ICED 2020 proceedings:

The impact of the faculty-student relationship on student course engagement

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Abstract

This study introduces the situation of the faculty-student relationship and students' course engagement and analyzes the influence of the former on the latter. The research sample included 457 undergraduates, who come from Shanghai Jiao Tong University. The study found that almost all undergraduates can participate fully in class, but take part in fewer participation/interaction activities. The faculty-student relationship places the highest score on "Satisfaction" and the lowest score on "Conflict". Conflict is a negative predictor of attitude engagement; the Support scale and the "Closeness" scale have a positive impact on student engagement, in contrast to the "Attitude" scale.

1 Introduction

With the development of popularization of higher education, quality has been gradually replacing quantity as the focus of future work. Undergraduate teaching plays a key part in enhancing higher education quality. The classroom is a context that aims at good teaching and learning. As one of the most important factors in this context, the faculty-student relationship not only comprises a large part of the teaching process, but also runs through the whole process of higher education, greatly affecting students' learning outcomes (Carini et al., 2006; Kuh, 2003; Yunhee Bae & Sunyoung Han, 2019).

Student course engagement is an important predictor of course learning outcomes. There is no uniform definition of student course engagement, but scholars all agree that it is a multidimensional structure. Skinner and Belmont (1993) defined course engagement as "students' effortful, active, constructive, enthusiastic participation in learning activities within the classroom." Handelsman et al. (2005) suggested that student course engagement includes skill, participation/interaction, emotional and performance components.

In the research described in this paper, the faculty-student relationship refers to a special interpersonal relationship established by interaction between teachers and students during the common teaching process (Huang Xiting, 2004; Li Jinyu,1994; Zheng Xiaoquan, 2005).China's higher education has unique characteristics. This paper mainly discussed the current situation of the faculty-student relationship and student course engagement in Chinese universities and the impact of the former on the latter.

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The research questions were as follows:

1. What are the characteristics of the faculty-student relationship in undergraduate courses?
2. What are the characteristics of student engagement in undergraduate courses?
3. In undergraduate courses, how does the faculty-student relationship affect students' course engagement?

2 Literature review

2.1 Theoretical framework

College Impact Models is an important theoretical source for the study of college students (Wang Shu, 2010). Among the theoretical models, the "I-E-O model" is one of the most influential. This research uses Astin's IEO model as its theoretical framework. According to this model, the impact of universities on students is the result of three related factors: "I" means input, which refers to the student's characteristic and background before enrollment; "E" means environment, which refers to the people, school policies, culture, etc. which students encountered on or off campus during their studies; "O" means output, which refers to the knowledge, skills, attitudes, values, beliefs and behaviours of students after graduation (Astin,1999). Input contributes to the results not only in a direct way, but also in an indirect way, that is, through the environment of the school. This model attempts to explain the impact of the environment on the overall or individual changes or growth of students, with particular attention to the impact of faculty, school projects and policies (Long & Amey, 1993). The conceptual framework of this research is shown in Figure 1.

