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# Science Insights Education Frontiers

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## **Reassessing Concerns about School May Help Improve Academic Achievement**

*By Borman, G.D., Rozek, C.S., Pyne, J., & Hanselman, P.*

**A** STUDY published in *Proceedings of the National Academy of Sciences* looks at what impact an intervention designed to help students with concerns about starting middle school has on their academic achievement, behavior, and well-being.

Geoffrey D. Borman and colleagues conducted the study with 1,304 sixth graders at 11 middle schools in a U.S. Midwestern public school district. Within each of the 11 schools, students were randomly assigned to the intervention or control condition. The intervention group was given reflective writing exercises, two months apart, which were designed to help students reassess any concerns and worries they might have about belonging in school. The control condition exercises asked students to write about neutral middle school experiences that were not related to school belonging.

The researchers collected pre- and post-intervention survey data on students' reported social and emotional well-being, and official school records of student attendance, disciplinary records, and grades. The results of the study suggested that:

- The intervention reduced behavioral referrals by 34% (effect size = -0.14), reduced absences by 12% (ES = -0.13), and reduced the number of failing grades by 18% (ES = -0.11).
- Differences across demographic groups were not statistically significant.

The authors concluded that while previous studies recognized reappraising adversity could support college students, it appeared that the middle school students could also benefit from it during their transition period.

*Source: PNAS 2019; 116(33):16286-16291.*

## Family and Progress in Mathematics

By Zha, M., & Hall, J.

**A** RESEARCH briefing published by the Education Endowment Foundation (EEF) in the UK looks at what progress has been made in embedding evidence-informed practice within teaching in England.

As part of the brief, re Using a large sample from a longitudinal national Chinese survey, an article recently published in *Learning and Instruction* investigated how socioeconomic status (SES) and the academic expectation of the primary caregivers predicted students' attainment in mathematics.

The study used data from China Family Panel Studies, a longitudinal survey launched in 2010 and conducted every two years in 162 counties in China. In total, 1,407 adolescents were examined with data collected in 2010, 2012, and 2014, years in which the cohort grew from aged 10-15 to aged 14-19. In these years, students took three mathematics tests, the results of which were analyzed with their SES at the baseline and their primary caregivers' academic expectations. It was found that:

- Both SES and primary caregivers' academic expectation exerted positive effects on the mathematics attainment of the students in the study.
- Higher academic expectation from primary caregivers at ages 10-15 supported students to make more progress in the two subsequent mathematics tests.
- Regarding students from higher and lower SES families, higher academic expectations lessened the differences between their mathematics attainments.

The authors concluded that the findings confirmed the importance of SES in Chinese students' mathematics learning and suggested that primary caregivers' academic expectation could play a short-term mitigating role.

*Source: Learn Instruct 2019; 64:101224.*

## Results of a Large Randomized Controlled Trial of Growth Mindset

*By Yeager, D.S., Hanselman, P., Walton, G.M., Murray, J.S., Crosnoe, R., Muller, C., & Dweck, C.S.*

A RANDOMIZED controlled trial published in the journal *Nature* has found that a short, online, self-administered growth mindset intervention may improve achievement among lower-achieving students and increase overall enrollment in advanced math courses. The study, conducted by David S. Yeager and colleagues, was the largest ever randomized controlled trial of growth mindset in U.S. schools, with 12,000 ninth graders in 65 schools involved.

Students were individually randomized to either a control or intervention group. The intervention group was asked to complete two 25-minute online courses, taken three weeks apart. Students were given information about how the brain works and the latest research on growth mindset, and then they completed activities such as explaining what they had learned from the course to students in the year below. Students in the control group were given a similar program with information on how the brain worked, but no information on growth mindset.

Following the intervention, students' grade point average (GPA) in their core classes of math, science, English, and social studies, were collected. The study found that:

- GPA scores for lower-achieving students in the intervention group rose by 0.1 point relative to peers in the control group (ES= +0.11).
- The proportion of lower-achieving students with D or F averages dropped by 5%.
- Both higher- and lower-achieving students were more likely to take an advanced math class in 10th grade – meaning enrollment in these courses rose from 33% to 36% in the 41 schools that shared this data.

The authors suggested that the present research showed that' growth mindset intervention could improve academic outcomes.

*Source: Nature 2019; 573:364-369.*

## Effects of Positive Emotion Interventions on Chinese Adolescents

By Zhao, Y., Yu, F., Wu, Y., Zeng, G., & Peng, K.

IN recent years, interventions that apply positive psychology principles have become increasingly popular, providing an alternative approach to promoting students' well-being. A recent research published in *Frontiers in Psychology* examined a positive education program in China focusing on positive emotion for middle school students".

Participants were drawn from a public middle school in the city of Chengdu, China. A total of 173 eighth graders from six classes participated in this study, of which 84 were randomly allocated to the experiment group, and 89 were assigned in the control group. Students in the experiment group received a 10-session positive education program delivered by their head-teachers who received training in positive psychology from the researchers. The program consisted of three main modules, namely understanding emotions, fostering positive emotions and managing negative emotions. Each session lasted 45 minutes. Students in the control group spent the same time taking a moral education class that covered moral character, school discipline and class culture building.

Students completed online assessments of their depression level before and after the intervention. The study found that:

- The depression level of students in both groups increased as measured by the post-test.
- However, compared to the students in the control group, the increase in the level of depression of students in the experiment group was significantly lesser.

The authors suggested that comparing to correcting students' behaviors; positive interventions which kept students intrinsically motivated could also help students improve their life in an effective way.

Source: *Front Psychol* 2019; 10:1344.

## Small Class Size *v.s.* Evidence-Based Interventions

*By Ecalle, J., Gomes, C., Auphan, P., Cros, L., & Magnan, A.*

**I**N The Ministry of Education in France instituted a policy in 2002 that reduced class size to no more than 12 students in areas determined to have social difficulties and high proportions of at-risk students, called Zones d'Education Prioritaire (ZEP). In order to evaluate the effectiveness and usefulness of this policy, researcher Jean Ecalle and colleagues in France examined the results of the policy-mandated class size reduction on the reading achievement of first graders (Study 1), and compared them to the effects of an evidence-based literacy intervention on the reading achievement of at-risk children in regularly sized classes (20 students) (Study 2).

Study 1, reducing class size, involved assigning classrooms to either small (12 students/class n=100 classes) or large (20-25 students/class, n=100 classes) class sizes (with the support of the Ministry). At the start of the 2002-03 school year, 1,095 children were pretested on pre-reading skills and matched at pretest.

In Study 2, researchers separated 2,803 first graders in ZEP areas into an experimental group who received an evidence-based reading intervention, and a control group who did not. The intervention was a protocol developed by the Association Agir pour l'Ecole (Act for School), who developed a hierarchy of teaching reading based on evidence-based methods of learning to read, progressing from training phonological skills, to learning letter sounds, decoding, and fluency. Act for School monitored compliance with the protocol weekly. Class size for both groups was 20 students. Experimental teachers received a one-day training, and provided 30 minutes of instruction a day to average or high readers in groups of 10-12, and one hour a day for lower readers in groups of 4-6.

Students in the two studies were pre-tested on reading skills and matched between groups:

- The post-test results of study 1 favored the small-class-size group on word reading (ES=+0.14) and word spelling (ES=+0.22).
- The post-test results of study 2 favored the experimental group, with significant effects on word reading (ES=+0.13) and word spelling (ES=+0.12).

Researchers stated that based on the results of both studies, the optimal recommendation to improve literacy skills for at-risk students would be a double intervention, combining evidence-based practices within small classes.

*Source: Stud Edu Eval 2019; 61:12-20.*

## Printed v.s. Digital Text: A Meta-Analysis

*By Clinton, V.*

A RECENT meta-analysis in *The Journal of Research on Reading* has synthesized the findings of studies comparing print and digital text regarding time required to read, reading comprehension, and readers' perceptions of their comprehension. Researcher Virginia Clinton performed a systematic literature review, only including studies using random assignment and that were published between 2008 and 2018, yielding 29 reports of 33 studies for analysis. She found that:

- Readers require equal amounts of time to read print and digital text, although screen reading negatively impacted reading comprehension (ES= -0.25).
- Readers were more accurately able to judge their comprehension on paper (ES= +0.20) than on screen.
- The negative effect on performance for reading text from screens rather than paper did not vary for readers who were adults or children (under 18).
- However, the author suggests this finding should be interpreted with caution because there were more studies with adult participants (26) than child participants (7).

Best Evidence in Brief reported on an earlier meta-analysis solely examining reading comprehension, whose results also favored printed text.

*Source: J Res Read 2019; 42(2):288-325.*



# Identifying Factors that Influence International Student Mobility in Chinese Higher Education Institutions

Le Kang, Fulin Li, Yan Li

*Dalian University of Technology, Dalian, China*

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**Abstract:** *International student mobility has been becoming varied and complex. Chinese higher education institutions (HEIs) host about 492,185 international students in 2018, sharing 10 percent of globally mobile students. The purpose of the study was to promote understanding of factors that influence international students choose to earn academic degree in Chinese HEIs. The econometric approach was applied to identify factors that influence international student mobility in China. The total inflow of international students, the inflow of students from both developing and developed countries, and international students with undergraduate, master's and doctoral academic programs are taken as predicted variables. The political, economic, academic, socio-cultural factors were chosen as explanatory variables. From the sample data of 60 countries of origin, our data covers more than 89% of total international students earn academic degrees in Chinese HEIs during the period 2007 to 2016. The results indicated some differences in determinants of undergraduate students, master's students and doctoral students from developing and developed countries choose to study in China. The economic development level between China and the countries of origin and their bilateral trade relations are important economic factors that affect international students, and the impact on undergraduate students is more significant. The Chinese government scholarship policies and mutual recognition of academic degrees have been effectively promoted inward international students. Compared with undergraduate students, the academic ranking of Chinese universities has more significant influences on master's students and doctoral students. The geographical dis-*

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**Keywords:** *International Student Mobility; Study in China; Determinants*

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*tance and cultural distance between China and the countries of origin are important social and cultural factors. International students from developed countries are more influenced by cultural distance factor. ■*

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**Conflict of Interests:** *None.*

**I**NTERNATIONAL student mobility has been becoming complex and varied since traditional emigrant international student source countries like China are start to receive a significant number of international students. The continuation of growth in international student mobility indicated the increasing capacity in inclusive and equitable quality education provision within certain countries.

Recent data indicates that Chinese higher education institutions (HEIs) host about 492,185 international students in 2018, sharing 10 percent of globally mobile students. 63,041 international students were sponsored by Chinese Government Scholarship, shared 12.81% of the total international students. The percentage of international students pursued higher education degrees in Chinese HEIs grew from 46.34% in 2017 to 52.44 % in 2018, international students pursued either master's or doctorate degree increased to 17.3% in 2018 (MOE, 2018).

Compared to top destination for international students, the percentage of international students enrolled in China's degree programs is smaller than the United Kingdom and the United States. However, the overall robust growth in international student enrollment between 2007 and 2018 has indicated China has the ability to cultivate more talents for the world. The Chinese central government has urged universities to actively engage international exchanges and cooperation get proactive and strategic in attracting and supporting international students. It can be predicted that when China enter the stage of universal higher education after 2020, Chinese prestigious universities with broader strategic vision will speed up the pace of growth in international enrollment, and the overall international student enrollment is likely to increase for most universities. In this context, illuminating influence factors of international student mobility in China is critical to policymakers and higher education administrators.

## **Research Background**

International student mobility is an important theme of the internationalization of higher education. It is clear that there are different determinants for international student mobility. These are not mutually exclusive, may be different in importance by country and region, and can change in dominance over time.

In the empirical literature attempted to identify the determinants of international student mobility, Beine et al. (2014) estimated the importance of factors from data that cover 180 countries of origin and 13 OECD economies as destination countries over the period of 2004 to 2007. By the multi-origin and multi-destination research framework, they find language, migration network, quality of higher education and university rankings have positive impacts, geographical distance and migration cost have negative impacts on international student flows to destination countries. Abbott and Silles (2016) estimated the importance of factors by using data from 18 destination countries and 38 countries of origin over the period 2005 to 2011. The study also confirmed that international students prefer to study in countries that share the same language, and geographical distance significantly reduced international students from economically disadvantaged countries.

