

Teaching Adaptability, Teaching Approach Preference and Learning Interest: Evidence from Freshman in Sichuan University, China

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Abstract

Through a survey on freshman who elected the course *Principles of Management*, this paper empirically analyzed the relationship between student's adaptability to teaching and learning in college, student's preference to professor's teaching approach and their learning interest by estimating an Ordered Response Model. Findings show that: over one third students cannot adapt to college's teaching and learning mode, and a large portion of students are short of reading motivation; the student's adaptability to teaching and learning in college, the recognition degree to professor's teaching approach, the reason of course election and the concentration in class are significant positive factors affecting student's learning interest.

Keywords: freshman, teaching adaptability, teaching approach, learning interest

1. Introduction

Compared with the traditional indoctrination teaching approach of high school in Mainland China, teaching and learning in college are significantly different. In higher education, the institution and professor exert much weaker supervision and intervention on students' learning activities; the communication and interaction between teachers and students become less as well; yet students have to arrange and regulate their own learning schedule. Therefore, the initiative, the self-consciousness and the self-study ability play a greater role in college stage. Generally, professors have to quick their instructional pace because college courses contain huge complex professional information and most courses require to be completed within one academic semester. Moreover, additional knowledge is usually imported in the teaching process, which further expands the quantity of knowledge and information. As a result, significant changes of teaching approach make freshmen cannot quickly adapt to college's study mode, resulting in decreasing their learning interest. In Mainland China, freshman's maladjustment to teaching approach is a typical feature of their difficulty adapting to college learning and life. This has been supported by many empirical studies: through a survey on freshman, Zhao (1999) found that 38.2 percent of the students were not accustomed to teaching approach of college's teachers, more than half of the students argued that they cannot concentrate on the lectures in class and cannot efficiently understand the teacher's lecture, and 80.1 percent of the students did not know how to study in college; a similar survey by Yan (2005) found that 78.2 percent of college students do not know how to learn in college, and most of students claimed that they cannot take the lecture's points and also do not know how to manage their after-class time; the survey result by Tan (2009) also shows that freshman have difficulty adapting to college learning mode, of which 60.3 percent of respondents chose "general adaptation" and 19.6 percent chose "poor adaptation", yet the empirical results showed that the learning adaptability and academic record are significant positive correlated. Obviously, freshman's maladjustment to college's teaching approach in Mainland China is a universal phenomenon.

Principles of Management is a highly practical course. In addition to introducing the basic theories in according with the textbook, it usually has to involve lots of case studies, discussions and scenario simulations in the process of teaching (Yue, 2001; Yuan & Chen, 2003; Xiong, 2004; Feng, 2010; etc.). For a course requiring the deep combination of the theory and practice, professors have to import many additional materials in order to help students better understand the theoretical knowledge. At the same time, as a foundation course, *Principles of Management* primarily contains some basic concepts, theories and analyzing methods, its logical reasoning

mostly depends on literary logic rather than mathematical logic. Thus, if students want to grasp the theoretical knowledge and then apply it correctly and deeply, they must have a wider and higher level of knowledge accumulation. Consequently, this characteristic of such a course results in that freshman cannot accurately and quickly master the knowledge points, and further, leads to a feel of “nothing learned in the course”. Therefore, *Principles of Management* is a representative case for studying how the student’s adaptability to teaching in college and the student’s recognition to the teaching approach affect the learning interest.

To sum up, student’s adaptability to teaching style in college and preference to teaching approach have an effect on the student’s learning interest. This paper aims to, taking freshman who selected *Principles of Management* as an example, discuss the relationship between teaching adaptability, teaching approach preference and students’ learning interest through a questionnaire survey on freshman of Sichuan University, China; Furthermore, it put forward some proposals for improving teaching efficiency and enhancing student’s learning interest.

2. Data and Summary Statistics

We did a survey on 326 freshmen of Sichuan University who select the course - *Principles of Management* through an enclosed questionnaire, and collected 322 valid questionnaires, of which there are 129 male students and 193 female students. This survey primarily targets to analyze the student’s adaptability to college teaching style, the preference to the professor’s teaching approach, the preference to examination, reasons for electing this course, the concentration in classroom lectures, and the personal reading motivation. Then discuss the relationship between these factors and learning interest. (See table 1 for variables’ summary).