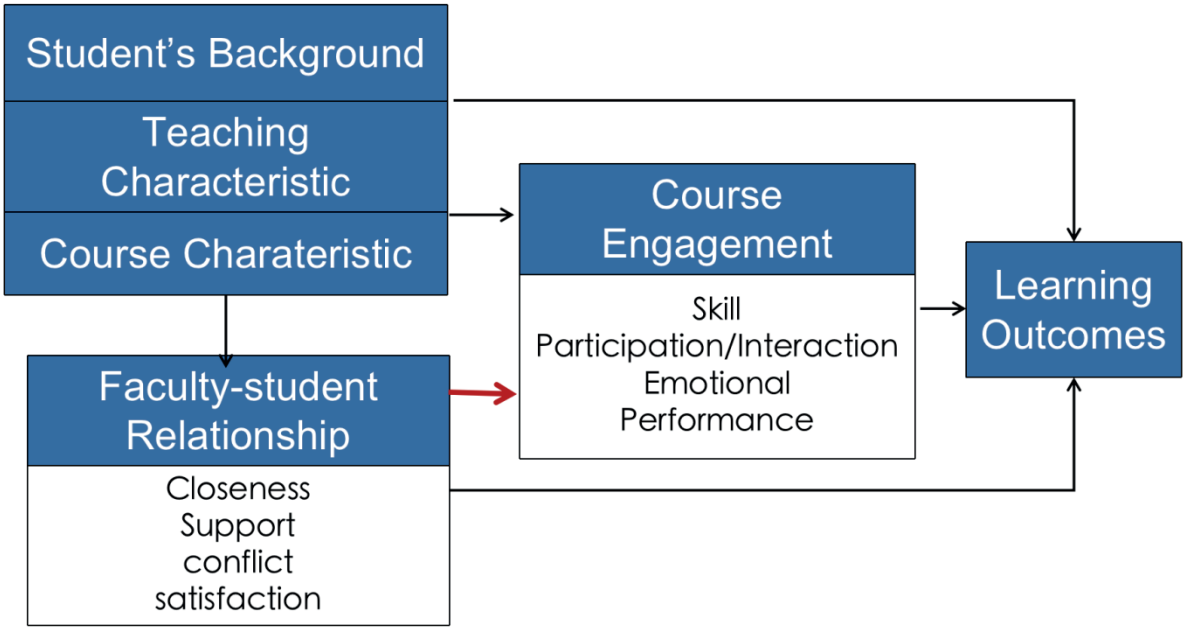

Figure 1: Conceptual framework

2.2 The faculty-student relationship

Regarding current studies of the faculty-student relationship, apart from a few researchers who reported positively (Wang Peng, 2016), most researchers find that there are still some problems. For example, the relationship is indifferent and features lack of emotion (Deng Xianbo,2008); "faculty-student dialogue" has become "faculty-to-student" (Wang Xiaomei, 2010); and the classroom is "dominated" by teachers, and dull (Xie Huicun, 2003). The team

at Tsinghua University also found problems: a “research priority” orientation makes teachers neglect interaction with undergraduates (Shi Jinghuan & Wen Wen, 2010).

There is less research on the faculty-student relationship in higher education than in pre-college education. Research findings have found that personal personality and past experience are more important than age and gender in an intercultural environment (Hsieh, 2012). It follows that cultural background often affects students’ expectations of the faculty-student relationship (Zhou et al., 2008). Grade and subject are also influencing factors. In addition, for online learners, lack of interaction may have a negative impact on the faculty-student relationship (Bergström, 2010). A single positive connection with the teacher can influence the student’s view of the teacher overall (Cox, 2011). The development of the Internet has a huge influence on communication between teachers and students, and the "micro-communication" method prevails. Social-media software such as WeChat has become an important platform for faculty-student communication, which has changed the traditional face-to-face communication mode (Zhang Yujing et al., 2019).

2.3 Student course engagement

Research into student engagement can be divided into two categories. The first focuses on analyzing characteristic problems. For example, Tsinghua University, Nanjing University and some other institutions evaluate the undergraduate education process by comparing themselves with similar institutions based on the results of undergraduate engagement surveys (Wen Wen & Guan Liusi, 2011; Lu Yun & Lv Linhai, 2015). The second category focuses on exploring the mechanism of student engagement in relation to learning outcomes. For example, some findings show that student engagement has a positive mediating effect on students’ growth, and a positive effect on academic performance, knowledge acquisition and cognition developmental self-evaluation (Qu Liaojian & Sun Liang, 2019. et al).

At the college level, many studies assess engagement at the “macro level,” including the National Survey of Student Engagement (NSSE) at Indiana University (NSSE, 2013) and the Tsinghua University Undergraduate Education Survey (Shi Jinghuan & Wen Wen, 2010). Handelsman et al. (2005) believe that if you want to improve university education and the student experience, it is necessary to pay attention to student engagement at the level of specific courses, because the greatest impact teachers have on students is reflected in the behaviour and feelings of students in the classroom. They developed the Student Course Engagement Questionnaire (SCEQ). This questionnaire follows the standard psychometric process, which has 23 items divided into four dimensions of engagement: skill, participation/interaction, emotional and performance components.