With the implementation of macro international education policies such as “Study in China”, the expansion of the scale of international students in China arouse research interests of scholars. Song and Liu (2014) investigated the determinants of international students in China by employing the gravity model with a sample of international students from 22 countries from 1997-2012. The main findings showed that international students were attracted by China’s continuous economic development and promising development potential, bilateral economic linkage with China, mutual recognition of academic credentials and degrees. Wang and Chen (2018) found that economic development level, bilateral economic cooperation, educational opportunities and education quality, mutual recognition of academic credentials and degrees, international students’ scholarship opportunities, and geographical distance all have significant impact on graduate students from the Belt and Road countries choose to study in China. Geographical distance and linguistic discrepancies have been considered as obstructive factors in those studies of Chinese scholars.

These empirical literature provides important insights into identify the determinants of international student mobility. However, there are certain limitations in previous empirical studies. On the one hand, previous studies mainly focused on international student mobility in developed countries and prestigious institutions, less attention has been paid to the determinants of international student mobility in developing countries. The increasing competition for international students and academics in developing countries like China cannot be ignored. On the other hand, previous research mainly treated international students as a whole group, failing to reveal the differences in motivation and influencing factors between international students enrolled in undergraduate, master’s and doctoral academic programs and short-term exchange students.

## **Theoretical Framework**

It is quite complex to develop a comprehensive understanding of the determinants of international student mobility. de Wit (2010) identified four broad categories of rationales for internationalization of higher education: political, economic, academic, social and cultural rationales. These four categories have been widely accepted by many scholars around the world. This theoretical framework can be used in Our study to examine the determinants of international student mobility.

In order to measure political rationales, our study focus on Chinese government policies act on the attraction of international students, such as Chinese Government Scholarship policy that support international students to study in HEIs, government policies about international reciprocity in academic degrees and mutual recognition of academic degrees.

As Wei (2013) identified in previous research, in the case of students from developing countries, they, compared with students from developed countries, put more weight on the economic factors, such as per capita GDP gap between countries, higher education expenditure as percentage of GDP, and purchasing power parity. We choose per capita GDP gap between countries and bilateral trade volume as economic factors.

We assume larger volume of bilateral commodity trade has a positive and significant correlation with international student mobility.

Among those academic factors, Van and Veugelers (2013), Beine (2014) found that the quality of higher education had a positive and significant effect on the flows of international students. University international rankings seem to become more dominant variable to measure academic factors (Brezis & Soueri, 2011). Thus, our study chooses university international academic rankings as an independent variable.

International students are crossing geographic and cultural borders in the pursuit of an international education. This study chose geographical distance and cultural distance to measure social and cultural factors. This study assumed that a country has strong culture links with China, with closer geographical distance and smaller cultural distance; their students are more inclined to study in Chinese HEIs.

## **Research Design**

This study uses a multi-origin framework to identify the main factors affecting international students earn academic degree in Chinese HEIs. The study attempted to estimate the importance of those factors using macro-level panel data covering undergraduate students, master's students and doctoral students study in Chinese HEIs during the period 2007 to 2016. We selected 60 countries of origin, the number of international students from these countries covers more than 89% of international students earn higher education degrees in Chinese HEIs.

In the period 2007 to 2016, due to the widespread impact of the global financial recession, there were severe budget-cuts in higher education sector in developed economies. As the recession moved from the US to Europe and Australia, many public universities faced the challenge of supporting international students. At the same time, with GDP rapid growth, Chinese government invested significantly in higher education sector, and pushed HEIs towards offering affordable and accessible academic programs, thus fueling international student mobility in Chinese HEIs. The Chinese government funding for international students was 0.942 billion CNY in 2007, 1.55 billion CNY in 2012, up to 2.388 billion CNY in 2016. The total amount of international students in China was 195,503 in 2007, up to 442,773 in 2016, 492,185 in 2018. The overall numbers of international students and the ratio of degree students had been steadily climbing over a ten-year period (**Table 1**).

## **The Econometric Model**

The econometric approach was applied to identify the determinants of international student mobility in HEIs in China. The political, economic, academic and socio-cultural factors were chosen as explanatory variables.

To investigate the determinants of international student mobility, an econometric model can be described as the following equation:

**Table 1. The Number of International Students in China (2007-2016).**

Year	Intl. Students-Total	Intl. Students-Degree	Ratio
2007	195,503	68,213	34.89%
2008	223,499	80,005	35.80%
2009	238,184	93,450	39.23%
2010	265,090	107,432	40.53%
2011	292,611	118,837	40.61%
2012	328,330	133,509	40.66%
2013	356,499	147,890	41.48%
2014	377,054	164,394	43.60%
2015	397,635	184,799	46.47%
2016	442,773	209,966	47.42%

$$\ln(\text{international students}_{cjt}) = \beta_0 + \beta_1 \text{GDPpc ratio}_{cjt} + \beta_2 \ln(\text{trade}_{cjt}) + \beta_3 \ln(\text{distance}_{cjt}) + \beta_4 \text{rank}_{ct} + \beta_5 \text{scholarship}_{cjt} + \beta_6 \text{other}_{cjt} + \epsilon_{cjt}$$

In this equation, the predicted variable is the “number of international students enrolled in Chinese HEIs in the *t* period”. A way to measure international student mobility is to use the numbers of international students enrolled in higher education in the host country. Hence, factors that influence enrollment numbers can be seen to represent factors that influence international student mobility.

The subscript *c* and *j* respectively represent China and the country of origin. The time is represented by *t*.

International students’  $c_{jt}$  represents number of international students from the origin country *j* taking admissions in undergraduate, master or doctoral academic programs in Chinese HEIs in the *t* period.

The ratio of China’s GDP per capita to the source country’s GDP per capita indicates per capita GDP gap between China and source countries.

$c_{jt}$  represents the bilateral influencing factors of the time period, while  $ct$  represents the destination factors of the *t*-period.

Other  $c_{it}$  includes two control variables: Cultural distance and mutual recognition of academic degrees.

$\hat{\beta}_0$  represents a constant term.  $\epsilon_{cjt}$  represents a random perturbation term.

## Selection of Variables

### Data Sources

The data mainly collected from the Statistics of International Students in China compiled by the Department of International Cooperation and Exchange of MOE.

The data of GDP per capita and bilateral trade volume of commodities are collected from the World Bank database and China’s National Bureau of Statistics.

**Table 2. List of Variables.**

Variable	Description	Source
<i>Predicted Variable</i>		
International students	Number of degree students who taking admissions in undergraduate, master or doctoral programs in Chinese HEIs.	Statistics of International Students in China Ministry of Education, China
<i>Explanatory Variables</i>		
Ratio of GDP per capita	The ratio of per capita Gross Domestic Product (GDP) in China to per capita GDP in the international student source countries.	World Bank Development Indicators China's National Bureau of Statistics
Bilateral trade volume	Total import and export commodities between China and source countries.	World Bank Development Indicators National Bureau of Statistics, China
Geographical distance	The distance between the capital cities.	CEPII
Cultural distance	The differences of cultural values amongst countries. If international student source country belongs to the Confucian cultural circle, take 1, otherwise take 0.	Relevant historical documents
University ranking	The proportion of Chinese universities in the top 500 universities of the Academic Ranking of World Universities.	Shanghai Ranking official publisher
Chinese government scholarship	Government scholarship policies that support international students to study in China. The proportion of Chinese government scholarship awarded to international students of source countries to total international students with Chinese government scholarship.	Statistics of International Students in China Ministry of Education, China
Mutual recognition of academic degrees	International reciprocity in academic degrees, mutual recognition of academic degrees between China and source countries.	Ministry of Education, China

Geographic distance data are collected from CEPII database.

The data of university ranking are collected from Shanghai Ranking's Academic Ranking of World Universities.

Other data are collected from the website of MOE and related literature. All data in our study do not include Hong Kong, Macao and Taiwan.

**Table 3** shows the descriptive statistics of all the variables included in the analysis.

## Measuring Determinants

**Table 3. Summary Statistics.**

Variable	Obs	Mean	SD	Min	Max
Intl students-degree	600	1,942.502	3,796.906	10	26,921
Intl students of Developing countries	440	1,818.811	2,684.452	23	16,781
Intl students of Developed countries	160	2,282.65	5,852.849	10	26,921
Undergraduate students	600	1,450.317	3,162.436	6	23,176
Master's students	600	363.910	557.756	3	3,019
PhD students	600	128.275	314.490	0	4,582
Ratio of GDP per capita	600	14,240.740	18,482.973	272.391	61,174.545
Bilateral trade volume <sub>cjt</sub>	600	40,069.497	75,304.59	58.43	557,022.7
University ranking <sub>ct</sub>	600	0.076	0.017	0.050	0.108
China scholarships <sub>cjt</sub>	600	23,713.8	11,206.733	6615	43,186
Mutual recognition <sub>cjt</sub>	600	0.517	0.500	0	1
Geographical distance <sub>cj</sub>	600	6,709.713	3,340.807	809.85	16,928.99
Cultural distance <sub>cj</sub>	600	0.200	0.400	0	1

## Regression Analysis on Determinants of International Student Mobility in China

This study used Stata 14.0 to analyze and estimate samples using fixed effects model and random effects model, respectively. Hausman test was carried out on the estimation results, and the test value is 35.96 (DOF 5), P value is 0.0000, strongly rejecting the original hypothesis (random effect), indicating that the fixed effects model should be selected (**Table 4**). In addition, by examining the problems of inter-group heteroscedasticity, sequence correlation and intra-group autocorrelation that may exist in the model, the test results showed that the original hypothesis was strongly rejected. Therefore, this study used clustering robust standard deviation to eliminate the effects of heteroscedasticity and sequence correlation.

Under the Fixed-effects model, the variables of “the ratio of GDP per capita of China to the countries of origin” and “bilateral trade volume in total” were significantly positive at the 1% confidence level. The result implies that with the economic development of China, the more trade cooperation with the countries of origin, the more favorable it will be for China to attract its international students.

“Geographical distance” is significantly negative at the 1% confidence level, indicating that distance was still one of the obstacles for international students studying in China.

“International ranking of Chinese universities” and “Chinese government scholarship” were significantly positive at the confidence level of 1% and 5%, indicating that the quality of higher education in China is the main factor attracting

**Table 4. Analysis of the Regression Results of the Determinants of International Student Mobility.**

Variable	M1-Intl. Students Fixed-Effects	Random-Effects	VIF
Ratio of GDP pc	0.163*** (3.96)	0.138*** (4.75)	1.75
Intrade	0.259*** (5.92)	0.293*** (7.79)	1.73
Indistance	-0.032*** (-7.51)	-0.034*** (-8.32)	1.54
Ranking	19.869*** (10.96)	18.701*** (10.82)	1.34
Scholarships	6.591** (2.55)	11.718*** (4.70)	1.23
Constant	3.265*** (10.07)	3.150*** (9.87)	
Hausman	35.96 (0.0000)		
Obs	600	600	600
R <sup>2</sup>	0.760	0.746	

international students to study in China, and Chinese government scholarship is an important policy lever to effectively increase the number of international students from the countries of origin.

### **Classification Regression Results Based on Different Countries and Different Levels of Chinese HEIs**

International students studying in Chinese HEIs came from 196 countries and regions. Top ten countries of origin with the largest number of international students were Korea (with 50,600 students), Thailand (with 28,608 students), Pakistan (with 28,023 students), India (with 23,198 students), the United States (with 20,996 students), Russia (with 19,239 students), Indonesia (with 15,050 students), Laos (with 14,645 students), Japan (with 14,230 students) and Kazakhstan (with 11,784 students) (MOE, 2018).

We selected top 60 source countries in global range, as listed in **Table 5**. The selected countries were divided into 44 developing countries and 16 developed countries according to the classification criteria of the World Bank, which were brought into model 2-3 for analysis. The international students was divided into undergraduate students, master's students and PhD students groups, and the regression analysis was carried out in model 4, 5 and 6.

The results of the Hausman test showed that the five models strongly reject the null hypothesis (random effect), indicating that the fixed effect model should be

**Table 5. Sixty Major Countries of Origin.**

Forty Four Developing Countries	Thailand, Pakistan, India, Russia, Indonesia, Kazakhstan, Vietnam, Laos, Mongolia, Malaysia, Myanmar, Nepal, Bangladesh, Kyrgyzstan, Yemen, Uzbekistan, Philippines, Tajikistan, Sri Lanka, Cambodia, Turkmenistan, Saudi Arabia, Turkey, Korea, Iraq, Iran, Jordan, Nigeria, Tanzania, Zambia, Zimbabwe, Cameroon, Kenya, Ethiopia, Sudan, South Africa, Rwanda, Mauritius, Egypt, Brazil, Mexico, Ukraine, Belarus
Sixteen Developed Countries	Korea, US, Japan, Singapore, Canada, France, Germany, UK, Italy, Australia, Spain, Netherlands, Poland, Sweden, Belgium, Denmark

selected. The regression results of model 2 showed that for the international students of developing countries, the “bilateral trade volume in total” and “Chinese university rankings” were significantly positive at the 1% confidence level.