Table 1. Variables and statistical descriptions

Variable Name	Symbol	Definition	Mean	Variance	Minimum	Maximum
Satisfaction	<i>SAT</i>	Student's overall evaluation to the teaching; evaluated 1-5 from weak to strong.	3.70	0.81	1	5
Learning Interest	<i>INT</i>	Current learning interest to the course, evaluated 1-4 from weak to strong.	3.00	0.60	1	4
Gender	<i>GEN</i>	Male = 1; Female = 0.	0.40	0.49	0	1
Discipline	<i>DIS</i>	Student's major: social science = 1; natural science = 0.	0.88	0.32	0	1
Concentration	<i>CON</i>	Concentration on lectures in class; evaluated 1-5 from weak to strong.	2.58	0.65	1	4
Adaptability	<i>ADA</i>	Students' adaptation to teaching and learning style in college; evaluated 1-4 from weak to strong.	2.71	0.54	1	4
Reading Motivation	<i>MOT</i>	The student's personal reading motivation, evaluated 1-4 from weak to strong in terms of the frequency of reading related professional materials.	2.75	0.67	1	4
Preference to the combination degree between teaching and textbook	<i>COM</i>	The combination degree between teaching content and textbook & exam syllabus; evaluated 1-3 from strong to weak	2.39	0.75	1	3
Preference to slides style	<i>SLI</i>	Students' preference to slides style: Complex slides (with rich content, abundant additional knowledge and a large amount of information)=1; Simple slides (with concise content and just showing the content structure and the key words)=0.	0.57	0.50	0	1
Preference to Examination	<i>EXA</i>	Student's degree of attention to exam, evaluated 1-4 from strong to weak.	3.56	0.73	1	4
Reason of course election	<i>REA1</i>	Primarily according to Personal interest =1, others=0.	0.21	0.41	0	1
	<i>REA2</i>	Primarily according to preparation for future employment=1, others=0.	0.23	0.42	0	1
	<i>REA3</i>	Primarily according to major requirements=1, others=0.	0.55	0.50	0	1

As regards the teaching approach, our lectures, not being restrained by the textbook and exam syllabus, contain a large number of enterprise cases, the latest research findings and some other useful information. Consequently, for the "combination degree between teaching and textbook", it belongs to the type of "basically following the textbook and exam syllabus, importing a wealth of supplementary materials". In order to facilitate students

previewing and reviewing, we made use of the “complex slides”, defined as a type of slides with rich content, abundant additional knowledge and a large number of information, rather than the “simple slides” with concise content and just showing the content structure and the key words. Moreover, we also require students to expand their knowledge through reading professional business newspapers and journals, but this depends on student’s personal reading motivation. Hence we define above teaching approach as the Practical Teaching Approach (PTA), with a major property of “abundant cases and information, and not being constrained by textbook and examination”.

Therefore, by studying the relationship between Practical Teaching Approach and students’ learning interests, we not only can catch the acceptance degree of student to our teaching approach, but also can know whether such an approach can promote students’ learning interests or not. The survey result (see table 2) shows that, most of students accept the Practical Teaching Approach, about 55 percent students chose the option “basically following the textbook and exam syllabus, importing a wealth of supplementary materials”, and over 57 percent students prefer “complex slides”. However, there are some differences between female and male: for the preference to the combination degree between teaching and textbook, a greater proportion of female students chose option “Strictly following the textbook and exam syllabus for the sake of expediently finding the corresponding knowledge from textbooks”; while as regards the preference to slides style, fewer female students chose “simple slides”. In addition, most students show a strong reading motivation, more than 65% students read related professional materials in “often” or “every day”, and in comparison, male students has a stronger reading motivation.

Table 2. The frequency statistics of teaching approach variables

Variable	Definition	Frequency		
		Total	Male	Female
Preference to the combination degree between teaching and textbook	3=“Basically following the textbook and exam syllabus, importing a wealth of supplementary materials”	54.66%	58.14%	52.33%
	2=“Mainly following the textbook and the exam syllabus, adding fewer new materials, and making a little structural adjustment”	29.50%	26.36%	31.61%
	1=“Strictly following the textbook and exam syllabus for the sake of expediently finding the corresponding knowledge from textbooks”	15.84%	15.50%	16.06%
Preference to slides style	1=“Complex slides: rich content, abundant additional knowledge and a large amount of information”	57.14%	53.49%	59.59%
	0=“Simple slides: concise content and just showing the content structure and the key words”	42.86%	46.51%	40.41%
Reading Motivation	1=almost never or never	2.17%	2.33%	2.07%
	2= occasionally	31.06%	27.91%	33.16%
	3= often	55.90%	53.49%	57.51%
	4= everyday	10.87%	16.28%	7.25%

