

What works, why and how? Evaluating the effectiveness of policy instruments for solving “diploma disease” in Taiwan

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I. Introduction

While “entering a higher school” may have positive effects on people and country to pursue excellence and enhance educational opportunity, in Taiwan, it may also have negative effects, including the distortion of education, over-education, imbalanced cultivation of talent, which is called “diplomaism” (文憑主義) and named by Dore (1976) as “diploma disease”. Since 1952 the government has implemented a lot of policies to solve the problems of “diplomaism”, however, it so far remains. To figure out how are the effectiveness of the policy instruments for solving “diplomaism” is essential.

This study aims to evaluate the policy instruments for solving “diplomaism” in Taiwan. Research questions to be addressed are as follows: (1) What are the policy instruments which the government of Taiwan ever adopted to solve “diplomaism”? (2) How is the effect of each policy tool? (3) Why some kinds of policy instruments have better effects?

Document analysis, secondary data analysis, and interviews are conducted to collect data for analysis. Since the problems of “diplomaism” may be common in the East, findings may benefit for those countries to clarify the effects of different kinds of policy tools to solve the conundrum and identify the useful ones.

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II. The “diploma disease” in Taiwan

Diplomaism is omnipresent and does not occur only in Taiwan. Dore (1976) argues in his book of “The diploma disease: Education, qualification and development” that schooling merely is a kind of qualification-earning and is anti-education. The process is full of rites, anxiety, and tediousness, and erases the creativity and imagination as well. The traditional function of schooling is twisted into a tool of distinguishing the superiors from the others. Dore conducted a research on this phenomenon and focused on United Kingdom, Japan, China, Sri Lanka, and Kenya, he found the phenomenon has tended to increase over time, especially the school systems among the countries of the Third World.

Due to the pressure of development among these developing countries, it will exacerbate the diffusion of the “diploma disease” and may cause the disastrous result. Of course, there are some countries dedicated to solving this problem such as Cuba, Tanzania, and Sri Lanka, however, no country has ever succeeded. In the opinion of Dore, he regards education as a mechanism of social selection, in other words, education has the function of “using diploma to decide who can get what kinds of jobs.” But it should be never replaced the original function of education. To dig this problem deeper, the source of this problem is to “use of certificates for job allocation”

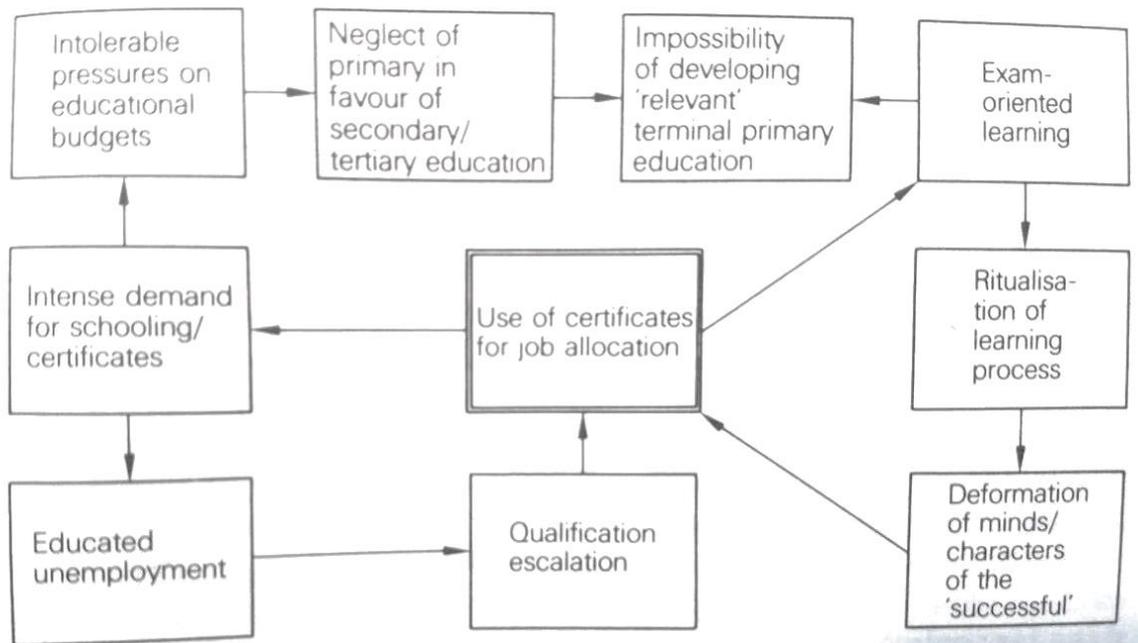


Figure 1. The causal relationship of diploma disease

Source: Dore (1976: 141)

As shown in Figure 1, the use of certificates for job allocation results in the pursuit of schooling and diploma. It not only leads to allocate more budget on education and put more emphases on secondary and higher education rather than primary education, but also makes learning more exam-oriented and ritualizes the learning process. Finally, this result twists the definition of “success” and student development. On the other hand, more people with higher education diploma could not find a job, and the job market utilizes this opportunity to raise the bar of requirement or certificate (diploma depreciation). In the end, these two factors turn out to strengthen the intensity of certificate in the job market (e.g. pursuing a further diploma after graduating from universities). Basically, Dore’s observation and interpretation on diploma disease can apply to Taiwan, but if we revise “allocating more budget on education” to “evaluating the effectiveness of a school/university through admission rates and its ranking” in Figure 1 will be more appropriate in Taiwan’s context.

Huang (2007) reviews the history of diploma disease in Taiwan, he confirms five

crucial elements as the causes: 1. History and social factors: the origination of Imperial Examination (科舉考試) in the Chinese culture; the modernization after the 1950's; the improvement of household income and the pursuit of class mobility; 2. Policy and institutional factors: education matters and the encouragement of pursuing more education, but deterrence of diploma disease at the same time; 3. Educational resources: scarcity/limited opportunities (quantitative problems) and inequality/classification of opportunities (qualitative problems), and the latter has the most impact and lasting; 4. Diploma token: including the symbolic value of diploma and its substantial interests for acquiring a job; 5. Personal factors: educational selection and the plan for career development. His research also founds the reasons why diploma disease exacerbates because of diploma and employment being closely intertwined. If the diploma helps “earning” on one’s own in the future, it makes “learning” and adaptive development no more important, and the functions of education and the purposes of success may be limited or disturbed.

Li (2011) interpreted this further, compared to the United States and Japan, Taiwan’s job market is restricted by industries and organizational infrastructures, and may increase the uncertainty of personal career and the cost and risk of mobility. This will form a personal network for getting a job instead of focusing on professional ability and merits. Furthermore, those students graduated from famous universities have already owned the most educational resources from the government and now they have the firm network of friendship that can help them get a better job as well. All of these factors consolidate the relationship of diploma and employment. Wang (2002) argues that it is not useful to stress on “the root of the culture” but should emphasize on “the root of the human nature.”