The regression results of model 3 showed (**Table 6**) that for the international students of developed countries, “ratio of GDP per capita” was significantly positive at the 1% confidence level, “Chinese university rankings” were significantly positive at the 10% confidence level, and “geographic distance” factor was negative at 10% confidence level.

Comparing the results of model 2 and 3, international students of developing countries were more influenced by “bilateral trade volume”, “university international ranking”, “geographic distance” and “China government scholarship”.

The empirical analysis results of model 4, 5 and 6 showed that the ratio of GDP per capita between China and source countries, and the international academic ranking of Chinese universities were significantly positive at 1% confidence level for undergraduate, master and doctoral students. “Bilateral trade volume” had a significant positive correlation with 1% confidence level of undergraduate and master students, and had a greater impact on undergraduate students and master students, but had no significant impact on doctoral students. More PhD candidates with professional academic training were inclined to find a job in universities or institutes, so they were less influenced by international trade.

## Regression Analysis under Random Effects Model

The study selected “cultural distance” and “mutual recognition of academic degrees” as control variables. The control variables were fictitious variables and have zero values; the random effect model was used to capture variables that were unobservable and invariant at the national level.

From the regression results in **Table 7**, “cultural distance” was significantly positive at 1% confidence level, and “mutual recognition of academic degrees” was

**Table 6. Classified Regression Results.**

Variable	M2	M3	M4	M5	M6
Ratio of GDP pc	0.110** (2.47)	7.768*** (2.91)	0.202*** (4.41)	0.157*** (3.33)	0.220*** (4.50)
Intrade	0.216*** (4.72)	0.355 (1.59)	0.298*** (6.15)	0.232*** (4.64)	0.051 (0.98)
Indistance	-0.035*** (-7.23)	-0.018* (-1.94)	-0.040*** (-8.53)	-0.008 (-1.54)	-0.017*** (-3.38)
Ranking	22.528*** (10.19)	8.208* (1.75)	14.683*** (7.29)	31.640*** (15.22)	28.825*** (13.37)
Scholarships	5.255* (1.81)	8.061 (1.36)	2.083 (0.72)	21.531*** (7.26)	19.390*** (6.34)
Constant	3.687*** (11.18)	1.727 (0.90)	2.944*** (8.16)	0.469 (1.26)	0.669* (1.72)
Hausman	24.52 (0.0002)	14.09 (0.0150)	29.93 (0.0000)	18.96 (0.0020)	28.86 (0.0000)
Fe	Yes	Yes	Yes	Yes	Yes
Obs.	440	160	600	600	600
R <sup>2</sup>	0.788	0.681	0.710	0.752	0.715

significantly positive at 5% confidence level.

The regression results of model 2-3 showed that the “cultural distance” factor was significantly positive in both developing and developed countries group, with the confidence level of 5% and 1% respectively. Regression results of model 4-6 showed that “cultural distance” was significantly positive for all international students at 1% confidence level. This means that although there are great cultural differences between the countries of origin and China, the scale of the students studying in China can also grow.

A positive statistically significant relation of mutual recognition of academic degrees, as found, the confidence level of “mutual recognition of academic degrees” for undergraduate students and master’s students was significantly positive at 5% and 10%, respectively. “Mutual recognition of academic degrees” had a positive effect on international students, but it was not significant for PhD students.

## Conclusion and Policy Implications

**Table 7. Overall Regression Results under Random Effects Model.**

Variable	M1 Intl. Stu- dents	M2 Intl. Students of Develop- ing Countries	M3 Intl. Stu- dents of Developed Countries	M4 BA Stu- dents	M5 MA Stu- dents	M6 PhD Stu- dents
<b>GDPpc ratio</b>	0.160*** (5.25)	0.104*** (3.26)	4.748** (2.39)	0.193*** (5.36)	0.118*** (4.09)	0.146*** (4.20)
<b>Intrade</b>	0.306*** (7.87)	0.273*** (6.38)	0.746*** (4.76)	0.346*** (7.63)	0.271*** (6.91)	0.176*** (3.90)
<b>Cultural_dist.</b>	1.058*** (3.98)	0.686** (2.39)	1.506*** (2.68)	1.366*** (3.88)	0.631*** (2.67)	0.925*** (2.86)
<b>Ranking</b>	28.294*** (20.32)	31.181*** (17.69)	14.704*** (3.84)	25.642*** (16.16)	33.590*** (22.99)	32.626*** (20.45)
<b>Scholarship</b>	10.005*** (3.81)	8.111*** (2.78)	11.336* (1.92)	4.473 (1.50)	24.467*** (8.87)	21.702*** (7.25)
<b>Recognition</b>	0.507** (2.41)	0.553** (2.40)	0.114 (0.27)	0.603** (2.16)	0.325* (1.75)	-0.231 (-0.90)
<b>Constant</b>	1.234*** (4.34)	1.613*** (5.48)	-2.421** (-2.10)	0.477 (1.39)	-0.321 (-1.14)	-0.727** (-2.17)
<b>Re.</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Obs.</b>	600	440	160	600	600	600
<b>R<sup>2</sup></b>	0.733	0.758	0.665	0.669	0.750	0.705

Our study has analyzed the determinants of international student mobility in Chinese HEIs. And found that,

First, Chinese government scholarship policy and mutual recognition of academic degrees between China and origin countries are important political factors that influenced international student mobility in Chinese HEIs. Compared with international students of developed countries, those from the developing countries are more influenced by China government scholarship policy and mutual recognition of academic degrees. Undergraduates and master's students are more concerned about the recognition of academic degrees they earned from Chinese HEIs, whereas doctoral students are not influenced by mutual recognition of academic degrees.

Second, the results indicated that the economic development level and bilateral trade relations are important economic factors that affect international students. Compared with both Master's and Doctoral students, undergraduate students are more likely to be influenced by economic development level and bilateral trade relations. Bilateral trade relations may bring more commercial cooperation and job opportunities for undergraduates. In comparison with international students from the developed countries, those from the developing countries are more influenced by "bilateral trade volume".

International students of developed countries are more influenced by per capita GDP ratio between China and countries of origin.

Third, the international ranking of the university is an important academic factor affecting international student mobility. Compared with undergraduate students, the international academic ranking of universities has more significant influences on master's and doctoral students. International students from developing countries are more likely to be influenced by university international ranking. In addition, it is easier for international students from developing countries (in particular, countries covered by the Belt and Road Initiative) enrolled in Chinese world-class universities with Chinese government scholarship. Some international programs were developed on some disciplines ranks the top 1% and 1% of ESI in the world, while tuition fees and living costs of world-class universities in China are much lower than the US, UK and Australia.

Additionally, another important factor is the geographical and cultural distance between China and countries of origin. Compared with undergraduate students, master's and doctoral students are less likely to be influenced by geographical distance. Compared with students from developed countries, students from developing countries are more likely to be influenced by geographical distance. Cultural distance is significantly positive for all students who are studying from undergraduates, Master's and Doctoral degrees. International students from developed countries are more likely to be influenced by cultural distance factor. The result explained why China has been becoming the most popular destination for Asian students, and Chinese language and literature has been becoming the most popular degree programs among international students from developed countries.

It is worth mentioning certain limitations of our study which can provide further refinement and elaboration on the same theme. First, if researchers have resources to conduct more longitudinal data, it would be better to expand countries of origin, sample data and time span. The second limitation of this study is the variables. "National security" and "foreign policy" should be considered when measuring political factors. Additionally, scholars may consider adding some new social-cultural factors such as internet, environmental quality, cultural characteristics of post-2000s college students in the future empirical studies.

The current trends of international student mobility showed that the interest and demand for gaining global educational experiences remains strong (Choudaha, 2017). However, increasing competitions and expectations on international education require proactive and concerted efforts to maintain a stable inflow of international students. Our findings focus on China, but could be applied to other countries which would like to be an attractive destination or maintain the global competitiveness of international education.

The implication from the findings of this study provides some needed information and evidence to policy makers, higher education administrators and education practitioners. Concerning the determinants of international student mobility, we suggest that,

Improving the government scholarship policies is important for attracting more promising international students. The scholarship is a big investment on international education in the long run will have an essential impact on international student mobility. The scale of scholarships for international students reflects a kind of soft power of higher education systems. The government scholarships as global public goods, brings more opportunities for international students who have the potential to receive high-quality higher education worldwide. As described earlier, Chinese Government Scholarship has proven to be effective in expanding the scale of master's and PhD students, and enhanced the quality of international students. In 2018, there were 63,000 Chinese Government Scholarship students studying in China, accounting for 12.8% of the total number of international students. In 2018, 70% Chinese Government Scholarship sponsored students are master's and PhD students. However, policy makers still need to pay attention on institutional scholarship policies.

With the expansion of bilateral economic and trade cooperation between China and countries of origin, international students with higher education experience in China has become a competitive group in the labor market. Many international students would like to take advantage of their education experiences and seek to capitalize on the job opportunities presented by China's sustainable economic development and global engagement. We suggest that the local government and universities adjust employment policies and rules for foreign students, support international students find internship program, develop employment opportunities or start businesses in China. Inward international students do have an economic impact on HEIs and enterprises. However, for Chinese higher education providers, main purpose of attracting international students is not pursuing short-time economic profits, they give more weight to gain a better international academic reputation on teaching and research.

The excellence of international ranking means universities are more competitive in attracting international students. The scale of international students is also conducive to universities gaining new competitiveness in some international academic rankings. Beneficial effect of increased international student mobility will only occur if student mobility is guided by education quality considerations in international contexts suggesting that institutions and departments play a role in both producing high-quality education programs and academic support services assurance, so as to encourage international undergraduates to pursuing higher degrees in China.

China has profound cultural tradition and has formed a distinctive and far-reaching cultural system through the accumulation of knowledge in thousands of years of civilization. In fact, the cultural differences between the countries of origin and China have not hindered international students, and to some extent, the cultural diversity is in turn important in attracting students from different countries. We suggest Chinese higher education providers give international students more opportunities to in touch with Chinese native students, to participate in more social activities and cultural experience to enhance their understanding of Chinese history and culture. The cultural experience can also be reached by Chinese traditional culture curriculum, intercultural classroom setting, and the teaching and learning process.

Geographical distance acts as a mobility cost. International students had begun to choose to study at prestigious institutions closer to their home. We suggest the government invest and encourage more Chinese HEIs establish high quality Sino-foreign joint institutions, oversea campuses and deliver transnational education programs in other countries covered by the Belt and Road Initiative. In additional, Chinese HEIs can establish more international student hubs in countries which has strong cultural links with China, it will be easier for these institutions to attract talented and promising international students. ■

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# The Influence of Cognition on the Knobe Effect of Juvenile Intention in the Field of Social Rules

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**Abstract:** We set up experimental stories that violated and abided by domain rules, negative and positive side effects, and selected 850 middle school students to read stories and answer questions to explore the characteristics of the juvenile Knobe effect under cognitive conditions in three single social rules. The results showed that: (1) When the teenagers violate the domain rules, the Knobe effect is exhibited in the three types of events, and in the case of complying with the domain rules, only the Knobe effect occurs in the personal field, and (2) The domain rules are observed. Under the positive side effects, boys are more inclined to judge the intentions of positive side effects in the field of ethics and customs than in girls. (3) With the development of age, the juveniles' judgments on the side effects are also inverted U-shaped, which is consistent with the development of moral judgment age. The conclusion is that adolescents have only an incomplete Knobe effect in a single-field event, and the specific performance is influenced by domain rules and domain types.

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**T**HE Knobe effect, also known as the side-effect effect, is an asymmetry found by Joshua Knobe about intentional judgment. If the consequences of an action are predictable, but not expected to occur, then the consequences of such behavior are called side effects. The Knobe effect refers to the phenomenon that people tend to think of bad side effects as intentional, and tend to think that good side effects are unintentional (Knobe, 2003).