Compared with Chinese high school, the teaching and learning mode in Chinese college is quite different, which may influence freshman’s learning interest and attitude due to the difficulty adapting to the new teaching and learning mode. Survey results indicate that over 31 percent students claimed they have “Low” or “very low” adapting to the new teaching style, although 69 percent students chose option “Very High” and option “High”. From the perspective of gender, female’s adaptation level is higher than male’s. Moreover, for the concentration on lectures in the class, result shows that over 40 percent students claimed that they cannot stay focused in the class. As regards the exam preference, 90 percent students claimed that they care about the exam seriously, this conclusion is in accordance with our usual observations; after numerous conversations with students, we found that, owing to the increasing competition in, such as, applying for awards, scholarships and graduate programs,

most students do care about the exam and final grades. This part of students hope professors can primarily focus on the exam syllabus and not import too much additional materials.

Table 3. The frequency statistics of teaching adaptability, exam preference and concentration in class

Variable	Options	Frequency		
		Total	Male	Female
Teaching adaptation(degree)	1="Very low"	0.93%	0.78%	1.04%
	2="Low"	30.12%	35.66%	26.42%
	3="High"	65.84%	60.47%	69.43%
	4="Very high"	3.11%	3.10%	3.11%
Exam preference (degree of care)	1= "Very low or none at all"	3.73%	7.75%	1.04%
	2="Low"	2.80%	5.43%	1.04%
	3="High"	27.02%	27.13%	26.94%
	4="Very high"	66.36%	59.69%	70.98%
Concentration in class	1="Truant or complete not concentrated"	3.73%	6.20%	2.07%
	2="Often distract, and concentrate occasionally"	39.75%	37.21%	41.45%
	3="Moderately concentrated "	51.55%	48.06%	53.89%
	4="Very concentrated"	4.97%	8.53%	2.59%

When it comes to the reason for electing the course, 52.8 percent students claimed they elected the course primarily according to the major requirements; about 43 percent students took the course according to the personal interests and preparations for future employment. In addition, there are some differences in gender: 48.8 percent male students claimed that they selected the course primarily because of major requirement, while the proportion of female students reached to 55.44%. In fact, most students show a misunderstanding of the purpose and content of *Principles of Management*; they thought this course will tell them how to manage an organization in practice and then they will be a qualified manager after learned this course. In fact, the real purpose of this course is to instruct and explain the basic concepts and thoughts of management, yet a qualified manager requires a wealth of practical experience accumulation. Therefore, although they actually do not know what's a kind of course the *Management* is, most of students, especially the students from the department of economics, the business school and the department of public management, have to select this course based on their major requirement rather than based on their personal interest or other reasons. Consequently, the election reason may be a significant factor of student's learning interest.

Table 4. The frequency statistics of the reason of course election

Election Reason	Total		Male		Female	
	Number of Students	Proportion	Number of Students	Proportion	Number of Students	Proportion
Personal interest	68	21.12%	32	24.81%	36	18.65%
Preparation for Future Employment	70	21.74%	27	20.93%	43	22.28%
Major requirement	170	52.80%	63	48.84%	107	55.44%
Others	14	4.35%	7	5.43%	7	3.63%
Total	322	100%	129	100%	193	100%

As for the learning interest to the course and the satisfaction to the teaching approach, our Practical Teaching

Approach (PTA) has achieved desirable results. The survey result shows that 84.5% students chose “Very interested” and “Moderately interested”, while there is still 15.5% students feel “uninterested”. In overall satisfaction, 75% students selected “Very satisfied” or “Moderately satisfied”. Relatively speaking, female students satisfied better, over 78% choose “Very satisfied” or “Moderately satisfied”, higher than 70% male students do.

Table 5. The frequency statistics of learning interest and overall satisfaction

Variable	Options	Frequency		
		Total	Male	Female
Learning interest degree	1=“Very uninterested”	1.24%	3.10%	0.00%
	2=“Moderately uninterested”	14.29%	12.40%	15.54%
	3=“Moderately interested”	67.70%	65.12%	69.43%
	4=“Very interested”	16.77%	19.38%	15.03%
Overall satisfaction	1=“Very dissatisfied”	1.24%	1.55%	1.04%
	2=“Moderately dissatisfied”	10.25%	10.08%	10.36%
	3=“About equally satisfied and dissatisfied”	13.66%	18.60%	10.36%
	4=“Moderately satisfied”	66.77%	58.91%	72.02%
	5=“Very satisfied”	8.07%	10.85%	6.22%

