

Chapter 6 Conclusions and Implications

This study analyzed the influences of the school environment on individual students to the extent that was possible within the limitations of the data available from the combinations of two different datasets, TYP and YPS. In this chapter, I summarized the results of the analyses and discussed the implications of the findings and finally, I ended up this chapter with the discussions about the observations with respect to future research.

Summary of Findings

In *The Adolescent Society*, Coleman documented that the degree adolescents integrate into school systems was crucial for successful adaptation, including academic and psychological adaptation. I then hypothesized that students' integration into class influenced their academic performance. Three measurements were used to identify students' integration: outdegree, popularity, and permeability. The results indicated that, for student cohort from the old education system, friend numbers inside and outside class improved students' performance in their junior high school years, however, only popularity improved students' performance for students from the new system. Integration didn't increase the probabilities to enter public high school but one of the integration measurements, popularity, was found to have significant effects on students' percentile ranks of their high school placements for entrance exam cohort. For students from the new system, integration was found to increase students' probabilities to enter public high schools, however, only one measurement, outdegree, was found to have significant effects on students' percentile ranks of their high school

placement, but the effects was negative. Based on these results, I concluded that individual's integration in their school classes did matter for their academic outcomes. It should be noted that for two cohorts, the stories seems to be different.

In order to test school effects on students' performances, class contexts (school urbanization and class type) and class networks (school climate and class cohesion) were introduced into the research model to examine the structural effects on individuals trapped in the systems. For students from the old education system, only class cohesion was documented to influence students' initial academic performance, while school climate and class cohesion had impacts on their change rate of performance. That is to say, for students' performance in junior high school, the relational parts of social structure is relatively more important than the contextual parts for entrance exam cohort. For competency test cohort, school urbanizations were found to negatively influence the change rate of adolescent performance in junior high school. It seems that for competency test cohort, the influences of class networks were relative less than those of class contexts. When discussing students' performance in entrance exam, class type and class cohesion significantly increased the probabilities to enter public high school although they didn't increase students' percentile ranks. However, for competency test cohort, it was found that students studied in a higher urbanized area had higher probabilities to enter public high schools and students studied in a so-called good class had higher percentile ranks.

I also examined the indirect effects of opportunity structure. For entrance exam cohort, the results indicated that students with more friends inside and outside class tended to report better grades in their junior high schools if they studied in a cohesive class and students who have more classmates nominated them as friends tended to have better performance if they studied in a school located in higher urbanized area and had better climate. However, it was found that class cohesion

negatively influenced the effect of adolescent integration on their performance in junior high schools for competency test cohort. For students' high school placement, the moderating effects were only found on entrance exam sample. For students from the old education system, it was found that the percentile rank decreased for students with more friends outside class if they studied in so-called good classes.

According to Blau's structural theory, I then confirmed that social structure did affect individuals' outcomes. Both the direct effects and the indirect effects of school networks and school contexts were found to significantly influence individuals' performance in junior high schools. Although the effects on students' performance in high school placement were observed to be decreased, some school effects still were evidenced even when I controlled students' performance in junior high schools. This documented that not only influenced students' academic performance in junior high schools, the school environments continued to influence students' high school placements. Besides, one thing should be noted is that it seems the school effect were not so significant for students from the new system as the effects for students from the old education system.

In general, Blau's structural theory was documented in the research, suggesting local structure did affect students' academic outcome in junior high schools as well as their high school placements which implied the normative impacts of school structure on its students. However, the significant indirect effects of local structure suggested that students have their own power to alter the impacts of local environments which indicated that even studied in a school class which is less cohesive, has bad climate, locates at rural area, and has lower performance, students can alter the school impacts by themselves. Some good friends inside or outside their school classes will help them to have better grades. That is, even under the unchangeable school structure, students still have their own power and can do

something to modify the structural influences.