The Knobe effect discovered by Knobe (2003) illustrates the influence of moral valence on intentional judgment. The moral valence theory holds that moral judgment is first. In the case of behavior that has been judged to be bad, as long as the result is foreseen (i.e. known Side effects, beliefs about intentions, judge behavior is intentional, and when judgment behavior is good, beliefs with side effects do not indicate intentionality, but also other aspects such as expectations and skill components. information. The evaluation of the reward and punishment characteristics occurs after the intentional judgment, and is based on the function of the intentional folklore concept: the behavior with stronger intentions should be more rewarded or punished. But moral parity has a major flaw. There is no clear line between whether morality and behavior should be rewarded or punished. For example, Konbe and Mendlow (2004) used negative side effects in a neutral experimental scenario (Director Long to improve the performance of the A region, foresight will affect the performance of the B region), most of the participants still judged that the chairman is intentional, but most of the participants (80%) believe that the chairman's behavior is Unrecognized and impunity, although the study cannot deny the role of moral valence theory, but it also exposes the limitations of moral valence theory, suggesting that the mechanism of moral valence theory may not be so simple, it needs to be set. More complex experimental scenarios on moral evaluation are studied in depth.

The emergence of the Knobe effect shows that people are not so rational when making intentional judgments and the nature of behavioral morality affects people's intentional judgment. Although there is no unified conclusion on the theoretical interpretation of Knobe effect, we can find out the different theoretical interpretations. We can find that the biggest controversy lies in whether it is related to moral judgment. Most of the theories recognize the special significance of moral judgment, and believe that the potential application value of moral judgment leads to asymmetric intention judgment. The difference between these theories lays in the mechanism of the special function, including Knobe's moral potency theory, Nadelhoffer, etc. Interpretation of human psychological prejudice, practical interpretation of the language of Adams and Steadman, etc.; and some theories that the Knobe effect is actually unrelated to moral issues, which is just an ordinary attribution process, such as Machery's trade-off assumption (Du & Zheng, 2010).

Ethical potency theory (Knobe, 2003; Knobe & Mendlow, 2004; Knobe, 2006) emphasizes the relationship between intention and moral judgment. This theory explains that people's judgment of behavioral intention is determined by two attribution processes. Judging, the second step is based on the moral valence of behavior, and then the intention judgment. When the behavior is judged to be bad, only the subjectively predicts the result, that is, the belief component (the actor knows) in the intention, can determine that the actor is intentional and purposeful; but if the behavior is judged to be good personal beliefs or experiences do not fully explain that behavior is intentional, but also need to examine other information components such as expectations and habits. The theory holds that the judgment of whether the behavior should be rewarded or punished occurs after the judgment of the behavioral intention; the judgment of the moral valence of the behavior is made intuitively. The subsequent reward and punishment judgment belongs to a more rational moral and responsibility judgment. Based on this theoretical explanation, there is also a constructive assumption that intentional judgment may be heuristic (Feltz, 2007). For bad behavior, people can judge it as intentional based on a small amount of information; but for good behavior, there is no such heuristic understanding, and people usually judge more comprehensively and rationally.

Nadelhoffer's (2005) psychological bias explained that the Knobe effect originated from a negative evaluation of behavioral actors in experimental situations. Negative evaluations cause people to have psychological prejudice, and thus hope to condemn the behavior implementers, and tend to judge the behavioral implementers' intentions to cause negative side effects. Similarly, if it is a positive situational condition, people's behavior evaluation of the implementer is also appraisable, positive and favorable; it also produces the psychological bias of the implementer of the reward behavior, and also tends to judge the behavior implementer is intentional, but only it is better to want to be rewarded than to want to be punished. The assertion is based on ethical considerations of conditions of different nature (positive, neutral, negative), and it is believed that it will have different effects on the judgment of behavioral intentions, but under negative conditions, the influence is more obvious. Moral judgment of behavioral intentions is not limited to simple judgments of good or bad, but it is considered more important to consider whether individual behavior is rewarded or punished.

Then, whether the influence of different moral behaviors has a side effect on the intention judgment, there is no relevant research in the literature. Therefore, this study controls the actors' factors and studies the Knobe effect from the moral evaluation of behavior. Taking adolescents as the research object, the social cognitive domain theory is selected to divide social rules or events, and the observance or violation of events in the field of social cognition is integrated into the behavior of the actors. Behavior produces a moral color. Since the age of seven, it is possible to distinguish between events or rules in three areas. And it is generally believed that the severity of moral violations is greater than the violations of customs and personal areas, and the violations of customs are greater than the violations of events in the personal field. Therefore, it is assumed that the moral field violates the lowest moral evaluation of behavior, then by the violation of the custom field, followed violations in the personal field. The Knobe

effect is characterized by cognitive influence in the field of social rules by observing or violating the domain type.

## **Methods**

### **Participant**

From the six middle schools in Nanjing, 108 students in the seventh grade (61 boys, 47 girls, average age  $12.51 \pm 0.54$ ), 109 in the eighth grade (51 boys, 68 girls, average age  $13.44 \pm 0.54$ ), ninth grade 107 people (56 boys, 51 girls, average age  $14.71 \pm 0.50$ ), 213 people in grade 10 (147 boys, 66 girls, average age  $15.62 \pm 0.55$ ), 209 in the eleventh grade (115 boys, girls 94 Persons, 104 students in the 12th grade (25 boys, 79 girls), a total of 850 participants, (Note: Grade 10 and 11 students from ordinary high schools and vocational high schools, 12th grade students only from ordinary high schools) . Random stratified sampling was chosen on the sampling method.

### **Experimental Materials**

According to the context framework of Knobe effect, the Knobe effect context of three single domain events was designed. Each domain situation has been designed with different stories that conform to and violations of domain rules. Each story has both positive and negative side effects. In order to control the influence of the actors, all story actors are classmates. Refer to the relevant literature (Nucci & Turiel, 2009) and interview the students and teachers in the school to compile the corresponding experimental stories to make the story close to the real life of Chinese teenagers. The specific story frame is shown in **Table 1**.

### **Experimental Procedure**

A mixed experimental design using 3 (domain type: ethics, individual, custom)  $\times$  2 (rule of nature: compliance, violation)  $\times$  2 (side effects: positive, negative). The domain type is the inter-subject variable, and the three classes of each grade complete the story of different domain types. The rule nature and side-effect conditions are the internal variables of the subject. Each participant read a story that complies with the rules of the field and a rule that violates the domain. Each story includes positive and negative conditions and a total of four story scenarios are read. The following is an example of a story in which the personal domain violates the rules of the field and the side effects are positive.

On the birthday, Mingming Wang wanted to buy online game equipment with a pocket money that was accumulated for half a year. Classmate You Hu said to Mingming Wang: You cannot only win more online games, but also your brother can't ask for money to go online to the internet, so that his grades can be improved. Mingming Wang said: "I don't care if my brother is improving his academic performance because he has no money to go online. I only care if I can win in online games." Mingming Wang bought his pocket money for online game equipment, and his brother

**Table 1. Social Rules Field Events Promise in the Experiment Story Cloth Effect.**

<b>Domain Type</b>	<b>Rule Nature</b>	<b>Behavioral Background</b>	<b>Side Effects &amp; Specific Performance (1 = Positive, 2 = Negative)</b>
Moral	Comply With	Injured primary school students on the road to the hospital	1. Class commended by the school 2. The class was criticized by the school.
	Violation	The exam is not good enough to steal the final exam scores	1. My sister is encouraged 2. Sister punished
Personal Field	Comply With	I like to sing and sign up for the singing competition.	1. The class added points. 2. Class points the
	Violation	I bought online game equipment with my pocket money.	1. The younger brother's academic performance has improved. 2 , my brother's academic performance has dropped
Customary Field	Comply With	Require the teacher's consent to change seats as required	1. In contrast to change seats to improve the achievement of students 2. In contrast to change seats achievement of students dropped
	Violation	Do not clean the table according to the value specified by the school	1. Classmates who have been cleaning together have been praised 2. Cleaning with students has been criticized

is just like what his classmates said, because his brother can't ask Mingming Wang to spend money online, so his academic performance has improved.

Referring to previous studies (Du, 2010; Chen & Geng, 2013), the problem and coding method are set as follows:

Question 1: To what extent do you agree that "Mingming Wang was intentionally letting his younger brother improve his academic performance?" This question is the question of intentional judgment, "completely disagree" to "completely agree" 5 points, the higher the score, the more obvious the tendency to make "intentional" judgment.

Question 2: How do you evaluate Mingming Wang 's purchase of online game equipment, and his younger brother's academic performance improved? The behavioral nature of the evaluation problem (see question 2), 5 points score, the higher the score, indicating that the evaluation is better.

Question 3: Mingming Wang used pocket money to buy online game equipment. His younger brother's academic performance improved. Should Mingming Wang be praised? This question is the evaluation question of behavior reward and punishment.

In the case where the side effect is negative, the question is described as "...whether it should be condemned". In the case where the side effect is positive, the question is described as "...whether it should be praised". In the 5-point scoring method, the larger the number selected, the more obvious the reward and punishment evaluation characteristics of behavior.

Question 4: Does Mingming Wang mainly want to buy online game equipment or want his brother's academic performance to improve? This is behavioral motivation judgment problem (see question 4). There are two small questions. The first question is the judgment of the main motivation, that is, the content of the "I don't care... I only care about..." in the actor's language description, such as "I want to win in online games", The second question is the judgment of the secondary motivation, that is, the part of the actor's language description that "I don't care..." does not care, such as "thinking the younger brother to improve the academic performance", each motivation is measured separately, with 0-6 indicates from "not at all" to "completely", the greater the number, the stronger the motivation.

## **Results**

### **Indirect Intention of Side Effects in a Single Domain Class**

The type of field in this study is inter-group variable, so we can compare the intentional judgment of two side effects under the same field rule in a single field and the side-effect intention of different field rules in a single field under the same side effect condition. Analysis of the characteristics of the Knobe effect, see **Table 2**.

It can be seen from Table 2 that when the rules of the field are observed, there are differences in the intentional judgment under the two side effects in the personal field, and the judgment is significant under the negative conditions, and there is no such significant difference in the moral field and the customary field. When the rules of the field are violated, differences in the intentional judgment of side effects occur in the moral field, the personal field, and the customary field, and the intention is judged to be significant under negative conditions.

Judging from the same side-effects, in addition to the negative conditions in the customary field, there are side effects in other fields and conditions that are intended to judge the difference in the nature of the domain rules. The side-effect behaviors in violation of the domain are more inclined to be judged as intentional as the side-effect behaviors in the field.

### **Intention to Determine Gender Differences in Side Effects of Events in a Single Field**

To study the difference of gender variables, firstly, in each field, a paired sample t test of intentional judgment scores under two side effects conditions was first carried out,

**Table 2. Intentions in Different Field Types and Domain Rules.**

Condition	Moral Field (N = 277)				Personal Area (N = 295)			Customary Field (N = 278)		
		Neg.	Pos.	t <sub>1</sub>	Neg.	Pos.	t <sub>2</sub>	Neg.	Pos.	t <sub>3</sub>
Comply With Field	<i>M</i>	1.78	1.64	1.53	2.33	2.10	4.23**	2.40	2.30	1.02
	<i>SD</i>	1.28	1.04		1.56	1.32		1.26	1.27	
Violation Field	<i>M</i>	2.70	1.95	7.56**	3.13	2.40	2.25*	2.28	1.72	6.00**
	<i>SD</i>	1.40	1.08		2.75	1.34		1.36	1.02	
t value	-	-	-	-	-	-	-	1.31	7.13**	
		7.95**	3.83**		3.19**	4.37**				

*Note: t<sub>1</sub> is a comparison of intentional judgments under the two side effects of rules in the same field in the moral field; t<sub>2</sub> is a comparison of intentional judgments under the two side effects of rules in the same field in the personal field; t<sub>3</sub> is a rule in the same field in the customary field Compare judge intentions at both side effects; t value is under the same conditions, side effects, in the same field, the comparison to determine compliance with the intent and breaches of rules. Independent stand sample t test d value of 0.67 - 0.78 between the above described effects of the amount of medium.*

and then an independent sample t test was performed on the intention judgment between gender variables. The results are shown in **Table 3**.