Maybe someone will question whether it is wrong to pursue excellence and achievement. Wang & Lin (1994) investigate the phenomenon of diploma disease in

Taiwan, and they found there are three features of problems needed to be addressed: 1. The only thing one wants to pursue is a further diploma, without considering one's ability, interest, and other conditions; 2. Even though one's ability and interest are qualified for a further diploma, they don't care to sacrifice their health, money to achieve the goal; 3. Educators and parents consider the main purpose of education as preparation for pursuing a further diploma, even through approaches which violate the laws and education principles.

Therefore, using "legitimacy" from the perspective of the implementation (the process obeys the laws and education principles) and "education effect" from the perspective of the results can make a two-dimensional diagram (Figure 2). This research doesn't deny the positive meaning and function of a further diploma, but the main problem is to gain high effect by a not legitimate method (grey area in Figure 2) and twist the core value of education and personality development. In contrast, high legitimacy with high education effect is the ideal type. In this research, the definition of diploma disease is: to judge the value of education and employment only based on diploma, and regard obtaining a further diploma as the only purpose of teaching and learning, thus cause the attitudes and behaviors violate the laws and education principles.

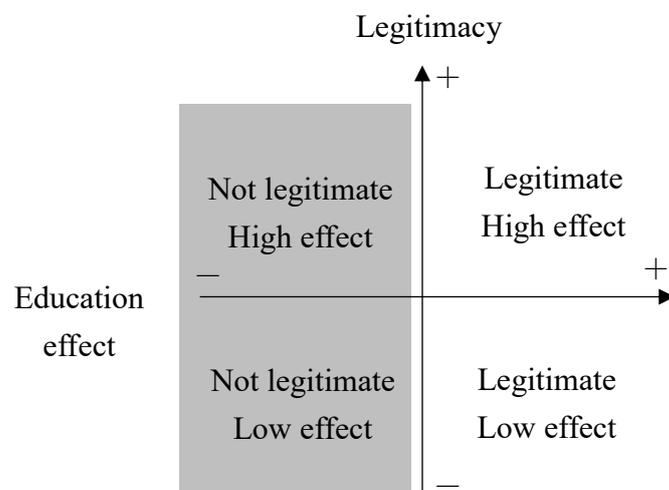


Figure 2. Locus of Diplomaism

More concretely, this “highly competitive and low effect” kind of diploma disease may occur these problems as follows:

1. Curriculum: Students are loaded with the heavy burden of studying and over-cramming.
2. Teaching: Exam-oriented education, abnormal class grouping, abnormal teaching (replacing arts & vocational classes with exam subjects), ignoring multiple intelligences and overemphasized on reciting instead of reasoning and application.
3. Student development: Students choose schools without considering their personal fitness, it will cause over-education, widen the gap between learning and employment, overlook the vocational education, and intensify school stratification.
4. Employment: The diploma is the key factor to acquire a job and turns out to be instrumentalized. With more supplies on higher education diploma, the value of the diploma will depreciate and this makes the pressure of diplomaism increase.

III. Criteria for policy tools evaluation

Policy tools/instrument are the means for the government to achieve the policy goals (Salamon, 2002). Policy tools can be categorized into several types. Table 1 classifies different policy tools from the density of the regulations. The framework proposed by McDonnell & Elmore (1987) can not only incorporate the contents proposed by the other scholars, but also widen the perspective including the change of the institution. Their framework fits this study much more due to the research target of Diplomaism, however, adding “symbolic and hortatory tools” as a new type proposed by Schneider & Ingram (1990) would make this framework more complementary.

These five types of policy tools will be discussed below: 1. **Mandates**: the goal of this type is to make the policy target groups compliant. Setting the standard is the key factor to succeed because when the standard is too high it will raise the cost of the target groups and resist to comply, but when the standard is too low it will produce no effect on the target groups. 2. **Inducements**: in order to inspire some specific behaviors, the public sector would allocate resources conditionally to compensate who follow the rules. The main concern is how to set the bar if the bar is too low, the target groups would not lower their own quality to get the compensation and when the bar is too high only few target group can acquire the compensation and becomes monopolized. 3. **Capacity-building**: to make a considerable profit in the long run through building capacity and skills, while should make sure that the profit is greater than the cost. 4. **System-changing**: the goal is to escalate the effectiveness by changing the system for delivering public goods and services, and the key point is to alleviate the power of resistance among the interest groups. 5. **Symbolic and hortatory tools**: to change the policy preference and behaviors of the target groups, using the non-physical values, such as justice, fairness, and equity, and/or images, symbols and labels etc.

Table 1. Types of policy instrument

Policy instrument types	Hood (1984)	Doern & Phidd(1992)	McDonnell & Elmore (1987)	Schneider & Ingram (1990)	Howlett & Ramesh (1995)
Approach	Resource approach	Continuum approach	Resource approach	Continuum approach	Continuum approach
Criteria	Basic resources of government	Degree of legitimate coercion	Expected effect of government action	Behavioural characteristics	The level of engagement by the government
Category	1. Information 2. authority 3. treasure 4. organization	1. self-regulation 2. exhortation 3. expenditure 4. regulation 5. public ownership	1. mandates 2. inducements 3. capacity-building 4. system-changing	1. authority tools 2. incentive tools 3. capacity tools 4. symbolic and hortatory tools 5. learning tools	1. voluntary instruments 2. compulsory instruments 3. mixed instruments

Source: Adapted from Landry & Varone (2005)

Different policy tools are not mutually exclusive, they usually mix together and become a toolkit/portfolio/mixes. The key factor of mixing these tools is that they must be aligned with the objectives, and the tools must be consistent with the goal (Howlett & Rayner, 2013). From the abstract level to the concrete level, we must consider the policy's goals, objectives and situation in the process of designing policy tools, and take a step further to form a logic and resources for the tools correspondingly (Howlett & Cashore, 2009; Howlett, 2017; Howlett & Fraser, 2018). To sum up, scholars have a variety of types when it comes to policy tools based on the different basic assumptions, and also discuss the cost, benefit and the result from a strategical perspective (Elmore, 1987; Schneider & Ingram, 1990) (Table 2).