The second important part of this research is to discuss the differences between two student cohort under different education system before and after education reform. From these separate analyses, the differences in school effects on students' performances between two cohorts of students from different education systems could be observed, so some further analyses were done to compare the impacts of education systems on individual students. For the full sample model of students' performances in their junior high school years, outdegree and permeability were found to significantly increase the probabilities for students to report they had better grades. For the effects of individuals' integration on their performance, no cohort differences were found. Moreover, school climate and class cohesion still influenced students' performance, however, only the effects of class cohesion were found to have cohort differences. The results demonstrated that students from the new system had better performance if they studied in a cohesive class than those from the old education system. The results of full sample models of students' high school placement indicated that for the effects of individuals' integration on their probabilities to enter public high schools, there was no cohort difference between two student cohorts. The only differences between two student cohorts were the influences of class cohesion on the probabilities to enter public high schools. The significant effects of class cohesion and its interaction effects with cohort on students' high school outcomes indicated that the impacts of class cohesion on the probabilities to enter public high schools was stronger for students from the old education system than those from the new system. For the results of students' percentile ranks of high school placements, class cohesion still had significant effect, however, no cohort differences were observed. One significant differences can be observed was the impacts of students' performances in junior high schools on students' high school

placements which indicated that students' performance in junior high school years were more important for competency test cohort than for entrance exam cohort. The main reason was the changes of educational policy on high school enrollments because for competency test cohort, the decision for students' admission or not was not only according to their test scores, but also to their academic performance in junior high schools and their aptitudes. These results reflected the changes of educational policy on students' high school enrollments.

Two main differences between two cohorts can be summarized as follows: first, for student cohort from the new system, the influences of friends outside classes on students' performance in junior high school were not significant while the influences of friends outside school classes were significant for students from old system which indicated the influences of friends outside classes were changed. This implied that the change of education system somewhat modified students' interaction with their friends. Second, the direct effect of class cohesion on students' performance in junior high schools and on the probabilities to enter public high school changed from significant for students from old education system to not significant for students from new system also implied the facts that schools' effects were decreasing for the new cohort. Although we still need more evidences to make strong conclusions, the findings in this research made us to suspect the decreasing school effect may come from education reform.

One should note that the changes of education institution it per se may change students, teachers, and parents' behaviors. In order to successfully survive from the new education system, students did modify their behaviors in junior high schools. The differences of peer influences on individual students, and the differences of school effects on its students observed in this research are evidences demonstrated that students might change their behaviors to interact with their classmates. The increasing

cram schooling is another evidence suggesting students and parents modify their behaviors to come up against the education reform. The increasing significance of family SES also an evidence supporting that parents become more and more active in involving students' education in order to help their children to jostle in higher education. The results of this research are clear evidences demonstrate that simply a little change on education system at country-level might modify students, parents, and teachers' behaviors.

Implications

According to the research findings, two main suggestions can be drawn for parents and school teachers. First, simply increasing the degree of integrations into class can help students successfully adapt in junior high schools for both two student cohorts. This finding was not surprisingly since social isolation was documented to significantly influence adolescent suicidal thoughts, weapon carrying, lower self-esteem, bad mental health and academic performance. The higher degree of students' integration into their school class indicated students who have more connections with their classmates, who probably have more resources from their friends, who are more involved in their school lives, and who potentially have better attachments with their school classes so that these students can have better adaptations in their school lives. Besides, except students studied in so-called good classes for entrance exam cohort, friends outside school classes positively affected students' academic performance demonstrated that friends outside class can serve as a resource for students to improve their academic performance, so, parents do not need to worry too much about these social connections outside school classes.

The second major finding of this study is about the decreasing effects of school influences. In this research, for entrance exam cohort, comparing with school context, school networks were found relatively more important for students' academic performance, however, for competency test cohort, the influence of school networks declined, or at least, not as strong as those effects on entrance exam cohort. In my research model, school urbanization and class type served as pre-condition which were determined when students enter their junior high schools, however, the social relation parts, school climate and class networks, can be changed in daily interactions. Not every student can actively move to a better learning area, moreover, not every student can enter a so-called good class. What we can really do for these students is to change the relational parts of school structure, their class networks and school climate. However, the effects significantly declined after education reform. It's a warning sign, however, at least three significant extensions are required before strong causal or policy conclusions can be drawn. First, the influences of school effects need to be explored more extensively and longitudinally. Second, because the dataset of TYP was collected at the very beginnings of education reform, more research about school effects on recent cohort students should be done. Third, in this research, I didn't control students' performance in elementary schools, so I can not answer the question about if school serves as the equalizer. Hence, we do not know about whether schools are part of the problem of inequality or part of the solution. This question should be addressed longitudinally so that we can really understand the mechanisms behind the phenomena then the education policies can be drawn.

