTER

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## **Technoference and Adolescent Internet Gaming Addiction: The Mediating Role of the Need to Belong and the Moderating Role of Friendship Quality**

By Ding, Z. E. & Liu, Q. X.

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INTERNET gaming, a product of information technology, has become an essential part of adolescents' lives. While a moderate amount of online gaming helps improve their life satisfaction and promote their pro-social behavior, the Internet gaming addiction can lead to various mental problems among them. This study constructed a moderated mediation model based on the problem behavior theory and the individual-environment interaction models to examine the effects of technoference, the need to belong, and friendship quality on adolescent Internet gaming addiction.

The study recruited as subjects 1,555 boy students and 1,512 girl students aged between 11 and 16 from two junior secondary schools in Hubei Province. Measurement tools included the Technology Interference in Life Examples Scale, Need to Belong Scale, Friendship Quality Scale, and Internet Gaming Addiction Scale.

The research findings demonstrated that: (1) technoference positively predicted adolescents' Internet gaming addiction; (2) the need to belong partially mediated the relationship between technoference and adolescent's Internet gaming addiction, indicating that the need to belong was an important explanatory factor in the impact of technoference on adolescent's Internet gaming addiction and that proper control of parental use of mobile phones has the potential of enhancing the quality of child-parent interaction to better meet the child's need to belong; (3) friendship quality moderated the influence of technoference on the need to belong as well as the impact of friendship quality on Internet gaming addiction. Specifically, technoference had a weaker impact on the need to belong and the need to belong imposed a smaller effect on Internet gaming addiction among adolescents with high friendship quality than among those with low friendship quality.

*Source: Journal of Psychological Science, 2022;45(6):1383-1389.*

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NEWSLETTER

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## **The Relation between Academic Performance and Academic Self-Efficacy in Primary School Students: The Mediating Role of Academic Stress and Self-Esteem and Gender Differences**

By Li, W. H. & Jiang, F.

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**A**CADEMIC self-efficacy includes the individual's confidence in their capacity for learning, self-assessment of their competence in utilizing their acquired skills to complete learning tasks, and subjective evaluation of their ability to control learning behavior and results. Primary school students are at a crucial stage in the development of academic self-efficacy. Successful cultivation of academic self-efficacy at this phase has a significant and positive effect on their academic attainment.

Adopting convenience sampling, this study investigated 145 fourth graders (72 boys), 121 fifth graders (60 boys), and 138 six graders (70 boys) from three randomly selected classes of each grade in a primary school in Huanggu district of Shenyang City. The academic stress questionnaire, academic self-efficacy questionnaire, self-esteem scale and students' academic results of the nearest final examination were used to evaluate the impact of academic performance on student academic self-efficacy, the chain mediating effect of academic stress and self-esteem, and the moderating effect of gender.

The research findings showed that: (1) Academic performance could positively predict academic self-efficacy among primary school students. (2) Academic stress and self-esteem posed chain mediating effects on the relationship between academic performance and academic self-efficacy. (3) There were gender differences in the chain mediating effects. Among girl students, there was a partial mediating effect and three mediating paths, including the separate mediating effect of academic stress, the separate mediating effect of self-esteem, and the chain mediating effect of academic stress and self-esteem; among boy students, there was a complete mediating effect and two mediating paths, namely the separate mediating effect of self-esteem and the chain mediating effect of academic stress and self-esteem.

*Source: Journal of Psychological Science, 2023;46(2):347-354.*

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NEWSLETTER

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## **The Current State of Teacher Participation in After-school Service under the Double Reduction Policy and Improvement Suggestions: A Survey of 9,741 Teachers from 131 Primary and Secondary Schools in Beijing**

*By Li, G., Li, H. T., Xin, T., & Zhang, S.*

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**T**HE Opinions on Further Reducing the Burden of Homework and Off-Campus Training for Compulsory Education Students (also known as the Double Reduction policy) released by the Chinese government in July 2021 stipulate that educational institutions must improve their after-school service to meet varied needs of the students. The purpose of this study is to examine through a questionnaire survey the current status of teacher engagement in the after-school service, the differences in the participation in the service among teachers of distinct professional backgrounds, teachers' intention of participation and actual involvements in the service, and the factors restricting teachers' intention of participation and involvements.

A survey was conducted on 9,741 teachers from 131 primary and secondary schools in Beijing. The questionnaire was aimed at gathering information about: (i) the teacher's in-service school backgrounds (grade, school district, the educational quality of the school) and professional experience (discipline, being the class teacher and/or leader of teaching research group or not); (ii) their engagement in after-school service, including attendance at the service, type of service, participation intention and actual involvements; (iii) factors influencing their participation in the service, such as workload, incentives for after-school service, training, school management, and family support.

The analysis of the survey data showed that 91.61% of the teachers investigated participated in the after-school service, and the majority of them had a high level of participation intention and involvement. There were significant differences in participation intention and involvements among teachers from different schools and with varying professional experience. Issues with after-school service in terms of incentives, management, and workloads remain to be addressed.

*Source: China Educational Technology, 2023; 2023(4):42-48.*

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NEWSLETTER

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## **Urban-Rural Differences in Student Decision-Making Regarding Shadow Education: An Analysis Based on the Theory of Planned Behavior**

*By Li, J. L. & Wu, W.*

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ORIGINALLY, extracurricular tutoring was meant to help students to improve their academic performance and prospects for further education. Yet, shadow education has now become an off-campus arena for the competition for additional educational resources, as it takes place outside formal schools and is a paid service.