Table 2. characteristics of policy instruments

Policy instruments	Mandates	Inducements	Capacity-building	System-changing	Symbolic and hortatory tools
Aspects					
Primary elements	Rules	Money (product)	Money (involvement)	Authority	Preference
Assumption	<ul style="list-style-type: none"> Action required regardless of capacity; good in its own right Action would not occur with desired frequency or consistency without rule 	<ul style="list-style-type: none"> Valued good would not be produced with desired frequency or consistency in absence of additional money Individuals, agencies vary in capacity to produce; money elicits performance 	<ul style="list-style-type: none"> Knowledge, skill, competence required to produce future value Capacity good in its own right or instrumental to other purposes 	<ul style="list-style-type: none"> Existing institutions, existing incentives cannot produce desired results Changing distribution of authority changes what is produced 	<ul style="list-style-type: none"> 1. Prefer policies consistent with personal values, beliefs 2. Prefer policies with positive signals, signs, images and events
Expected effects	Compliance	Production of value Short-term return	Enhancement of skill, competence; long-term return	Composition of public delivery system; incentives	Get policy preference
Costs	<ul style="list-style-type: none"> Initiators: enforcement Targets: compliance, avoidance 	<ul style="list-style-type: none"> Initiators: Production oversight displacement Producers: Overhead matching avoidance 	<ul style="list-style-type: none"> Short-term costs to initiating government 	<ul style="list-style-type: none"> Loss of authority by established deliverers 	<ul style="list-style-type: none"> The lowest costs
Benefits	<ul style="list-style-type: none"> Specific benefits to individuals Diffuse benefits to society 	<ul style="list-style-type: none"> Initiators/producers: Increased budget authority Clients: Value received 	<ul style="list-style-type: none"> Short-term specific benefits to receiving agency Long-term, diffuse benefits to society 	<ul style="list-style-type: none"> Gain in authority by new deliverers 	<ul style="list-style-type: none"> Specific benefits to individuals Diffuse benefits to society
Consequences	<ul style="list-style-type: none"> Coercion required Enhance consistency Opposition between regulator and targets The lowest criteria 	<ul style="list-style-type: none"> Capacity exist; money needed to mobilize it As tolerable rage of variation narrows, oversight costs increase Most likely to work when capacity exists 	<ul style="list-style-type: none"> Capacity does not exist; investment needed to mobilize it Tangible present benefits serve as proxies for future intangible benefits 	<ul style="list-style-type: none"> Institutional factors incites action; provokes defensive response New institutions raise new problems of mandates, inducements, capacities 	<ul style="list-style-type: none"> Consistent preference Usually takes more time to change

Source: Elmore (1987); Schneider & Ingram (1990) ◦

One core problem of the policy tools research is how to choose the appropriate policy tools. Researchers have provided some criteria to help practitioners make a decision (Table 3), and these can apply to the evaluation of policy tools as well. Criteria for evaluating the effectiveness of policy tools includes output, outcome and impact. The “output” means the real results produced by the policy tools; the “outcome” means the real change of the target groups; the “impact” means the change of the whole environment (Weber, Driessen, & Runhaar, 2014).

Table 3. Criteria for policy instruments evaluation

Policy instrument attributes	Salamon (1989)	Linder & Peters (1989)	Trebilcock (1994)	Mickwitz (2003)	Birkland (2016)
Theoretical approach	Policy implementation, public management	Policy design	Public choice	Policy effect	Policy effect
Criteria	<ol style="list-style-type: none"> 1. efficiency 2. political support 3. administrative feasibility and equity 4. supply targeting effectiveness 	<ol style="list-style-type: none"> 1. resource intensiveness 2. political risk 3. financial and ideological 4. targeting 	<ol style="list-style-type: none"> 1. efficiency 2. political considerations 3. distributional consideration 	<ol style="list-style-type: none"> 1. relevance 2. impact 3. effectiveness 4. persistence 5. flexibility 6. predictability 	<ol style="list-style-type: none"> 1. political feasibility 2. administrative feasibility 3. behavioral assumptions about the target population

Source: Adapted from Landry & Varone (2005)

Besides the indicators mentioned above, it is also important to take “policy instrument affordance” into consideration when evaluating the effectiveness of policy tools. That means elements such as the contexts which policy tools are implemented, the actions of interest groups and how the adopted policy tools interact with other tools shouldn’t be overlooked. The concept of “affordance” comes from the discipline of economic psychology and behavioral science, and it aims to compute the limitation of an individual’s perception and behavior in the given context. Policy instrument

affordance means that a tool can break the limitation and have the possibility to change the perception and behavior of an individual, and focuses on how a policy tool is perceived and utilized.

There are three concerns about policy instrument affordance: 1. What are the characteristics of policy tools to be affordable to change the actions of an individual? 2. What can facilitate the change of environment and how the environment influences actions of individuals? 3. What kinds of circumstances can be affordable to change the actions and learning patterns of the target groups? As for the analysis procedure, the first step is to describe and plot the relationship of “policy tools-actors-environment”, and then check and make sure the relationship is true. The third step is to identify the temporal or continuous causality between policy instruments and actors. Evaluating and explaining the benefit of the policy instrument affordance would be the last step, and also estimate the feasibility and effect of the policy tools (Hellstrom & Jacob, 2017).

In conclusion, there are four appropriate and operational indicators that can be used to assess the policy instruments for diplomaism: 1. Targeting of the target groups; 2. Goal achievements (including the output, outcome, and impact); 3. Efficiency (cost-benefit analysis); 4. Policy instrument affordance. Limited by the length, this research will focus on the goal achievements of the different policy tools, and involves the factors of actors, environment and policy instrument affordance.

IV. Methodology

Research methods conducted in this study include document analysis, secondary data analysis, and interviews.

Through document analysis and interview, this study figures out the phenomenon and causes of “diplomaism” in Taiwan. Then analyzes the “Chronology of main

educational events” database² established by the Ministry of Education in Taiwan (MOE), to inventory policy instruments adopted (from 1945 till now) to deal with “diplomaism”. After categorizing those policy instruments, and collecting evidence through secondary data analysis and interviews, this study tries to evaluate the effectiveness of each kind of instrument.

Secondary data are “diplomaism” related news (from 1991 till now) collected from “CNA news retrieval database” (中央社新聞全文檢索：國內外中文新聞資料庫). This study interviews 9 interviewees, including 2 senior high school teachers, 2 university students, 2 senior civil servants of MOE and 3 educational experts to investigate the “diplomaism” phenomenon and develop solutions.

V. Results

1. Policy tools for solving “diploma disease”

“Diplomaism” is an old issue in Taiwan. In 1953, President Chiang made a statement about diplomaism, and regarded this as one of the three major educational problems. After 40 years, diplomaism is still an unsolved issue and listed as a top priority task for educational reform in many official or unofficial education reports, including “Education Report of R.O.C.” (1995), “Educational Reform from the Civil Society: A Structural Reform Toward Social Justice” and “General Advisory Report” from the Education Reform Committee, the Executive Yuan. Until 2014, 12-year Basic Education has completely implemented, and the objects are also included “soothing the excessive academic pressure.” No matter how the public sector claimed and did, the process is at a standstill over the 65 years.