3 Method

3.1 Participants and procedure

This study collected data from Shanghai Jiao Tong University – a top first-class university in China. Using cluster sampling and stratified sampling methods, and taking the class as the sampling unit, random sampling was conducted among 1642 undergraduate courses in the autumn semester of 2019 and 50 classes. 474 questionnaires were returned, of which 457 were valid. The response rate was 20.9%.

gender	male	283	61.9%
	female	174	38.1%
grade	freshman	231	50.5%
	sophomore	133	29.1%
	junior	85	18.6%
	senior	8	1.8%
subject	engineering	231	50.5%
	science	69	15.1%
	bioscience	19	4.2%
	humanities and social sciences	134	29.3%
	top student program	4	0.9%
household registration	the agriculture household	104	22.8%
	non-agriculture household	353	77.2%
high school	national key high school	93	20.4%
	key high school in province	204	44.6%
	key high school in city	120	26.3%
	ordinary high school	33	7.2%
	other	7	1.5%
enrollment	gaokao	391	85.6%
	special program	66	14.4%

Table 1: Descriptive statistics of the participants.

3.2 Measures

The questionnaire used in this study mainly collects four categories of information: students' background information, student course engagement, the faculty-student relationship, and teaching and course characteristics.

This study used the Student Course Engagement Questionnaire (SCEQ) developed by Handelsman et al. to measure the level of students' course engagement. The original questionnaire included 23 items in four dimensions of engagement. The research of Zhou Zijing (2008) and Lin Shuhui (2018) proved the reliability and validity of SCEQ in the Chinese environment. According to the characteristics of this research, some items were appropriately modified.

The faculty-student relationship questionnaire we used referred mainly to Qu Zhiyong's scale, which is based on the research of Pianta (Pianta, 1997). The questionnaire includes four dimensions: closeness, support, satisfaction, and conflict. This study refers to the four dimensions of the questionnaire, and the specific items, after modification, are based on the characteristics of higher education.

Items	M	SD	Factor loading	Cronbach' s Alpha
Student course engagement				
Making sure to study on a regular basis	3.32	1.255	0.781	0.908
Putting forth effort	3.65	1.076	0.792	
Doing all the homework problems	3.72	1.022	0.765	
Looking over class notes between classes to make sure I understand the material	3.21	1.144	0.800	
Being organized	3.20	1.120	0.747	
Listening carefully in class	3.71	1.013	0.715	
Thinking about the course between class meetings	3.67	1.050	0.781	
No absenteeism except for accidents	4.61	0.833	0.945	0.886
Being punctual for class	4.63	0.762	0.845	
Finding ways to make the course interesting to me	3.84	1.044	0.754	0.906
Desiring to learn this course	3.64	1.104	0.813	
Raising my hand in class	2.95	1.223	0.779	
Asking questions when I don't understand the instructor	3.04	1.212	0.772	
Having fun in class	3.66	1.042	0.811	
Going to the professor's office hours	3.15	1.266	0.785	
Being confident that I can learn this course well	3.75	1.012	0.778	0.813
Doing well in class	3.42	1.088	0.868	
Faculty-student relationship				
I often discuss grades or homework with the instructor	2.53	1.102	0.728	0.834
I often discuss course-related topics with the instructor outside of class	2.73	1.16	0.755	
I often discuss career plan with the instructor	2.22	1.123	0.807	
I often discuss philosophy and values with the instructor	2.42	1.173	0.705	
The instructor respects my learning ability in the course	3.87	0.884	0.737	0.870
The instructor often encourages me when I am not confident in answering questions	3.45	1.032	0.703	
I can get timely feedback from the instructor(oral/written)	3.42	1.118	0.712	
I cherish the relationship between the instructor and me	3.88	0.937	0.755	
The instructor is not opinionated	3.73	0.945	0.798	
I am willing to do other research with the instructor	3.54	1.074	0.706	
I hope to improve my relationship with the instructor	3.88	0.929	0.777	0.905
The faculty-student relationship is exactly what I hope for	3.97	0.908	0.851	
When I have difficulties, the instructor will help me in time	4.04	0.885	0.887	
I am very satisfied with my relationship with my teacher	3.82	0.958	0.848	
I feel treated unfairly by the instructor	1.41	0.798	0.703	0.771
The instructor often punishes or criticizes me	1.39	0.788	0.725	
I find it difficult to get along with the instructor	1.56	0.823	0.775	