Based on the theory of planned behavior, this study analyzed the decision process in after-school tutoring consumption from the standpoint of demand and explored the main factors in decision-making about students' participation in shadow education, in an effort to provide urban and rural families with implications for making rational decisions regarding private supplementary tutoring to reduce the burdens it brings on to children and parents.

The study recruited 32 secondary school students between the ages of 14 and 16 from Beijing, Shanghai, Guangzhou Cities and Jiangsu Province. They were either senior students of middle schools or junior students of high schools. Among the subjects, there were 17 female and 15 male students, with 22 of them from urban schools and 10 from rural ones. Data were collected through interviews.

Research findings showed that the theory of planned behavior is applicable to the decision-making of all students choosing to participate in after-school tutoring. Students would deliberate and make decisions based on the following three aspects: attitudes (views on after-school tutoring), subjective norms (social pressure from parents, friends, and peer groups), and perceived behavior control (objective conditions such as traffic distance between home and the off-campus training institution, tutoring fees, tutoring quality, etc.).

There were significant differences in decision-making about shadow education between urban and rural students. Rural students could not access private tutoring, especially high-quality private tutoring due to economic constraints and/or traffic difficulties, while their urban peers can enjoy the dual educational advantages: better school education and high-quality extracurricular tutoring. Rural students played a more passive role in extracurricu-

lar tutoring participation and their decision-making were often the result of influences from their parents' social connections, while urban students are more likely to make autonomous decisions based on their own needs.

*Source: Journal of Capital Normal University, 2022; 2022(6):172-180.*

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NEWSLETTER

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## **The Index of High-Quality Development of Chinese Vocational Education and the Measurement of Development Levels**

*By Zhu, D. Q. & Peng, H. L.*

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**A** LONGSIDE its rapid economic growth, China has built its vocational education that is of the largest scale in the world. Vocational education in China is undergoing a transition from scale-oriented growth to quality-emphasized development. What is the current development level of Chinese vocational education? Has it accomplished high-quality development? What shortcomings does it have? To answer questions like these, it is necessary to formulate an index for high-quality development of Chinese vocational education to measure its development levels.

The design of the index is grounded on new development concepts. It includes five dimensions: innovative development, coordinated development, green development, open development, and shared development, and 11 secondary indicators, which together generate 42 parameters. Statistical data were sourced from the China Statistical Yearbook 2021, China Education Statistical Yearbook 2020, and China Educational Finance Statistical Yearbook 2021, as well as websites of local statistical bureaus and provincial and municipal education departments and third-party platforms such as Shanghai Academy of Educational Sciences, MyCOS Institute, and the Think Tank on China Higher Vocational Education Development.

The entropy weight TOPSIS method was adopted to measure the index and sub-indexes of high-quality development of Chinese vocational education to discover that: (1) among the 30 provincial administrative regions investigated, only one province takes the lead in the high-quality development of vocational education, a number of them have an index value above the national average level, and the majority of them have a below-average index value; (2) there are significant regional differences in the high-quality development of vocational education, with eastern China having the highest quality of vocational education, followed by the central region, and with western China lagging behind in vocational education; (3) Chinese vocational education is characterized by insufficient innovative development, a moderate level of coordinated development, weak green development, impeded open development, and a lack of shared development.

*Source: Journal of Southwest University, 2023; 49(1):138-152.*

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NEWSLETTER

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## **Who Are Studying as Pre-Service Teachers in Universities? An Investigation of Gender Composition and Urban-Rural Backgrounds of Pre-service Teachers Enrolled between 1982 and 2019**

*By Wang, W. Y. & Xie, D. S.*

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**I**N 2018, the Chinese government issued the Opinions on Comprehensively Deepening the Reform of Teacher Supply in the New Era and the Action Plan for Teacher Education Revitalization (2018-2022) to emphasize the need to attract high-quality students to join in teacher education programs through various means such as advanced enrollment, setting public-funded targeted teaching positions, tuition refunding for novice teachers, and shortening compulsory service periods. The purpose of this study is to investigate the pre-service teacher body composition and its alterations in the past few decades to identify what kind of college students have studied as pre-service teachers and the changes in student sources for teacher education programs?

The study adopted stratified sampling to select as subjects pre-service mathematics, history, Chinese language and literature, English, art, chemistry, and ideological education teachers recruited in the years of 1982, 1990, 2000, 2010, and 2019 by six long-running teachers' universities in Shanghai City, Fujian, Shaanxi, Sichuan, and Jiangxi Provinces. The proportion of students sampled is 25% of the total enrollments in each year. The sample of the study included 12,030 subjects with their student numbers ending in odd numbers. The opportunity index was used to analyze the changes in opportunities for students of different genders and urban-rural backgrounds to participate in pre-service teacher education programs.

The research found that the number of male pre-service teachers, from both urban and rural areas is continuously decreasing, while that of female pre-service teachers, especially those from rural areas, has significantly increased, leading to the shift from a male-predominated to female-predominated composition of pre-service teacher body. As of 2019, girls had six times more opportunities than boys to enroll in teacher education programs, indicating a severe gender imbalance in pre-service teacher body composition. This imbalance existed among students from both urban and rural areas.

*Source: Journal of South China Normal University, 2023; 2023(1):38-47.*

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