In order to relieve the symptom of diploma disease, the education authority has already implemented many policies and measures. The relevant concepts such as

² <http://history.moe.gov.tw/milestone.asp>

diplomaism, credentialism, and educational competition are described in the laws, reports issued by the MOE, for example, Educational Fundamental Act, Primary and Junior High School Act, and Teachers' Act. This study limits the scope of highly related parts, and sorts out in Table 4. The MOE has tried to solve diploma disease with the policy tools stressed mainly on the types of "mandate" and "system-changing" and less on "inducement", "capacity-building" and "Symbolic and hortatory tools."

The "mandates" tackle specific topics, like normalized teaching and cram schools, and the aims of this type are to prevent malfeasances and make target groups compliant. The type of "inducements" emphasizes on discrepant admission choices and pressure; it rewards and uses subsidies to normalize the situation of teaching and encourage students to choose vocational universities. The kind of "capacity-building" is used to strengthen the vocational education and career development, and promote educational opportunities, lower competitive pressures and facilitate adaptive developments. The type of "system-changing" is to solve the problem of overpressure resulted from getting into a better school or university, such as "multiple entrance program" and "12-year Basic Education," these programs or policies involved in more and open channels and examinations and opportunities. Furthermore, it also deregulation of curriculum, for example, Grade 1-9 Curriculum Guidelines and 12-year Basic Education Curriculum Guidelines etc. Overall, this can make the diploma identification more flexible, and foster the vocational education. Symbolic and hortatory tools like microcinema are for adjusting the image of diplomaism.

In addition, the diplomaism and related policy tools which are regarded as the type of mandate have a long history and stress on malfeasances -prevention. The other three types of policy tools, especially system-changing, appeared since 1995, which occurred the event of "410 Educational Reform" (四一〇教改). The reform results in a committee established by the government to plan the educational reform, and finally 8

reform targets and 52 strategies are proposed. While the strategy of senior high schools and universities expansion nowadays cases serious oversupply problem under the low birth rate, and the MOE just publish another act to re-regulate the quantity of senior high schools and universities. On the whole, the mainstream way is to exploit the regulations and statutes in the early stage, and it went toward deregulation, multiple and open direction after the “410 Educational Reform.” Otherwise, the main task is to deal with the problems of curriculum and teaching in the early stage, and then it turns out to render the strategies to tackle the admission and employment.

Table 4. Policy instruments adopted by the MOE to deal with diplomaism

Policy instruments		Targets	Policy goals	Problems		Period
Categories	Strategies			Aspects	Content	
Mandates	Teaching normalization Regulations (Including normal class grouping, curriculum, instruction, evaluation, counseling assistance)	schools, teachers	Prohibit anti-education	curriculum, instrument	Overpressure, abnormal education, Abnormal class grouping, Exam-oriented education, Violate of All- around education, Over- cramming	1956~
	Cram School Regulations	Cram schools, teachers, students	Eliminate over-cramming, Relieve educational competition	curriculum	over-cramming, Overpressure	1956~
Inducements	Informal education subsidy	schools	Enhance educational opportunity, Relieve educational competition, Adaptive development	curriculum, instrument, admission	Overpressure, Force-feeding education, Violate of All- around education, Nonadaptive development	2003~
	Vocational high school/university student subsidy	students	Adaptive development	admission, employment	Nonadaptive development, Over-education, Education- job mismatch, Overlook vocational education	2017~
Capacity- building	Enforce the development of technical & vocational education	Schools and universities	Enhance educational opportunity, Relieve educational competition, Adaptive development	admission, employment	Nonadaptive development, Overeducation, Education- job mismatch, Overlook vocational education	2000~
	Career Guidance & Counseling	students	Adaptive development	admission, employment	Nonadaptive development, Over-education, Education-	2008~

Policy instruments		Targets	Policy goals	Problems		Period
Categories	Strategies			Aspects	Content	
					job mismatch, Overlook vocational education	
System-changing	Exam-free admission or multiple entrance program	Schools and universities, teachers	Enhance educational opportunity, Relieve educational competition, Adaptive development	admission	Overpressure, Nonadaptive development, School stratification, Over-cramming	1997~
	Extend basic education	schools, teachers	Enhance educational opportunity, Relieve educational competition	admission	Overpressure, School stratification, over-cramming	2010~
	Expand the quantity of high schools and universities	schools and universities, teachers	Enhance educational opportunity, Relieve educational competition	admission	Overpressure, school stratification, Overlook vocational education, Over-cramming	1997~ 2009
	Curriculum deregulation	schools, teachers	Eliminate over-cramming, Relieve educational competition	curriculum, instrument	Overpressure, Force-feeding education、Violate of All-around education, Over-cramming	1998~
Symbolic and hortatory tools	12-year basic education microcinema	The masses	Adjust value distortion caused by credentialism	synthesis with curriculum, instrument the most	Problems caused by credentialism	2012~

2. The effect of policy tools

There are many indicators to evaluate policy tools, but this study limits to “goal achievement” criteria due to the purpose of this study and the length, but incorporates the factors of actors and environment and policy instrument affordance. However, several policy tools might be utilized at the same time, and each other could be influenced interactively. This study concludes certain concrete and operational indicators for evaluating effects of policy tools (Table 4): 1. Admission rate; 2. The ratio of students enrolled in academic / vocational senior high schools; 3. The quantity of cram schools; 4. The scores of the university entrance exam; 5. The problems of diplomaism reflected by public opinions.

2.1 Admission rate

The policy tools for replying the admission is to improve the admission rate, and the assumption behind this problem is the low admission rate causes the high admission pressure. The admission rate for senior high school level or below over the years is shown below (Figure 3). The baseline of the admission rate for elementary school graduates is around 70% and inclined every year since the government implemented 9-year Compulsory Education in 1968. The admission rate stabilized above 99% since 1986 and reached 100% in 2016.

The admission rate for junior high school graduates ever declined in 1971, but rose stably after 1971 and maintain the level as 1968, and reached 99% in 2012. Until now, it's almost 100%. The admission rate for senior high school (academic and vocational) is not as high as elementary and junior high school, but the trend was climbing up obviously, especially after the calling of expanding the quantity of senior high schools and universities by “410 Educational Reform.” The admission rate of regular and comprehensive senior high school graduates is above 90% after 2006, and over 95% after 2013 and even higher recently. After the “410 Educational Reform,” there are

some new vocational universities, therefore, the admission rate for vocational senior high school graduates also improved. To sum up, the policy tool of system-changing improve the admission rate for sure, but the admission rate as an indicator for measuring admission pressure is appropriate or not needs more discussions. For instance, even though the majority of students can get into a university, the “better universities” are still rare and the pressure of competition remains.