Note: M = mean; SD = Standard Deviation

Table 2: Descriptive statistics, factor loadings, and reliabilities in the measurement models

3.3 Statistical analyses

First, descriptive statistics were collected and correlation analysis was conducted. Next, after controlling for other related variables, multiple regression was used to analyze the impact of the faculty-student relationship on student course engagement.

4 Results

As Table 3 shows, in students' course engagement, attitude scores the highest, and participation/interaction scores the lowest. In the faculty-student relationship, satisfaction scores the highest, and conflict scores the lowest. Except for conflict, there is a significant positive correlation between the positive scales of the faculty-student relationship and the four

scales of student course engagement. Conflict between teachers and students is negatively correlated with attitude engagement, support and satisfaction, but positively correlated with intimacy (See Table 4).

Regression analysis shows that the closeness of and support inherent in the faculty-student relationship has a positive impact on skill, participation/interaction and performance engagement; satisfaction does not affect participation/interaction engagement, and attitude engagement is only affected by conflict (See Table 5).

Scales	Min	Max	M	SD
Student course engagement				
Skill Engagement	1	5	3.50	0.884
Attitude Engagement	1	5	4.62	0.756
Participation/Interaction Engagement	1	5	3.38	0.951
Performance Engagement	1	5	3.59	0.964
Faculty-student relationship				
Closeness	1	5	2.48	0.931
Support	1	5	3.65	0.779
Satisfaction	1	5	3.93	0.812
Conflict	1	5	1.45	0.665

Table 3: Descriptive statistics of student course engagement and the faculty-student relationship

	Skill Engagement	Attitude Engagement	Participation/ Interaction Engagement	Performance Engagement	Closeness	Support	Satisfaction	Conflict
Skill Engagement	1	.335**	.732**	.648**	.462**	.571**	.512**	-0.052
Attitude Engagement		1	.299**	.286**	.108*	.328**	.321**	-.239**
Participation/Interaction Engagement			1	.750**	.615**	.672**	.551**	-0.053
Performance Engagement				1	.508**	.592**	.535**	-0.058
Closeness					1	.551**	.403**	.283**
Support						1	.721**	-.152**
Satisfaction							1	-.250**
Conflict								1

**significant for p < 0.05; **significant for p < 0.01.*

Table 4: Correlation between student course engagement and faculty-student relationship.

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Variable	Model 1 Skill engagement	Model 2 Attitude engagement	Model 3 Participation/interaction engagement	Model 4 Performance engagement	Model 5 Student course engagement
Closeness	0.210**		0.398**	0.295**	0.281**
Support	0.214**		0.264**	0.215**	0.244**
Satisfaction	0.106*			0.160**	0.121*
Conflict		-0.126**			
Female	-0.095**			-0.129**	
Freshman	0.066	0.073			
Sophomore	-0.103**		-0.064*		-0.081**
Junior				0.062	
Senior					
Teaching	0.216**	0.373**	0.264**	0.145**	0.284**
Course Pressure	0.216**	0.088*	-0.091**	-0.127**	
Engineering				-0.123**	
Science				-0.112**	
Bioscience					
National Key High School					
Key High School in Province					
Key High School in City				-0.06	
Ordinary High School					0.060*
Humanities and Social Sciences					
The Agriculture Household			0.053		
First Generation College Students					
Enrollment					
Adjusted R^2	0.493	0.206	0.582	0.463	0.586
Sig of Model	0.000	0.000	0.000	0.000	0.000
N	457	457	457	457	457

Student course engagement = (skill engagement + attitude engagement + participation/interaction engagement + performance engagement)/4.
**significant for p < 0.05; **significant for p < 0.01.*

Table 5: Multiple regression summary.