From Table 3, we can see that when the violation of the domain rules, in addition to the violation of the rules of the personal field, the differences between the two side effects of the boys are not significant; when the other areas violate the rules, regardless of the intent to judge the two side effects of boys and girls, the difference in learning is significant. In addition, when obeying the rules of the field, both male and female subjects in the judgment of the personal field showed significant differences in the intentional judgment of the two side effects.

Comparing the differences between boys and girls, it is found that when the rules of the field are observed, there are significant differences in the moral field and the customary field under the conditions of positive side effects. Boys are more inclined to have intentions than the positive side effects of girls in these two fields.

### **The Intent of the Side Effects of Events in a Single Field to Determine the Grade Difference**

The intent judgment result is the dependent variable, the grade level and the domain type are inter-group variables, the domain rules and side-effect conditions are the inter-subject variables, and the repeated measurement analysis of variance results are shown in **Table 4**.

It can be seen from **Table 4** that the main effects of the four variables of grade, domain type, domain rules, and side-effect conditions are significant, and the interaction between the two is significant with domain rules and grades, domain rules and domain types, domain rules, and side-effects; There are significant domain rules, grades, and domain types; domain rules, side-effect conditions, and domain types; the interact-

**Table 3. Different Types of Side-Effects in the Intended Field of Determining the Differences in Gender Variable M (The SD).**

Domain Type		Compliance With The Rules		$t_1$	Against The Rules		$t_2$
		Negative	Positive		Negative	Positive	
Moral Field	Male	1.76 (1.09)	1.81 (1.29)	0.42	2.73 (1.43)	1.93 (1.06)	5.93**
	Female	1.49 (0.96)	1.74 (1.26)	1.87	2.67 (1.36)	1.98 (1.01)	4.68**
	$t_3$	0.51	2.20*		0.36	-0.25	
Customary Field	Male	2.44 (1.27)	2.45 (1.35)	0.10	2.38 (1.38)	1.75 (1.05)	4.66**
	Female	2.35 (1.24)	2.12 (1.15)	1.68	2.17 (1.33)	1.67 (1.00)	3.77**
	$t_4$	0.55	2.19*		0.69	1.30	
Personal Field	Male	3.34 (3.60)	2.47 (1.41)	2.81**	2.20 (1.50)	2.14 (1.37)	0.43
	Female	2.92 (1.43)	2.33 (1.26)	3.86**	2.46 (1.61)	2.05 (1.27)	2.72**
	$t_5$	1.31	0.89		-1.40	0.57	

Note:  $t_1$ ,  $t_2$  are the differences in the intentional judgment of the same sex subject under the two side effects in the same field in the case of obeying the rules and breaking the rules.  $t_3$ ,  $t_4$ ,  $t_5$  are morality, custom and individual respectively. Differences in intentional judgments in the field under the same side effects. The effect amount  $d$  is before 0.59 - 0.74 and the effect amount is above medium.

**Table 4. Results of Repeated Measures Analysis of Variance with Intentional Judgment Results as Dependent Variables.**

	$F$	$\eta^2$
Grade	4.80**	0.039
Domain Type	22.92**	0.053
Domain Rules	3.99**	0.005
Side Effect Condition	82.98**	0.091
Field Rules * Grade	2.85**	0.024
Domain Rules * Domain Type	60.41**	0.128
Side Effect Condition * Grade	1.95	0.091
Side Effect Condition * Field Type	0.090	0.002
Field Type * Grade	1.18	0.020
Domain Rules * Side Effects	4.31*	0.005
Domain Rules * Grade * Field Type	2.64**	0.043
Side Effect Condition * Grade * Field Type	1.34	0.022
Domain Rules * Side Effects * Field Type	13.94**	0.033
Domain Rules * Side Effects Conditions * Domain Types * Grades	0.92	0.015

tion of the four variables is not significant. In terms of the amount of effect, the main effect of side-effect conditions and the interaction between side-effect conditions and grades were the greatest. From the results of the analysis of variance, it can be seen that there is a difference in the intent judgment results in the grade. Through further post-comparison comparisons, the differences in intentional judgments are as follows: seventh grade > eighth grade, seventh grade > tenth grade, ninth grade > twelfth grade, eleventh grade > tenth grade, eleventh grade > twelfth grade, tenth grade in vocational high school > tenth grade in general high school and twelfth grade in general high school. It shows that the tendency of juvenile intentions to judge from middle school to high school is generally declining, but there is tortuousness. The high school stage has an inverted U-shaped development trend; vocational high school students are more inclined to make intent judgments than general high school students.

## **The Relationship between Intention Judgment and Behavioral Nature, Evaluation of Reward, Punishment Characteristics, and Motivation**

The relationship between intention judgment and behavioral nature, behavioral reward and punishment evaluation, and behavioral motivation is analyzed. The results are shown in **Table 5**.

From **Table 5**, we can see that in the ethical field, the intention judgment is most significant in relation to the secondary motivation. When the field rules are followed, the intention judgment is significantly correlated with the main motivation. Under the negative conditions of the compliance field, the intention judgment and reward and punishment feature correlation is significant. In the customary field, intentional judgment is significantly associated with secondary motivation only when the rules of the field are observed. In the personal field incidents, under the negative conditions of complying with the rules of the field, the intention judgment is significantly related to the behavior evaluation, behavior reward and punishment characteristics, and secondary motivation. Under the condition of violating the rules of the field, there is a significant positive correlation between intention judgment and behavior evaluation and secondary motivation, but it is negatively correlated with the main motivation. In summary, the related variables in the three domain types have related variables, which are secondary motivations. The behavioral evaluation and behavior reward and punishment characteristic variables are significantly related to the intention judgment in the personal field events.

## **Discussion**

### **The Overall Characteristics of the Knobe Effect of Adolescents in a Single Field**

**Table 5. Correlation between Intention Judgment and Behavior Evaluation, Reward and Punishment Characteristics, Main Motivation, and Secondary Motivation.**

Domain Type	Rule Type	Condition	Intentional Judgment	Behavioral Evaluation	Reward and Punishment Characteristics	Main Motivation	Secondary Motivation
Moral Field	Comply With	Pos.	Intentional Judgment	0.054	0.022	-0.235**	0.366**
		Neg.		-0.002	0.259**	-0.166**	0.259**
	Violation	Pos.		-0.016	0.075	0.028	-0.024
		Neg.		0.101	0.075	-0.058	0.201**
Customary Field	Comply With	Pos.	Intentional Judgment	-0.062	0.112	-0.085	0.169**
		Neg.		-0.039	0.231	-0.098	0.302**
	Violation	Pos.		0.082	-0.037	-0.014	0.059
		Neg.		-0.071	-0.027	-0.015	0.016
Personal Field	Comply With	Pos.	Intentional Judgment	-0.126	0.050	0.066	0.174**
		Neg.		-0.216**	0.181**	0.050	0.032
	Violation	Pos.		0.469**	0.421**	-0.016	0.368**
		Neg.		0.115*	0.084	-0.138*	0.294**

This study examined the characteristics of intentional judgment under different side-effects of different and single-field events. The results showed that the Knobe effect in the three fields is very significant in the case of violation of the domain rules, and in the case of compliance with the domain rules, the Knobe effect is significant only in the personal field. Explain that the Knobe effect is significant in violations of domain events, and that compliance with domain events is only significant in the personal domain. Judging from the same side-effects, in addition to the negative conditions in the customary field, differences in the judgment of side-effects in the field of compliance and violations in the various fields and conditions have occurred; the side-effects of the violation of the field are more likely to be judged as intentional as the side-effects of the field. Nucci (1981) found that children can distinguish between events or rules in the moral, custom, and personal spheres from the age of seven. They usually think that the moral violation is the most serious, and the second is the violation of the custom. When there is no rule to bind the behavior, it also believes that the moral violation is wrong and can recognize the compulsory, normative and universal nature of the moral field. But there is more flexibility in customs and personal events. The results of this study demonstrate once again that the Knobe effect is related to ethical evaluation, because events that violate domain rules tend to be negatively evaluated more.

The development of cognitive ability in the field of ethics and custom is mainly manifested in the further deepening of children’s understanding of rules, and the development of personal field shows various changes with the increase of children’s age. As children age, their ability to act continues to improve and self-awareness continues to increase, they show strong personal needs, and thus the phenomenon of personal rights

expansion in the later stages of adolescence (Nucci & Turiel, 2009). Adolescents believe that teachers and schools have legitimate authority to develop and enforce rules on customary issues (Weston & Turiel, 1980; Dodsworth-Rugani, 1983; Blumenfeld et al., 1987). Most of them can accept the customs and rules of care set by the school and the teacher, and do not recognize violations. Compared with junior high school students, high school students tend not to accept the personal field specified by others, and they believe that personal events that violate the rules are allowed. Adolescents' perceptions of events in different fields are related to the corresponding actors. They tend to think that teachers should not interfere too much with students' individual behaviors, and some teenagers can accept personal domain events as defined by their peers (Smetana & Bitz, 1996; Wang, 2008; Liu, 2009). We found that in the case of compliance with the rules of the field, the Knobe effect is significant only in the personal field, and it also reflects the importance that young people attach to the rules of the personal field.

Children aged 2-3 begin to be able to distinguish between rules regulating actions in different fields. The judgement of children in the field of ethics and customs in the age of 4-9 is influenced by the field and the makers of the rules. Children aged 12 and 14 emphasize the psychological state of the individual in their understanding of the rules of the field of ethics and customs, emphasizing the satisfaction of self-wish and the existence of personal preferences or tendencies. Children in this period have a tendency to deny social customs and social traditions. Their understanding of social customs is to constantly affirm and continually negate the development of twists and turns (Zhang et al., 1998). From middle school to high school is an important period for individuals to expand their personal field. Personal choice is particularly important for the adolescent stage because it provides opportunities to develop individuality, autonomy, and unity (Nucci, 1996; Nucci, 2003), which is the most important development task for adolescents.

## **Intra-Group Differences in the Knobe Effect of Adolescents in a Single Field**

The gender difference comparison found that the ethical field and the customary field of the positive side-effects of the field rules were significantly different between males and females, and the males were more inclined to think that the actors were intentional. The side effects of positive conditions are good results. Boys tend to think that actors have intentionally brought good results. Girls' evaluations are more conservative and objective, indicating that girls are more rational than boys. However, there is no difference in the personal field. Du's (2011) research showed that no matter whether it is under positive or negative conditions, males are more inclined than females to judge that actors are intentional. The results of this study are the same. There is a consensus in previous studies, but under negative conditions, there is no difference between men and women, indicating that gender variables as an influential factor are inconsistent. The results of this study may be that male adolescents are more unilateral than female adolescents in understanding behavioral intentions.

Under different domain types and different domain rules, the intent to judge side effects is different in the grade. The intention of judging the junior high school is the highest, and it falls after high school, but the eleventh grade is the highest, and the thirteenth grade is obviously reduced. This is consistent with the development of the juvenile moral judgment. From the junior high school to the high school morality, the intuitive moral judgment Excessive to complex moral understanding, while in high school, moral development presents a certain inverted U-shaped development model, which does not increase with age (Liu, 2013, Nucci & Turiel, 2009). The age development result of the intentional judgment in this study is consistent with the development result of moral judgment, that is, the higher the level of moral cognition, the more intentional judgment becomes rational, and the judgment of intentional tendency is reduced, which confirms the relationship between Knobe effect and moral judgment.

## **The Relationship between Juvenile Side-Effect Intention Judgment and Motivation Evaluation in a Single Field**

Among the three single-domain events, the variables related to the consent graph judgment are secondary motivations, and the behavioral evaluation and behavior reward and punishment characteristic variables are significantly related to the intention judgment in the personal field events. The results again show that the motivation for judging the behavior of the actor is also intentional, but the behavioral evaluation and behavioral reward and punishment characteristic variables are only relevant in the personal field event, and in the ethical field and the customary field. Seeing peers is significantly related to the evaluation or reward and punishment characteristic variables. This is because in the field of ethics and customs, the moral situation is clearer, the subjects tend to make extreme judgments, and the intention judgment is more scattered, so the degree of correlation is low, but The moral situation in the personal field is relatively vague, and the judgments on the behavior evaluation and behavior reward and punishment characteristics are also scattered, so the consent chart judgment is significant. This result verifies the moral utility theory of Knobe effect. The more serious the violation of the field, the easier it is to be judged as intentional and the role of morality.