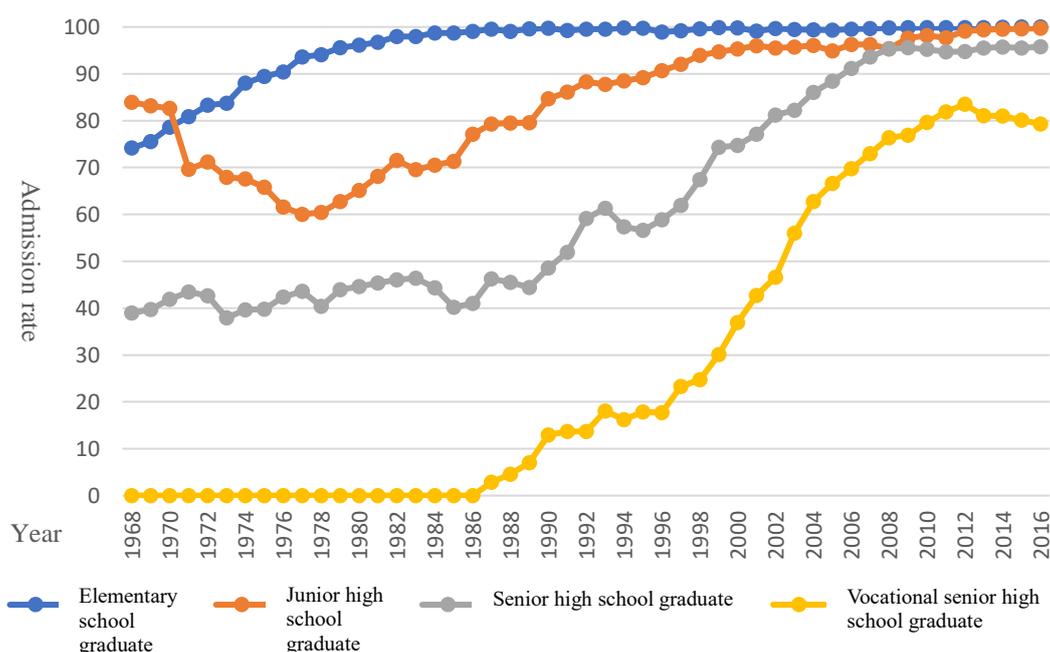


Figure 3. Admission rate of senior high school level or below

Source: Department of Statistics, MOE (2018a)

2.2 Ratio of students enrolled in senior high schools (academic / vocational)

Certain policy tools, namely inducement and capacity-building, try to solve the problems of overlooking the vocational education resulted from diplomaism. The ratio of students enrolled in academic and vocational senior high schools over the years is shown below (Figure 4). The MOE set the goal to adjust the ratio as 4:6 (academic / vocational), and after officially implemented the educational reform in 1995, the MOE reassure the ratio should be 5:5, and the mainstream system will be comprehensive senior high schools. In Figure 4, the two major turning points are affected by these events, and the proportion of academic senior high school students soared (even more

than half) because of expanding the quantity of senior high schools and universities. After 2007, many colleges of technology are upgraded to university level, and the proportion of academic and vocational schools is around 5:5 in recent 10 years as MOE planned. Using the inducement and capacity-building policy tools are really contributed to the development of vocational education, but this might result from more colleges of technology upgraded instead of students' choosing the vocational track. Apart from this, is it an alternative version of diplomaism for the vocational education?

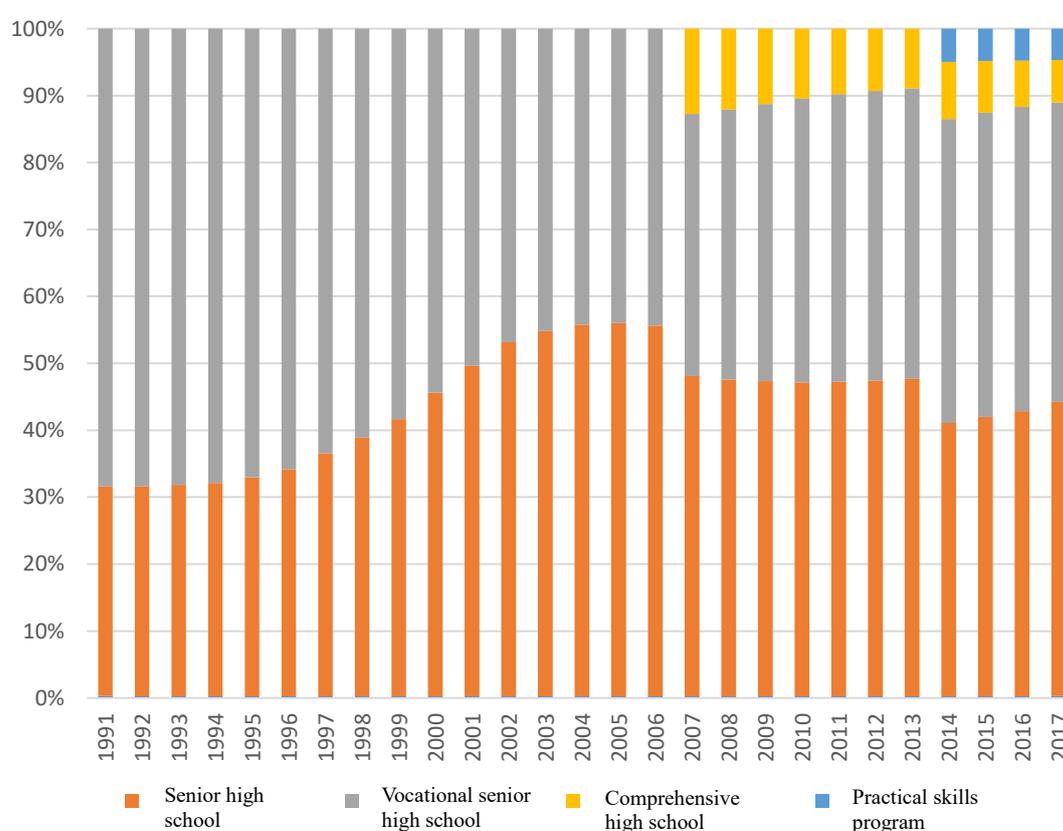


Figure 4. Proportion of academic / vocational senior high school students

Source: Department of Statistics, MOE (2018b)

2.3 The quantity of cram schools

Almost all policy instruments aim to reduce students' learning pressure, and to stop over-cramming, especially the mandatory policy tools, it gives the supplementary education certain concrete regulations. The number of cram schools over the years is shown in Figure 5. Considering the number of cram school might be affected by the

low birthrate rather than diminished diplomaism, this study uses the number of students (senior high school level or below) to be an adjusted factor. Even the overall trend of cram school declines to negative growth after 2012 (left-hand side), the number of cram school divided by the number of students still goes up slightly. It is easy to find the ratio increases a little every year after controlling the low birthrate effect (right-hand side). The supplementary education is not always to be deemed as negative effect or over-cramming, however, this is an obvious characteristic of diplomaism and this kind of policy tool is hard to be successful.