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5 Conclusions

On the one hand, there is little undergraduate absenteeism in class, which is only related to conflict. The conflict score between teachers and students is low, and students enter the classroom on time. On the other hand, scores for students' classroom participation/interaction are also relatively low. It is even possible that they did not follow the class carefully. The factors affecting participation/interaction are closeness and support, but the scores for these two scales are not particularly high. In addition, closeness is positively correlated with conflict, indicating that the more closeness there is between students and the instructor, the more contradictions and conflicts there are. This supports the perception of some teachers' indifferent attitude towards students. However, a decrease in closeness will have a more serious impact on student engagement. Universities should not one-sidedly emphasize attendance, nor should they ignore indifference. Instead, they should improve the level of students' course engagement by enhancing the interaction and understanding between teachers and students.

Acknowledgements

Thanks to all the undergraduates who participated in the survey.

References

Astin, A. W. (1999). Student Involvement: A Developmental Theory for Higher Education. *Journal of College Student Personnel, 25(5)*, 297-308.

Bergstrom, P. (2010). Process-based assessment for professional learning in higher education: Perspectives on the student-teacher relationship. *The International Review of Research in Open and Distributed Learning, 11(2)*, 33-48.

Carini, R. M., Kuh, G. D., & Klein, S. P. (2006). Student engagement and student learning: Testing the linkages. *Research in Higher Education, 47*, 1-32.

Cox, B. E. (2011). A developmental typology of faculty-student interaction outside the classroom. *New Directions for Institutional Research*, 49-66.

Deng Xianbo. (2008).Analysis of the status of faculty-student relationship in universities. *Economic and Social Development, 6 (8)*, 203-205. 邓显波.(2008). *高校师生关系现状分析.经济与社会发展, 6 (8)*, 203-205.

Handelsman M M, Briggs W L, Sullivan N, et al. (2005). A measure of college student course engagement. *The Journal of Educational Research, 98(3)*, 184-192.

Hsieh, H. (2012). Challenges facing Chinese academic staff in a UK university in terms of language, relationships and culture. *Teaching in Higher Education, 17(4)*, 371-383.

Huang Xiting. (2004). *A Concise Dictionary of Psychology*. Hefei: Anhui People's Publishing House. 2004. 黄希庭. (2004).*简明心理学辞典*.合肥：安徽人民出版社.

Kuh, G. D. (2003). What we're learning about student engagement from NSSE: Benchmarks for effective educational practices. *Change: The Magazine of Higher Learning, 35*, 24-32. doi: 10.1080/0009138 0309604090

Li Jinyu. (1994). Several factors affecting the faculty-student relationship. *Journal of Northwest Normal University (Social Science Edition), (02)*, 65-69.李谨瑜.试论影响师生关系的若干因素(1994).*西北师大学报(社会科学版)*,(02), 65-69.

Long, P. N. & Amey, M. J. (1993). A Study of Underprepared Students at One Community College: Assessing the Impact of Student and Institutional Input, Environmental, and Output Variables on Student Success. *ASHE Annual Meeting Paper*. 2-15.

Lu Yun, Lv Linhai. (2015). Undergraduates' Liberal Course Engagement in Research Universities and Its Impact on Learning Outcomes – Based on a Questionnaire Survey of Nanjing University. *Research in Teaching, 38(06)*, 5-10. 陆云,吕林海.(2015).研究型大学本科生通识课程学习投入现状及其对学习结果的影响——基于南京大学的问卷调查.*教学研究,38(06)*, 5-10.