## **Conclusion**

The study found that: (1) Knobe effect is affected by domain type and domain rules in a single field event. When the domain rules are violated, the Knobe effect is shown in the three domain events, and in the case of complying with the domain rules, only Knobe effect in the personal field (2) The performance of the Knobe effect in a single field event is different in gender and grade. (3) Variables related to intentional judgment in three single domain types are secondary motivations. The behavioral evaluation, behavioral reward and punishment characteristic variables are significantly related to the intention judgment in the personal field events.

The discussion of the mechanism of Knobe effect also demonstrates two interpretations. Although the control variables have been implemented and the hypothesis of the dual model mechanism has been proposed, the actor bias theory and the moral valence theory have not been placed in the same experimental framework. How do you specifically influence the Knobe effect and how much impact each other? In addition, the age range only covers adolescents. From a developmental point of view, it is best to have children from 4-12 years old to be more comprehensive.

The results of the study indicate that the Knobe effect is influenced by the evaluation of behavioral ethics, which suggests that we must avoid the misunderstanding of intentions caused by the Knobe effect, which can be weakened by the actor and behavioral ethics evaluation, such as teachers are formulating certain regulations, but the regulations will produce a certain impact on students. It can be exemplified that the peer group also abides by, or morally, adhering to the rule is highly ethical. Therefore, adolescents have only an incomplete Knobe effect in a single-field event, and their performance is influenced by domain rules. ■

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# Research on Motivation of Transferring Secondary Vocational School Teachers from Enterprises

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**Abstract:** Under the paradigm of qualitative research, we explored the process and reasons for the nine technologists to abandon the high-paying positions of the company to enter the middle-level teachers. Based on the interview data, we used the rooted theory to establish the motivation for the transfer of the transferred teachers. The study found that “reasons of separation” and “individual needs” are the two main categories that constitute “transfer motivation”; “transfer motivation” under the influence of “preconditions”, “catalytic factors” and “obstructive factors” and “teacher occupation” The advantage “matches; if the match is successful, the idea of “deciding to become a secondary school teacher” is generated and put into action. Through cross-case analysis, it outlined the career transition profile of the transferred teachers, including the “family fulfillment” type, which is driven by “free time”, the “start another stove” type, which is driven by “burn-out”, and is dominated by “personal ideals” motivated “long-term planned” type. Based on the results of this research, we proposed to contract and recruit enterprise technical talents in secondary vocational schools, and propose the cooperation channel between schools and enterprises as the recruitment channel, and establish the support policy and salary incentive system strategy for enterprise personnel. ■

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**Keywords:** Secondary Vocational Teachers; Career change teacher; Corporate Background; Transfer Motivation

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## Background

ON January 24, 2019, the “Professional Education Reform Implementation Plan” issued by the State Council of the People’s Republic of China stated that “from 2019 onwards, vocational colleges and applied undergraduate colleges and related professional teachers have in principle more than 3 years of corporate work experience and Individuals with higher vocational education or above are openly recruited, and special high-skilled personnel (including those with senior engineers or above) can appropriately decrease their academic qualifications. From “enterprise personnel to school-appointed teachers” to “full-time teachers with more than three years of work experience” “It demonstrates China’s urgent need for a high-quality faculty and a firm determination to build a “double-educational” faculty. At the same time, the enterprise experience of secondary vocational teachers is self-evident for the promotion of classroom quality and teacher development. Australia DEST A report in (2003) pointed out that in addition to addressing the shortage of teachers, the benefits of the career change teacher to the school include professional knowledge and real life experiences, and can also motivate students to have a passion for the profession. Highly skilled personnel with a background in business have significant advantages in professional and social experience. Encourage a range of skills, experiences, abilities, and interests into the classroom to improve the quality and effectiveness of education (Richardson, 2001) and to help students develop professional culture (Long Chenghai, 2009). The challenge of teachers and the establishment of a “double-type” teacher team have always existed. How can secondary vocational schools attract and cultivate the talented craftsmen with their corporate background to inject new vitality into the secondary vocational classrooms? It must be traced back to the high-skilled talents transferred to become secondary vocational teachers. Motivation issues have arisen, and novice teachers who have transferred jobs have been the focus of attention (Anthony G, 2008).

Since the 1990s, research on transfer teachers has become a research hotspot in the field of foreign teacher education (Zhang, 2013). In particular, extensive research has been conducted on the motivations of their teaching work. The results show that they choose to teach because of internal and altruistic reasons, rather than external rewards. The greatest motivation comes from working with children, supporting the growth and development of students and the desire to contribute to society (Serow,

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1994; Goh, 2001; Richardson, 2006). Serow (1994) proposed “inner rewards” in the study of 40 transfer teachers, for example to help or influence the reasons most often mentioned by students. Lerner’s (2002) study found that the motivation for a career change in a transfer teacher is “want to make a difference and pursue meaningful work”; the study by Salyer (2003) supports this claim: the mainstay of the professional transferee is identified. The motivation factor is “hoping to help students and contribute to society”. Although a large number of studies have shown that intrinsic and altruistic motivations are a high priority for most transferred teachers, Hobsen (2004) and others found “long holidays (68%)” “Work security (69%)” External rewards such as “teaching occupational status (63%)” are important considerations for choosing teaching as a career, although the scores for these factors are not as high as the internal factors. According to Manuel’s (2006) report, 34% and 19% of participants believe that “lifestyle considerations” and “working conditions” are important; Richardsn (2008) found that for many people, family-friendly working conditions and safety and the flexibility of employment is important, while economic factors and social status are less important. At the same time, the researchers conducted a classification study on transfer teachers based on different motivations for transfer, and proposed different classification methods (see **Table 1** for details).

Due to different economic forms and national conditions, the roads and models for the development of secondary vocational education in China are also far from those of other countries. Whether it is for the discussion of the internal and external motivations, or the classification of teachers according to the characteristics of the motivation for transfer, there is a lack of research on localization in China. At the same time, due to the problem of language differences, “career change teacher” often refers to the change of posts from primary school teachers to kindergarten teachers, but the “teacher” career has not been changed. Therefore, under the current national conditions, the motivation and process of exploring the transfer of enterprise personnel into secondary vocational schools have important influence and value for the high-skilled talents in secondary vocational schools in China to establish high-quality teachers, and also for the research and development of other countries. Has a certain reference.

## **Methods**

The study regards the transformation of individuals from business positions to secondary vocational school positions as a transfer event, and the cause and effect of the individual’s idea of transferring jobs is the focus of research. Through the qualitative research, this paper intends to describe and analyze the transfer experience of nine secondary vocational teachers, so as to investigate the mechanism of the transfer incident and classify the image of the transferred teachers.

## **Objects**

Teacher development is deeply influenced by the environment and the situation, and it has a clear brand of the times. At the same time, the development characteristics of

**Table 1. Transferred Teacher Classification.**

Researcher	Classification	Remarks
Crow, Levine, Nager (1990)	Returner (Homecomer) Changed (Converted) Restored (Unconverted)	<ul style="list-style-type: none"> <li>● “Returnees”: Treating teachers as a profession they have always wanted to return to.</li> <li>● “Changed”: Beginning of a career as a career development plan for an important event or cause.</li> <li>● “Restored”: Originally chose another profession because of an important event or reason without choosing a teacher profession, and achieved a higher status in the profession, and now re-selects the teacher profession.</li> </ul>
Ray (1996)	Modern (Moderns) Traditional (Traditionalists) Achievement (Achievers)	<ul style="list-style-type: none"> <li>● “Modern”: Personal success is a key factor in the profession of teachers, because they are very dissatisfied with their previous life, especially their career, so they hope to succeed in the profession of teachers.</li> <li>● “Traditional”: Emphasizes the value of family, community and work and the profession of teachers can contribute to the family, community and society.</li> <li>● “Achievement” : I hope to transfer the successful experience of my previous career to a new career (teacher).</li> </ul>
Anthony, Ord (2008)	Teachers Do Good (Look Good) Type Suitable Time (Time Is Right) Type I Was Fit For Teaching (Teaching Is Me) Type	<ul style="list-style-type: none"> <li>● “Being a teacher is not bad”: personal pragmatism has been frustrated and has no other choice in the former job.</li> <li>● “Time is right”: The idea of being a teacher for a long time coincides with the opportunity.</li> <li>● “I am a teacher”: I was attracted to be a teacher and enjoyed teaching by my positive educational experience.</li> </ul>

young teachers are most prominent in the first five years or so, and are usually regarded as an important period of development (Zhe, 2000), so the Mesozoic teachers in the process of growth are the focus of research; and they correspond to the 20 jobs. Therefore, it is more practical to select the enterprise experience for more than three years and the teaching age is no more than 10 years. At the same time, the highest purpose of research is to develop high-quality “double-skilled” middle-level teachers, and teachers with enterprise experience can give the greatest advantage in professional teachers’ positions. Therefore, the limited research subjects are professional middle-level teachers, and are not involved in ordinary Cultural class teachers, school administrators, etc. Based on this, the image of the research object is determined as: a vocational professional teacher with a background of 5 years or more and a professional background of more than 3 years. The study follows the principle of “sampling of purpose” and “convenient sampling”. After finding a qualified transfer teacher in the Shanghai New Teacher Training Class in China, he introduces other transfer teachers through snowball

sampling. To gradually expand the sample, in-depth study of the group, and finally find the following nine vocational professional teachers who are willing to be interviewed by the enterprise, as the main source of information for this study, the sample basic information is shown in **Table 2**.

## **Data Collection**

The study used semi-structured interviews to understand the motives and processes of transfer of secondary vocational teachers. In the early stage, 90-120 minutes of formal interviews were conducted with each teacher. In the course of the interview, teachers were invited to “donely” to talk about the occurrence before and after the transfer. The events, people, feelings, and the thoughts behind the actions of the respondents show the whole process of completing the transfer decision, and the interviewees can no longer think about the ideas and experiences of “transfer”. In the later period, the new problems arising from the interview materials were continuously returned through WeChat. All interviews were recorded after notification and consent of the interviewee. At the same time, the video lessons and open classes of the interviewed teachers are used as auxiliary materials for cross-validation at multiple angles.

## **Date Analysis**

After the interview, the recording will be transcribed with more than 150,000 words and a memo. The original data is subjected to open coding, axial coding, and selective coding in accordance with the Grounded Theory principle. The purpose is to establish a theory based on empirical materials. Firstly, through the repeated reading of the verbatim manuscripts and memos, the nine original materials were logged in openly, and the local concepts in the language of the nine transferred teachers were searched; then, based on this, the formed concept genus was further analyzed and merged. Develop the category and establish the relationship between concepts and generics (Corbin & Strauss, 1990). **Table 3** shows the coding results in part. At the same time, in order to ensure the reliability and reliability of the coding, it is repeatedly discussed in the coding process, and the coding results are reviewed many times and expert opinions are obtained through the Delphi method to improve the accuracy of the coding and the objectivity of the research results.

In the first- and second-level coding results, the core category is selected, and through the verification of the relationship between the core category and other categories in the text data, and the further complement of the incomplete category, the integration is a complete analysis pattern, in which the core The category can be born not only from the existing category, but also from the research needs (Corbin, Strauss, 1990). By combining the first and second level coding results and revisiting the story line, the researchers chose “transfer motivation” as the core category, which is the cause of all stories and the main line of research, including “reasons of separation” and “personal needs”. The “reason of separation” describes the dissatisfaction with the former occupation. The sub-categories of the subordinates are: 1 “occupational disorder”, which con-

**Table 2. Sample Basic Information.**

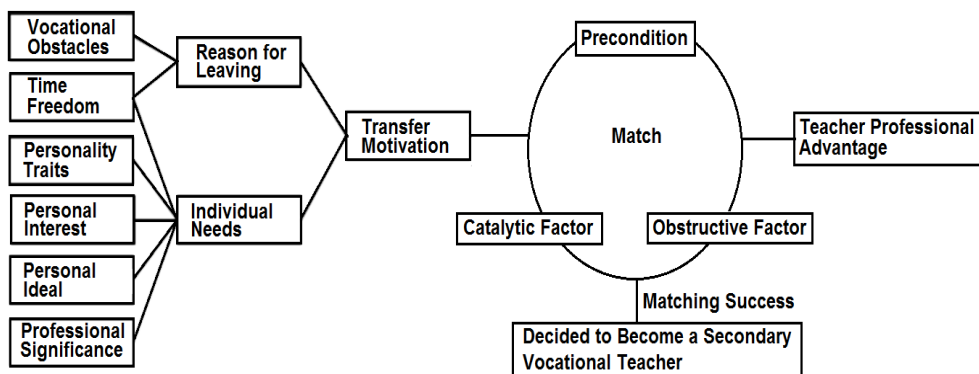
#	Age	G	Edu	Learned Professional	Business Experience		Schoolwork	
					Position	Work yr	Teaching Profession	Teach yr
Z-W0313	35	F	M's	Garden Design	Project Manager	8	Garden Design	1
Z-W0325	36	F	M's	Food Science And Engineering	Technical Specialist	9	Food Microbiological Testing	1
M-W0402	39	F	M's	Business Management	General Manager Secretary	10	Financial	1
L-W0414	38	F	B	Software Programming	Project Manager	14	Computer	1
X-W0418	37	F	M's	Garden Design	Project Manager	9	Garden Design	2
W-W0419	40	F	M's	Garden Design	Project Manager	10	Garden Design	5
Q-F0424	37	M	B	Machine Automation	Self-Employment	11	Machine Automation	3
F-F0428	36	M	B	Rail	Project Manager	11	Rail	2
S-F0511	40	M	M's	Mechanical Design	Project Manager	15	Rail	2

Note: G: Gender; F: Female; M: Male; Edu: Education level; M's; Master's Degree; B: Bachelor; yr: Year;

sists of the strength of the former occupational work, the ceiling of occupational development and the emotion of “burnout”; 2 “time freedom”, Mainly refers to the low degree of freedom of pre-work hours caused by frequent overtime and business trips. Meanwhile, “time freedom” also appears in “individual needs”, which refers to the work that the transferee prefers to have a high degree of freedom in time.