Table 5. The growth of cram schools

Year	The number of cram schools	Growth	Growth rate	The number of student (senior high school level or below)	student/cram school ratio	cram school / student ratio
2018	17853	-127	-0.71%	--	--	--
2017	17980	-280	-1.53%	2545412	142	0.71%
2016	18260	-209	-1.13%	2637210	144	0.69%
2015	18469	-147	-0.79%	2754374	149	0.67%
2014	18616	-87	-0.47%	2874861	154	0.65%
2013	18703	-50	-0.27%	2882564	154	0.65%
2012	18753	136	0.73%	2990375	159	0.63%
2011	18617	93	0.50%	3098637	166	0.60%
2010	18524	512	2.84%	3202704	173	0.58%
2009	18012	540	3.09%	3299723	183	0.55%
2008	17472	671	3.99%	3382294	194	0.52%
2007	16801	912	5.74%	3461426	206	0.49%
2006	15889	1341	9.22%	3505431	221	0.45%
2005	14548	1531	11.76%	3535287	243	0.41%
2004	13017	--	--	3576245	275	0.36%
平均	17434	345	2.36%	3124753	183	0.57%

Source: http://bsb.edu.tw/afterschool/register/statistic_10_total.jsp

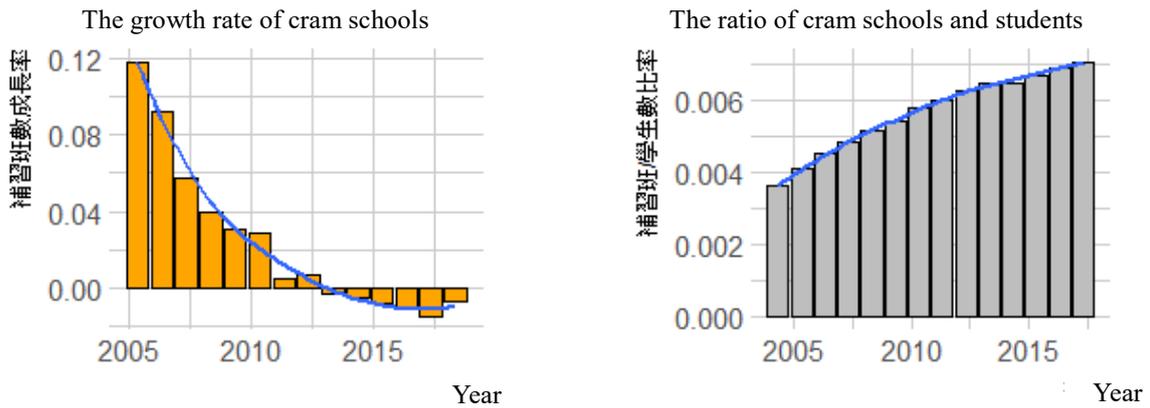


Figure 5. The growth rate of cram schools and ratio of cram schools and students

Source: http://bsb.edu.tw/afterschool/register/statistic_10_total.jsp

2.4 The scores of the university entrance exam

From the scores of the university entrance exam over the years we can also discover the clue of diplomaism. This study selects the 2 most preferred combinations by the departments, the first one is for liberal arts: Chinese language, English, Math 2, History, and Geography (Figure 6); the second one is for sciences: Chinese language, English, Math 1, Physics, Chemistry (Figure 7). The score distributions are quite similar, but the proportion of students with low scores (especially the scores under 25) increased dramatically. There are almost 5% students at that group in 2008 and 2009 (academic year), and it is quite different from the previous years (around 0.1%); moreover, there are 2876 and 2317 people in the liberal arts group and 1734 and 1450 people in the sciences group whose scores are under 5 points. The issue of “low-score entries to college” started form 2008 (academic year), and the MOE tried to recalculate and transform the original scores, but if we take the scores as a standard to evaluate a student whether he/she is suitable for higher education, apparently, those students are not qualified but they would go to the colleges under the effect of diplomaism and against their adaptive development.