3. Model and Empirical Analysis

3.1 Ordered Response Model

Since the dependent variable, INT, is ordered discrete choice data, this paper make use of the Ordered Response Model (ORM) to analyze how the students’ adaptability and preference to teaching approach affect their learning interest. Ordered Response Model assumes that there is a linear relationship between a hidden variable and independent variables,

$$y^* = X'\beta + u, u \sim IID(0, \sigma^2) \quad (1)$$

where y^* is the hidden variable; X is the set of independent variables, including Gender (GEN), Discipline (DIS), Concentration in class (CON), Reading motivation (MOT), Preference to the combination degree between teaching and textbook (COM), Preference to slides style (SLI), preference to Examination (EXA) and the Reason for electing the course (REA), etc. β is a parameter need to be estimated. There is a relationship between hidden variable y^* and dependent variable y as follows,

$$y = \begin{cases} = 1, & \text{if } y^* \leq \gamma_1 \\ = 2, & \text{if } \gamma_1 < y^* \leq \gamma_2 \\ = 3, & \text{if } \gamma_2 < y^* \leq \gamma_3 \\ = 4, & \text{if } \gamma_3 < y^* \end{cases} \quad (2)$$

where $\gamma_1 < \gamma_2 < \gamma_3$ are cutoff points. Then the conditional probabilities of explained variable are

$$\begin{cases} P(y=1|X, \beta, \gamma) = F(\gamma_1 - X'\beta) \\ P(y=2|X, \beta, \gamma) = F(\gamma_2 - X'\beta) - F(\gamma_1 - X'\beta) \\ P(y=3|X, \beta, \gamma) = F(\gamma_3 - X'\beta) - F(\gamma_2 - X'\beta) \\ P(y=4|X, \beta, \gamma) = 1 - F(\gamma_3 - X'\beta) \end{cases} \quad (3)$$

where $F(\bullet)$ is the cumulative probability distribution function of residual u . β and γ can be estimated by maximum likelihood method.

3.2 Empirical Results

Assume that the residual u obeys the normal distribution, $F(\bullet)$ is the normal cumulative distribution function. Then we use STATA11.0 to estimate the Ordered Probit Model (estimation results see Table 6). The results demonstrate that the student's concentration in class, adaptability to teaching approach, preference to slides style and personal interest passed the significant test, and they have positive impacts on learning interest. However, the Gender, Discipline, Reading motivation, Preference to the combination degree between teaching and textbook are not significant. This result indirectly proved that student's adaptability to teaching and learning style in college, student's recognition to the professor's teaching approach, personal interests of course election are the significant factors of their learning interests. Students, who have higher levels of adaptability and recognition to teaching, electing courses based on personal interests and concentration in class, show a higher level of learning interest.

Table 6. The estimation results of ordered probit model

Variable	Symbol	Coefficients	Standard Deviation	Z-statistics	P-value
Gender	<i>GEN</i>	0.092	0.143	0.64	0.521
Discipline	<i>DIS</i>	0.204	0.227	0.90	0.370
Concentration	<i>CON</i>	0.693***	0.118	5.88	0.000
Adaptability	<i>ADA</i>	0.262**	0.134	1.96	0.050
Reading motivation	<i>MOT</i>	0.103	0.108	0.95	0.342
Preference to the combination degree between teaching and textbook	<i>COM</i>	0.012	0.094	0.12	0.901
Preference to slides style	<i>SLI</i>	0.467***	0.141	3.31	0.001
Preference to Examination	<i>EXA</i>	0.023	0.096	0.23	0.815
Election Reasons	<i>REA1</i>	0.585*	0.357	1.64	0.102
	<i>REA2</i>	0.327	0.354	0.92	0.356
	<i>REA3</i>	0.381	0.338	1.13	0.259
Cutoff Points	γ_1	1.147	0.669		
	γ_2	2.571	0.665		
	γ_3	4.899	0.701		

Pseudo $R^2=0.1353$; LR $\chi^2(11)=78.09***$; Number of Observations=322.

Notes: *, ** and *** denote significance at the 10%, 5% and 1% level, respectively.