In addition to “time freedom”, “personal needs” also includes: (i) “personality traits” mainly describes a series of introspections of the transferee’s personality characteristics and ability, in order to find a suitable occupation; (ii) “personal interests” mainly Including: love the profession, love to get along with young people, like simple interpersonal relationship; (iii) “personal ideal” refers to teachers as their own ideals, dreams; (iv) “professional meaning” represents the transfer of education to teachers, teacher value and The recognition of importance. “Transfer motivation” is “matching” behavior with “teacher professional advantage” under the premise of “acquiring recruitment information”. “matching” process will be affected by “catalytic factors”, such as family support, contact teachers, teaching The approach can greatly improve the possibility of matching success; at the same time, the “obstruction factor” will have a negative effect, such as the risk of lowering the salary, losing the cost of the existing business, and misunderstanding caused by the lack of information. If the match is successful, the concept of “deciding to become a secondary vocational school teacher” is generated. The next step is for the transferee to take action, such as posting resumes and actively interviewing. According to the results of selective coding analysis, the transfer motiva-

**Figure 1. Matching Motivation Model for Transfer of Secondary Vocational Teachers.**

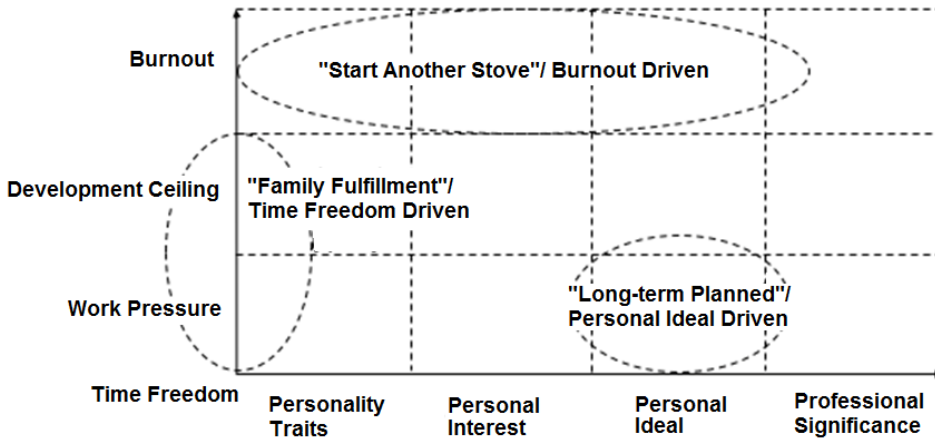


tion matching model of the transfer-oriented vocational teachers is established (see **Figure 1**).

### Cross-Case Study Analysis

After the third-level coding, the composition factors and matching patterns of the motivation for transfer have emerged from the scattered information, but due to the different life experiences and opportunities of the case, the six sub-categories behind the motivation for transfer (personal interest, time freedom) Degree, professional significance, personal ideals, personality traits, occupational barriers) have different manifestations and focuses on each transfer teacher. In order to deepen the understanding and interpretation of the transfer problem, and to improve the degree of generalization, the study through the continuous comparison of the transfer process of the nine research subjects, find out the similarities and differences of the motivation of transfer, according to the different focus of the transfer motivation The teacher classifies and outlines the “family fulfillment” type, which is driven by “free time”, the “starting stove”, which is driven by “burnout”, and the “long-planned” type, which is driven by “personal ideals”. The outline of the transfer teacher; the “individual demand” latitude is the horizontal axis (horizontal degrees of freedom, personality traits, personal interests, personal ideals, professional meanings are arranged from left to right), and the reason for leaving is the vertical axis (from bottom to top) Time freedom, work intensity, career development ceiling, burnout), the intersection of the horizontal and vertical axes is the degree of freedom of time, the distribution of the three types of teachers is shown in **Figure 2**. At the same time, the common problems in the process of transfer are discussed. The basic

**Figure 2. The Type of Secondary Vocational Teachers Transferred to Enterprises.**



orientation of the analysis process is to preserve the particularity of the case and compare it across cases.

***Family and Career Complement Each Other: “Family Fulfillment”***

*“At that time, I was basically a project manager in the company. I might say that I have to travel a business all the time. I have to do the project all the time, so the part that takes care of the family is very small, but my child is still very small. But it is really difficult to give up 13 years of work and career, and it is really difficult to start from scratch. At the beginning, I felt that for the children to go out, he had to go to kindergarten. I have to have a lot of energy to accompany him.”*

*“It’s because of the children at home, because I used to travel a lot when I was designing, and then the children at home were a little bit at the age of reading, in order to have more, more fixed time to accompany him to study.”*

*“One thing that deeply touched me was that the last time my father was sick, I went back to see him, but because of my work, I could only have one day of vacation. When I left, my father held my hand, although he said nothing. But that look is very disappointing to me. I hope that I can spend more time with my family to spend more time with my family, including my children at home.”*

*“Our industry is a bit of a youthful meal”, “It’s hard to get a night shift after a certain age”, “Power is not enough”, “Physical strength can’t keep up” and other concepts often appear in the interview materials of female transfer teachers. The ceiling has become a major part of their “occupational barriers”. However, at the same time,*

**Table 3. Association Code.**

Open Coding Extraction Category	Relevance Coding Extraction Category		
	Subcategory		Main Category
Like what you have learned	Personal interest	Individual needs	Transfer motivation
Like to get along with young people			
Don't like complicated relationships			
The focus of life shifts to the family	Time freedom		
School is close to home			
Think that education is important	Professional significance		
Being a teacher is my dream from a small age.	Personal ideal		
Personality traits for teachers	Personality Traits		
Pre-vocational time is not free	Time freedom	Reason for leaving	
Pre-employment work intensity	Vocational disorder		
Career development ceiling			
Burnout			
Teacher work is guaranteed	Teacher job security		Teacher's professional advantage
Teachers have winter vacations			
Good working environment for teachers	Teacher work environment		
School interpersonal relationship			
Occasionally see the recruitment information	Recruitment information available		Precondition
Colleague introduction			
The school lowered the academic requirements	Academic standards		
Get support from family	Family support		Catalytic factor
Family members in the teacher industry	Have access to teachers and teaching methods		
Friends in the education industry			
Unwilling to give up his career	Transfer cost		Obstructive factor
Reduced salary			
I didn't know the secondary vocational school before.	Information is not smooth		
I don't know if you have a business experience, you can lower your academic qualifications.			

*the female transferee “has time to look after the family” and “accompanying the child” in the process of leaving the job and choosing a new career is a more important reason than the “occupational disorder”. The high requirement for “time freedom” is leading motivation. Therefore, in the process of matching the “transfer motivation” with the “professional advantage of teachers”, “there are many teachers and holidays, and there are winter and summer vacations”, etc., satisfy the demand of the dominant motive of “time freedom” and “for the sake of children”. The belief also defeats the obstacles of “I don’t want to give up my career”, which greatly increases the possibility of “matching success”.*

One interviewee described her and her colleagues as follows: “So I feel that it is not easy to give up the salary of the company because they have sacrificed their own (career) and completed a family wish.” The type of transfer teacher is named “family fulfillment” type. Although the “family fulfillment” type of transfer teachers seem to have a more pragmatic motivation to change jobs, this does not mean that they are negative in teaching. In the follow-up study, “family fulfillment” teachers will love and enrich the profession. The experience has poured into the classroom, sparking new passions, injecting new vitality into the classroom, and fulfilling the mutual accomplishment of family and career. One interviewee described this change as a secondary vocational teacher:

*“I am very happy to teach, even if they (students) are not able to learn their expectations, but they can find that they (students) are actually working hard, they have fun in the process of learning, satisfaction it will be better than my business project, the customer is very satisfied, and the satisfaction is not the same. And now the work makes me more able to stand on the other side to consider the problem, become softer, and more like a woman, it is more like a mother’s perspective to consider the problem.”*

Through timely guidance, the unfulfilled self-fulfilling desires of the “family-complete” teachers and the unwillingness to abandon the cause are transformed into passion for education and classrooms, stimulating teachers’ pursuit of educational ideals, as Manuel (2006) stated. It is a “teaching as a calling”. In the face of the “family fulfillment” type of transfer teachers, schools should play an inspiring and guiding role and actively respond to this “call”.

### ***Embark On a New Journey in Life: “Start another Stove”***

Although the transferee who chooses to become a “secondary teacher” because of “personality traits” and “personal interests” often mentioned “I feel that my character is still suitable for being a teacher”, “I feel that this young person’s management and psychological growth compare Interested in “description, but tracking traceability, can find obvious “burnout” marks.

*“After the age of 40, you will start thinking about it. What kind of life you want? You have been busy working hard for the first half of your life. You want to settle down now, want to try something else, and want to change your lifestyle. Try it. I actually have a good professional in front of me, and the professional skills are already very high, but I think that’s it. It feels like the end.”*

*“I have done the job as a project manager, but I am really unhappy... Then I am getting tired and tired, I don’t like the absolute pursuit of interests, and I am this person. It’s quite insecure, and I’m a little scared that I fell off one day when I made a mistake.”*

“I hope to meet new challenges” and the “boring” feelings of the former profession, “mismatch between values and business”, “heart tiredness”, etc., reflect the emotional exhaustion of the former work and the decline of professional self-efficacy. The performance of burnout, the transferee began to hope to “open up new areas” and

“change the environment”, by reflecting on their own “personality traits (the characteristics of being a teacher, suitable for teachers, etc.)” and thinking about “personal interests” (like to get along with young people, do not like complex interpersonal relationships, etc.) to find the next occupation, while weighing the “time freedom”, “personal ideals” and “professional significance” and other factors. The study classified the transferees who entered the middle-level teachers’ team under the leadership of “burnout” as “a new stove” type. Such transfer teachers came to the education field with new ambitions, and at the same time, they were worried about strange fields, an interview. The person smiled and asked: “35 years old, starting from scratch as a secondary vocational teacher, is it quite ridiculous?” To solve this ambition and ambition, secondary vocational schools should help “start another stove” through a series of teacher training. Vocational teachers quickly adapt to the teaching work of teachers, and provide more opportunities to participate in teaching, competition opportunities, etc. to help them “show ambitions” and quickly grow into excellent secondary vocational teachers.

### ***Precautionary Dream Journey: “Long-Planned” Type***

The general conclusion of extensive research abroad over the past decade or so suggests that the choice of teaching is based on internal and altruistic motives, not from external rewards. The biggest motivation is defined as “working with children” “supporting the growth and development of students” and “the desire to contribute to society” (Serow, 1994; Goh, 2001; Richardson, 2006). But for a reason, a job seeker who is eager to be a teacher does not have a teacher as the first choice? Teacher W does not belong to one of the three types summarized by Anthony (2008), and her experience has highlighted the characteristics of professional teachers.

At the beginning of the story, W’s positive experience of education has contributed to the ideal of being a teacher.