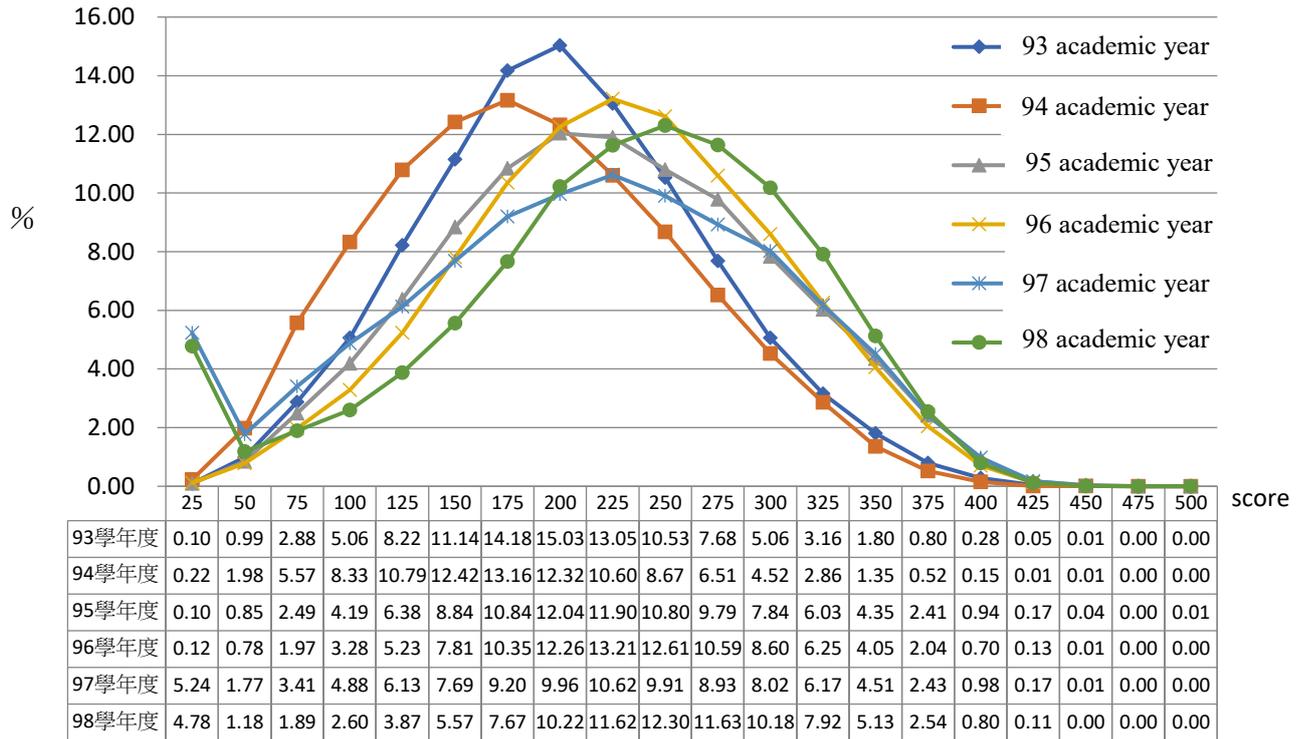


Figure 6. Scores distribution of university entrance exam
 (Subjects: Chinese language, English, Math2, History, Geography)
 Source: Adapted from the University Admissions Committee (2009c)

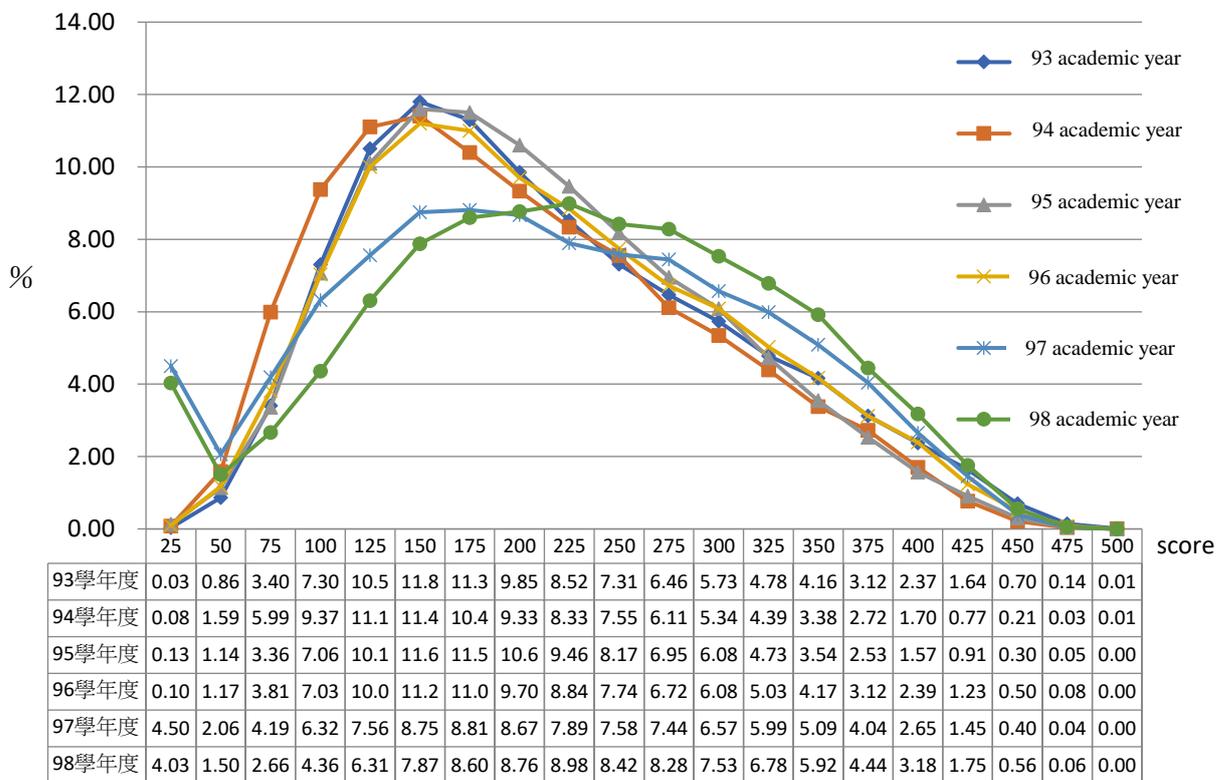


Figure 7. Scores distribution of university entrance exam

(Subjects: Chinese language, English, Math1, Physics, Chemistry)

Source: Adapted from the University Admissions Committee (2009c)

2.5 The problems of diplomaism reflected by public opinions

In order to evaluate the effectiveness of policy instruments through the public opinions, this study conducts secondary data analysis of “diplomaism” related news (from 1991 till now) collected from “CNA news retrieval database” (中央社新聞全文檢索：國內外中文新聞資料庫). Figure 1 presents the results of the numbers of news reported related to diplomaism. It shows that the discussion of the issue tends to decrease. The highest amount of discussion happens during 1995 to 1997, just as the same time as the event of “410 Educational Reform” (四一〇教改). Another high peak of news recently appears in 2007, with more discussion about 12-year basic education. Through this observation of the trend of public opinions, it is evident that the development of many crucial educational policies and reform are related to diplomaism.