Limitations

My study is limited to junior high school and their outcome of high school

enrollment, a short period in one's life span. Here we see is only a temporarily outcome of junior high school effects. Only by examining these effects longitudinally can we disentangle the mechanisms of networks and contexts. However, this research can help us real understand the developmental process of adolescents at this life stage and the impacts of educational systems on students' life. By putting adolescents into their educational environments and examining their life experiences comprehensively, this study was Taiwan's first educational study tries to extensively compare two cohort students' life experiences in their junior high schools under different education systems. Not only faithfully reappeared adolescent society in Taiwan, how these two educational systems conditioned students' lives were also discussed in this research.

As to the research measurements, three major limitations should be noted. First, because the TYP and YPS data didn't include students' scores of standardized achievement tests, the only measurements can be used to represent students' academic performance is the academic rank in their school classes. Moreover, there is no standard way to compare the scores of entrance exam and those of competency test, so I can't directly compare the differences of students' performance in their high school enrollments. Here I used the corresponding percentile ranks of the public high schools students' enrolled in. This measurement ignored those students who entered vocational high schools, since in Taiwan, most students arranged themselves for entering public high schools, and most students in TYP and YPS took the entrance exams or competency test, this indicator still can represented students' achievements in their high school enrollments. The measurement I used made it possible to compare school effects on individual's performance between two student cohorts from different education systems. Furthermore, I focus my study on the mechanisms of how schools influence their students and compare these mechanisms between two different student cohorts. As a result, this research illustrates how school conditions students' life

experiences in junior high school years and in their high school placements in Taiwan.

Second, as I mentioned at the social network data, only 3 nominations were allowed in TYP and YPS data may generate structural intransitivity in the whole network structure which leads to the low class cohesion. However, as to the understandings of class network structures, 3 nominations were better than none. Besides, Yang, Wu, and Lei(2004) documented, for the general class size in Taiwan, 3 nominations can meet the minimum criterion to get a stable network structure.

Third, the measurements of integration I used only include students' connections with their classmates. The social interactions with teachers and school personnel as well as students' emotional recognition should be taken into account in order to have more idea about how students attach to their schools and involve in their school lives.

With respect to the analysis strategies, multilevel cumulative logit models were introduced to test the growth trajectories on students' academic ranks in their school classes. Since the measurements measure students' ranks in their school classes, only five students could jostle for the ranks in top 5, which lead the predicted distribution of the outcome variable in growth curve model to become centralized. However, as far, multilevel cumulative logit models are the suitable method I can use.

This dissertation is designed to focus attention on the relationship between school environments and students' academic outcome with a special focus on the influences of relational parts of school structure. Using two rich data sets available, the study contributes to the understanding of the relationship over past studies in Taiwan for a number of reasons. First, while former research explored either education system of entrance exam or competency test only, this effort is able to cover and compare two different education systems. It has been noted that the family SES becomes more and more important for student cohort from new education system

(C.-J. Chen, 2006; J.-J. Chen & Liu, 2004; Y.-G. Chen, et al., 2006), suggesting that the decreasing school effects provided another warning sign that educational policy makers should be noted. Second, the study design and the research method overcome many of the problems encountered when compared students from different educational systems, especially the lack of comparable data on students' high school placements. Third, with the rich data sets, this study is able to cover a number of important aspects of school structures on students' performance. For example, information on students' own friendship networks and their class networks dynamics. And fourth, as to my knowledge, this study is the first attempt in Taiwan to explicitly explore how school environments influenced students' life experience and to compare how these processes were conditioned by two different education systems before and after education reform, using two longitudinal data sets that cover for more than three years. The findings from the illustrative research caution us about the needs of more assessments for the effects of education reform in Taiwan.