*“I always had this idea when I was in elementary school (being a teacher), because when I was in elementary school, I studied very well in the class. Then I worked as a squad leader. The teacher asked me to give the students a batch of assignments. I felt very successful. Feeling, then the students listened to me very much. At that time, I was very fulfilled. When I wanted to be a teacher, I felt that others would listen to me. Then I could teach those children who could not learn well. This is my dream at that time. Later, I went from junior high school to high school. At that time, our teacher asked the classmates to learn better classmates. In the spare time, I would tell the students some math problems in the front desk. After the lecture, many students said that you said I listened very well, so I felt very fulfilled at that time, so I said that this dream has always been in my heart.”*

Because of the “sense of teaching accomplishment”, W has planted the dream of “being a teacher”. In the future, he has always maintained the yearning for the “teacher” profession, and even thinks as a “teacher” role in the personal learning process.

*“It was the same feeling when I was in college. At that time, I thought that the teachers said that I remembered these things, but I really don’t use them. I want to say that if I want to be a teacher, how can I tell the students?”*

What is amazing is that in this process of thinking, the “personal ideals” led the transfer of teachers to realize that only the textbook theory has no practical experience is “ungrounded”, there is no way to teach students well. Therefore, in order to become a good teacher, W began his new learning journey for “accumulating practical experience” after graduation—to enter the enterprise.

*“Because when I graduated, my idea was to be a teacher, but I didn’t go directly to be a teacher, because I know that as a student, if I go directly to be a teacher, I feel that there is no practical experience. I know that after graduation, I will not do anything, nothing. I may have a sense of proportion to what scales feel, but I can only theoretically, but I really don’t have the sense of space. This kind of engineering thing still has to go to you personally, you will really understand it, you can do it well, and you can do it well. For our designers, you have to go to the base, at the base. After a while, you can make a design...”*

*“I didn’t care about salary when I entered the company. I just wanted to learn something, so I could learn something.”*

After W realized that his professional knowledge and abilities were gradually completed, his “time” to realize his dreams has matured.

*“The most important thing is that I feel that I am almost the same. (Almost meaning?) It is more mature. In professional, I feel that if I stand on the podium, there is no loss, no deficiency, no one will only follow. The teacher read the theory of textbooks. First, I got a postgraduate degree, and then I learned a lot in the design institute for three years. A project goes down every process, I don’t say anything about it, at least I know. In the classroom, if the student asks me something else, I can understand it.”*

W not only had the dream of “being a teacher”, but also wanted to be a “professional teacher”, which is mainly influenced by “personal interest (like design)”. Entering the enterprise to learn and accumulate experience is to become a person who can become a professional teacher without feeling of false on the podium. In the course of the interview, she joked that this is a “deliberate long-awaited dream”, so it will be driven by “personal ideals” and enter the enterprise for the purpose of “doing a better teacher” and in a “just happening” The type of teacher who transferred to work in the time was named “long-planned” type of transfer teacher.

“Remuneration” and “teacher’s social status” have proven to be not significant factors influencing job transfer, and career changers usually do not enter the teaching phase for these reasons (Richardson, 2008). However, the gap in “remuneration” will prevent individuals from transferring from enterprises to secondary vocational schools. Therefore, how to cross the gap in pay has become a question worth considering.

*“I knew at the beginning that the salary was low, so I was very uncertain before I came.”*

*“The difference in income is very large, one-third to one-half.”*

*“I (the income is reduced) I must know it in advance, although I don’t know how many teachers there are, but definitely lower than in my company.”*

*“My daughter said me, expensive free time.”*

For the “family fulfillment” type of transfer teachers, it is more important to have time to accompany the family than the high salary, and the accumulation during the work of the company and the income of the other half of the family make them have no worries, which alleviates the gap to some extent. The negative impact brought about by the “other cooker” type of teacher said that “it is definitely not for money to do this.” There is no doubt that the negative impact of the salary gap on “long-planned” teachers seems to be less obvious.

“I just want to be a teacher. I want to realize this dream. I actually did it in the design institute for a while. I saw the recruitment information here. When I came over, was it a business unit for our school? Can you come in and prepare? I don’t have any questions about salary and treatment. I don’t mind this. I just want to be a teacher.”

At the same time, corporate transfer teachers can ease the pay gap through a more flexible approach to off-campus part-time work. In addition, interviewees said that although there are many opportunities, they will weigh the choice between school work and family life, and will not be tired of part-time work to make up for the income gap.

“If I want to increase some income, there are actually many opportunities. But if these part-time jobs are done, my income will not be less. But if it takes a lot of time (part time), I think I have chosen (be a teacher), I hope that I will give more time to my family, and I will not do these things.”

Off-campus part-time job not only solves the “pay gap”, but also helps the transferred teachers to maintain their professional advantages, so that the teaching advantages brought about by the practical experience of the company will not gradually dissipate with the departure of the enterprise, that is, the interviewees I arrived. “I left the company but did not leave the industry.” Therefore, “remuneration” has become “a problem not a problem” for the transfer of teachers. Although the “pay gap” constitutes a hindrance factor in the process of transfer, the transfer teacher of the enterprise has found a way to overcome it. However, the lack of management measures for salary incentives in secondary vocational schools, and the fact that teachers’ salaries are not proportional to the labor paid, have laid a crisis for the retention of teachers. Since the transferred teachers have rich experience in business practice, they often take more work in their work. For example, “taking a competition” and “taking a scientific research project”, etc., are not proportional to the salary compensation, which reduces the teacher’s work well-being. In the later stage of teacher development, it causes “painfulness” and may lead to burnout. Over time, a transfer teacher with a corporate background is more likely to change jobs than a teacher as first job. This means that schools attract talent but cannot retain talent. As an interviewee said: “If a school blindly promotes the teacher to sacrifice, it can only explain that its incompetence in management.”

## **Discussion**

Through the analysis of the motives of the secondary vocational teachers who transferred 9 companies, it was concluded that the transfer was triggered by the “individual demand” and the “reason of separation”. According to the specific analysis of the case, it was found that compared with altruistic and intrinsic motivation, pragmatic consideration More prominent, such as: teachers’ summer and winter vacations, teachers’ working conditions and security, etc., while altruistic motives such as “contributing to society” and “affecting adolescent growth” occur less frequently, which supports the conclusion of Priyadhazini (2003). However, it does not support the findings that “intrinsic and altruistic motives are significantly better than extrinsic motivation” (Serow, 1994; Goh, 2001; Richardson, 2006), which is inconsistent with foreign mainstream views. In other words, the decisions made by individuals in society are bound to be influenced by the big environment (Philippe Bow, 2010), and people’s choice of career will also bear the brand of the times (Lv Jianguo, 2000). In China, the importance of secondary vocational education has not been widely recognized. The social status and recognition of secondary vocational teachers are too low to fully stimulate the entry of altruists.

The birth of the “family fulfillment” type of transfer teacher supports Richardson’s (2001) view: “For the benefit of the family and improving the quality of family life is a decisive factor in job change, whether through increased income, better job security and satisfaction feeling, or more suitable working hours to take care of and raise children.” However, Richardson did not discuss the gender differences in this motivation, and the obvious gender factor in the “family fulfillment” type of transfer teachers in this study is consistent with the current situation of Chinese women’s social division of labor, that is, compared with men, “family” becomes Women’s important factors in the career planning process (Liu, 2000), women are more likely to be hindered by professional development and choices by non-market factors (such as caring for the family and doing housework), and have to fall into the dilemma of balancing occupations and families (Fu, 2005). This is also in line with the imbalance between the male and female teachers in China’s secondary vocational schools and the lack of attractiveness of teachers’ occupations to men (Zhou, 2007), but it does not mean that there will be no “family fulfillment” in male transfer teachers.

The “starts another stove” type is obviously different from the “look good” type of Anthony (2008). “look good” emphasizes the unsuccessful pre-job and has no choice, and the “starts another stove” type teacher brings new The ambition came to the field of vocational education, full of expectations for the challenge, eager to find new self-worth in the teacher’s position, and not helpless.

The “long-planned” type is not the same as the “returnee” of Crow (1990). From the action track, both of them regard the teacher as their own career and enter the teaching at an appropriate time. However, the “deliberately long-term” type of transfer teachers are more motivated and vocational education features: individual business work experience is a kind of learning and preparation for becoming a professional teacher. The failure to use the teacher as the first occupation is an individual’s positive self-selection, and it is not helpless to “missing the shoulders”.

The study depicts three types of transfer teachers based on the similarities and differences of the motivations of the nine subjects, but the purpose of the study is not to exhaust all types and classifications as a goal, but to profoundly depict and explain. At this stage, we strived to contribute to the recruitment of transferred teachers and to pave the way for continuous research.

## **Conclusions**

The study finds that “reasons of separation” and “individual needs” are the two main categories that constitute “transfer motivation”; “transfer motivation” under the influence of “preconditions”, “catalytic factors” and “obstructive factors” and “The teacher’s professional advantage is matched, and if the match is successful, the idea of “deciding to become a secondary vocational teacher” is generated and put into action.

According to the different motivations of transfer, they are divided into “family-complete” type with “free time” as the main motive, “other-starting” type with “job burnout” as the motive, and “personal ideal” as the dominant motive – a long-deployed type of transfer teacher.

The problem of “income gap” caused by the transfer of jobs does not prevent individuals from transferring from enterprises to secondary vocational schools, but the low salary of teachers will affect teachers’ happiness.

## **Suggestion**

The establishment and development of a “double-type” teacher team that “gets into the classroom and has a good teaching in the factory” requires the joint efforts of the state and society. Continuously give vocational education development support, improve the quality and quantity of secondary vocational teachers; high-skilled personnel with enterprise experience and industry background should be classified as the key attraction. Introduce them to the ranks of secondary vocational teachers and evoke new vitality.

## **School-Enterprise Cooperation Goes Deep into the Talent Flow Level**

School-enterprise cooperation can not only create opportunities for students to practice learning, but also be a viable channel for introducing enterprise technical talents. The school-enterprise cooperation channel is used as a means of publicizing and recruiting teachers, increasing the opportunities for enterprise technical talents to contact education, and helping to catalyze the transfer of technical personnel into the teaching staff. Encourage enterprise technicians to enter the school to experience teaching, feel the “education call”, and strive for the transition from full-time teachers to full-time teachers. At the same time, it provides the transition period of the teacher’s role and the observation period of the school’s teacher quality, which is conducive to recruiting and retaining high-quality teachers. The state and society should create a good atmosphere of respecting and advocating occupations, increase the propaganda of secondary voca-

tional education, and constantly improve the social status and professional recognition of secondary vocational teachers to stimulate the participation of altruists. Therefore, the focus of publicity can be on “accommodating young people’s growth” and “contributing to society”.

## **Establish and Improve the Incentive Mechanism for Secondary Vocational Teachers**

In a market economy environment, the most obvious way to attract more outstanding teachers to the position of teachers is to improve the working conditions of teachers (John Rolls, 2009). On the one hand, it is to establish sound and reasonable material rewards, and to give reasonable material rewards to teachers who have undertaken more scientific research tasks, competition projects, and outstanding teaching results to encourage teachers to tap their potentials to develop their strengths. At the same time, it gives reasonable rewards to teachers’ efforts, improves work well-being and prevents burnout. At the same time of material incentives, each teacher should take care of each other’s own development needs, different subjective perceptions, and different objective environments, so as to deeply understand the development needs of secondary vocational teachers, adopt a flexible reward system, and mobilize the enthusiasm of teachers through differential incentives. On the other hand, teachers who are transferred to the school are encouraged to participate in the construction of schools and majors, improve the voice and participation of teachers who are transferred, and encourage teachers to deepen their sense of identity with schools and positions.

## **Building a Diverse Support Policy for Teacher Development**

Actively establish support policies for the development of transfer teachers, and open a diversified teacher development path. For those who have medium and high-level technical titles and are willing to teach at the vocational school, they should provide support and help for the conversion of titles after the passing of the examination, and open up the channel for conversion between “double titles”. Establish a new teacher training system for transfer teachers, make up for the shortcomings of transfer teachers in teaching, and give full play to the long-term professional skills of transferred teachers. At the same time, the “Moral Education Teacher’s Morality” is the focus of the induction training for transfer teachers, and the teacher’s normality of the transferred teachers should be improved. There is a focus on school assignments and job placement. For example, “starts another stove” teachers who have professional skills and business experience and are eager to show their ambitions can play a greater role in competitions, training programs and professional construction. ■

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