National Survey of Student Engagement: NSSE Conceptual Framework (2013). http://nsse.indiana.edu/pdf/NSSE%20Conceptual%20Framework%20(2013).pdf.2019-9-22. (http://nsse.indiana.edu/html/conceptual_framework_2013.cfm）

Pianta, R. C. (1997). Adult–child relationship processes and early schooling. *Early education and development, 8(1)*, 11-26.

Qu Liaojian, Sun Liang. (2019). Research on the Influencing Factors and Promotion Strategies of Undergraduate Course Participation in Research Universities. *Journal of Higher Education Management,13 (01),* 113-124. 屈廖健,孙靓.(2019).研究型大学本科生课程学习参与度的影响因素及提升策略研究.*高校教育管理,13(01)*, 113-124.

Qu Zhiyong. (2002).*The characteristics of the class environment in elementary and middle schools and its relationship with students' school adaptation*. Beijing Normal University. 屈智勇.(2002)中小学班级环境的特点及其与学生学校适应的关系.北京师范大学.

Shi Jinghuan, Wen Wen. (2012). Tsinghua University Undergraduate Education Survey Report, 2010. *Tsinghua Journal of Education, 33(01)*, 4-16. 史静寰,文雯.(2010). *清华大学本科教育学情调查报告 2010.清华大学教育研究, 33(01)*, 4-16.

Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85(4)*, 571-581.

Wang Shu. (2010).Student's Learning Input as an Intermediary: A Path Analysis of the Impact of University Learning Experience on Learning Gains. *2009 First Capital University Education Graduate Academic Forum Collected Papers*. Department of Education, Beijing Normal University, 2010: 14.

Wang Peng.(2016). Analysis of the characteristics of the faculty-student relationship of contemporary college students. *Knowledge Economy, (03),*123. 王鹏.(2016).当代大学生师生关系特点分析.*知识经济, (03)*,123.

Wang Xiaomei.(2010).Reconstruction of the faculty-student relationship from the perspective of constructivism. *Modern Educational Science, (09),*35-38. 王效梅.(2010).建构主义视域下高校师生关系的重建.*现代教育科学, (09),* 35-38.

Wen Wen, Guan Liusi. (2011). A Preliminary Study on the Engagement of Autonomous Enrollment Students in Universities – An Empirical Study Based on the Autonomous Enrollment Groups of Nine "985" and "211" Universities. *Fudan Education Forum, 9 (06)*, 19-25. 文雯,管浏斯.(2011).大学自主招生学生学习性投入初探——以九所"985"、"211"高校自主招生群体为例的实证研究.*复旦教育论坛, 9 (06)*, 19-25.

Xie Huicun. (2003). Analysis and Thinking of College Students' Learning. *Journal of Yuncheng University, (02),* 85-86. 谢惠存.(2003). 大学生学习状况的分析与思考.*运城学院学报, (02),* 85-86.

Yunhee Bae, Sunyoung Han. (2019). Academic Engagement and Learning Outcomes of the Student Experience in the Research University: Construct Validation of the Instrument. *Educational Sciences: Theory and Practice, 19 (3)*, 49.

Zheng Xiaoquan. (2005). The influence of the type of faculty-student relationship on the mental health of students. *Journal of Suzhou Education College, (02)*, 50-51+54.郑孝全.(2005). 试论师生关系类型对学生心理健康的影响.*宿州教育学院学报, (02)*, 50-51, 54.

Zhou, Y., Jindalsnape, D., Topping, K. J., & Todman, J. (2008). Theoretical models of culture shock and adaptation in international students in higher education. *Studies in Higher Education, 33 (1)*, 63-75.

Zhang Yujing, Xu Suzhen, Cheng Yuting. (2019).The faculty-student relationship from the perspective of students and its influence on teaching evaluation: A case study of Beijing Forestry University. *Forestry Education in China,37(05),* 9-15. 张玉静,徐素珍,程玉亭.(2019).学生视角下的高校师生关系及其对教学评价的影响——以北京林业大学为例.*中国林业教育, 37 (05),* 9-15.