Because the coefficients estimated by the Ordered Probit Model can only denote the independent variables have positive or negative effects on dependent variable, they cannot indicate the strength of effect. Thus, it requires to calculate the marginal effect from explanatory variable, namely, how much effect it militates on the probability of selecting an option when the independent variable changes one unit (the marginal effects calculated by STATA11.0 are showed in Table 7). The results show that, the positive impacts from the personal interests of electing course and the concentration in class are stronger than those from the adaptability and the preference to slides. For example, while holding all other factors constant, if concentration in class increase one unit, the probability of choosing option "Very uninterested", option "Moderately uninterested" and option "Moderately interested" will decrease 0.9%, 12.65% and 0.98% respectively, but the probability of choosing option "Very interested" will increase 14.53%; Compared with the student that prefers to "Simple slides", the probability of the student that prefers to "Complex slides" for choosing option "Very interested" will increase 9.45%, while the probability of choosing option "Very uninterested", "Moderately uninterested" and "Moderately interested" will decrease 0.03%, 0.41% and 0.03%, respectively.

Table 7. The marginal effects of independent variables

Variable	Code	INT=1	INT=2	INT=3	INT=4
Gender	<i>GEN</i>	-0.0012	-0.0166	-0.0017	0.0194
Discipline	<i>DIS</i>	-0.0032	-0.0403	0.0046	0.0390
Concentration	<i>CON*</i>	-0.0090	-0.1265	-0.0098	0.1453
Adaptability	<i>FIT*</i>	-0.0034	-0.0477	-0.0037	0.0548
Reading motivation	<i>MOT</i>	-0.0013	-0.0188	-0.0014	0.0215
Preference to the combination degree between teaching and textbook	<i>COM</i>	-0.0002	-0.0021	-0.0002	0.0025
Preference to slides style	<i>SLI*</i>	-0.0069	-0.0883	0.0008	0.0945
preference to Examination	<i>EXA</i>	-0.0003	-0.0041	-0.0003	0.0047
Election Reasons	<i>REA1*</i>	-0.0053	-0.0880	-0.0530	0.1463
	<i>REA2</i>	-0.0034	-0.0537	-0.0186	0.0758
	<i>REA3</i>	-0.0053	-0.0704	-0.0034	0.0791

Notes: the marginal effect is dy/dx form; * denotes the variable is significant.

4. Conclusions and Suggestions

This paper empirically analyzed the relationship between student's teaching adaptability, teaching approach preference and student's learning interest based on a survey on freshmen who elected the course - *Principles of Management*. According to the summary statistical analysis, the findings show that: most of students have adapted very well to teaching and learning mode in college, but there is still more than 1/3 of students have difficulty adapting; a large part of students still lack the reading motivation; And, most students do care about the exam and final grades, they hope professors can primarily focus on the exam syllabus and not import too much additional materials. The further empirical results show that: students' adaptability to teaching and learning in college, whether recognition to professors' teaching mode or not, whether selecting a course according to personal interest or not, have significant impacts on their learning interests. Students with higher level of adaptability to Chinese college teaching, higher level of recognition to the professor's teaching mode, higher level of concentration in class and selecting the course according to their personal interest, show a higher level of learning interests. Moreover, the effects from personal interest and concentration are stronger than those from the student's adaptability and recognition to teaching approach. Therefore, we propose following advices for improving the teaching efficiency and enhancing the student's learning interest.

First, help undergraduates, especially freshmen, to adapt to the teaching and learning mode in college. The students' adaptability to college teaching and learning mode is the most important factor of learning interest. Our study found that there are a large number of freshmen cannot adapt to college teaching and learning style quickly. Therefore, enhancing the psychological guidance and education for freshmen is considerably required. The empirical result also indicates that student's concentration in class have a positive impact on the learning interest, so it is very important to guide those students whose learning interests are very low and whose attention is easily distracted to correct their studying attitude.

Second, improve the teaching approach according to students' preference. Our empirical findings show that professor's teaching mode is an important factor of students' learning interest. Therefore, in order to enhance student's learning interest, we should track out an appropriate teaching mode that is accepted and recognized by our students through frequently communicating with students and taking improving advices from students.

Third, encourage students to elect courses according to their personal interests. Our empirical study shows that whether selecting a course according to personal interest or not have significant impact on student's learning interest. In term of the current credit system, students can select courses that they are interested in within a wider range. Hence we should encourage students to choose the course that is not only relevant to their majors but also match their personal interests.

Finally, the course, which is highly practical and requires high level of knowledge accumulation, might as well primarily open for senior or junior students rather than freshmen. For the course like the *Principles of Management*, the professional knowledge accumulation and the ability of consciously expanding knowledge are

very important. While freshman, owing to their insufficient knowledge accumulation and not yet fully adapting to college teaching and learning mode, is hard to catch and understand all of the knowledge and analysis logics embodying in various materials. Therefore, this kind of courses should be appropriately delayed in order to improve the student's learning interest and knowledge absorption.

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