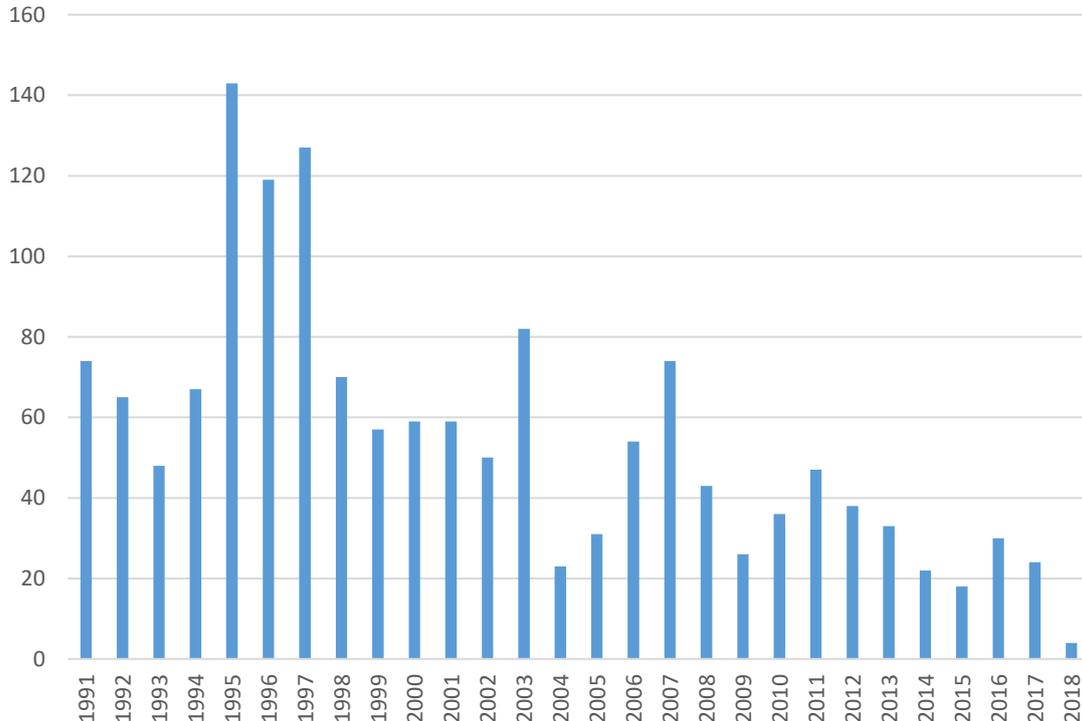


Figure 8. Numbers of news reported related to diplomaism

Source: CNA news retrieval database

To analysis the contents of those news, it is obvious that news during the early

period most involve the educational and competition pressure, and its negative effects, such like the violate of all-around education, bias behavior (self-suicide, drop out from school, drug use etc.), abnormal education. News exposed during the midterm period (educational reform period) is more focused on the formulation of policy to deal with diplomaism; while recently news tends to discuss the adaptive development and vocational education. The changing focus of public opinions shows that, on the one hand, the problem of diplomaism may transform by the other policies and interaction between them within the environmental contexts, on the other hand, diplomaism becomes a form of changeable couture. Otherwise, the news also records stakeholders' opinions and standpoints about diplomaism, and it is worthy to notice that not all stand for the adjustment or reform of diplomaism. Based on the indicators mentioned above and the interviews conducted by this research, the effectiveness of each kind of policy instrument are as follows:

Policy instruments of “mandates” mainly adopt the strategies of teaching normalization and cram school regulations. The interviewee from MOE declares that the abnormal education phenomenon in schools is much better improved nowadays, however the government has limited enforcement to private schools, there are merely very little cases which violate the normal class grouping or teaching without follow the table (because of exam-oriented education culture, some schools or teachers may reinforce the subjects which will in the exam, and sacrifice the subjects - such like art, sports, music- which is less valuable in the exam). However, data shows that the numbers of cram schools even increased under the low birth rate, which represents the flourish of cramming culture. Interviewees (junior high school teachers) also indicate that even schools usually can follow the rules established by MOE, but once the educational competition exists, the over-cramming and pressure can never decrease. Overall, although the “mandates” instruments do have some effects, while the

effectiveness is limited because the educational competition nature has never been moved.

“Inducements” instruments, mainly conduct subsidy strategies to improve the development of informal and vocational education, and attract students to engage. However, from the data of proportion of academic/vocational senior high school students, it is evident that the effect is also limited. Interviewees (junior high school teachers) share their observation from the practice presents: students’ school choices are still mainly controlled by their parents. If parents don’t change their diploma-oriented value, even the quality and attractiveness of informal and vocational education are strengthened, substantial improvements remain hard to achieve. The instruments of “Capacity building”, mainly focus on strategies to strengthen vocational education and conduct career guidance and counseling for students. The limit effectiveness and its causes are similar to “Inducements” instruments.

The strategies of “system changing” instruments, mainly through the exam-free admission or multiple entrance programs, extension of basic education, expansion of high schools and universities to relieve the pressure of competition; and through the curriculum deregulation to reform the force-feeding education. These do lead to increase the admission rate and educational opportunities, while the interviewees show that the competitive pressure still exists. If the opinions of diplomaism unchanged, although the instruments can resolve part of the over-pressure problems through system changing, other problems, such as nonadaptive development, may continue and even aggravated.

“Symbolic and hortatory tools” instruments, mainly conduct the microcinema to marketing the crucial concepts of 12-year basic education, including adapted development and the relief of competitive pressures, try to adjust the value distortion caused by credentialism. While almost all the films are released in recent years, the

effectiveness is to be valued. Some interviewees indicate that the microcinema is placed mainly on the website of 12-year Basic Education and YouTube, it follows that those be affected may be who has the access to the internet and have the incentives to find or see the microcinema. Otherwise, the expression of those microcinemas are too “intentional”, and may cause aversion or no effect. Thus, the effectiveness may also be limited,

VI. Why some policy tools work

Based on the investigation of different kinds of policy instruments, this study then incorporates the concept of “policy instrument-actors-environment” adopted from the framework of policy affordance. According to the data and interviews, the effectiveness and its cause of each policy instrument are discussed (Table 6).

Table 6. Evaluating the effectiveness of policy instruments for solving diplomaism

Policy instruments		Targets	Policy goals	Effectiveness	Cause
Categories	Strategies				
Mandates	Teaching normalization Regulations (Including normal class grouping, curriculum, instruction, evaluation, counseling assistance)	schools, teachers	Prohibit anti-education	Shor-term effect, weak substantial effect	<ul style="list-style-type: none"> • Strength : Enforcement and punishment by law • Weakness : Root cause of educational competition still exist
	Cram School Regulations	Cram schools, teachers, students	Eliminate over-cramming, Relieve educational competition		
Inducements	Informal education subsidy	schools	Enhance educational opportunity, Relieve educational competition, Adaptive development	Limited	<ul style="list-style-type: none"> • Strength : Enrich educational choices • Weakness : Educational choice still directed by diplomaism
	Vocational high school/university student subsidy	students	Adaptive development		
Capacity-building	Enforce the development of technical & vocational education	Schools and universities	Enhance educational opportunity, Relieve educational competition, Adaptive development	Limited	<ul style="list-style-type: none"> • Strength : Promote opportunities and competencies for educational choices • Weakness : Educational choice still directed by diplomaism
	Career Guidance & Counseling	students	Adaptive development		
System-changing	Exam-free admission or multiple entrance program	Schools and universities, teachers	Enhance educational opportunity, Relieve educational competition, Adaptive development	Shor-term effect	<ul style="list-style-type: none"> • Strength : Educational opportunity expansion, Curriculum de-regulation • Weakness : Diplomaism still exist, non-adaptive development even worse
	Extend basic education	schools, teachers	Enhance educational opportunity, Relieve educational competition		
	Expand the number of high schools	schools and	Enhance educational opportunity,		

Policy instruments		Targets	Policy goals	Effectiveness	Cause
Categories	Strategies				
	and universities	universities, teachers	Relieve educational competition		
	Curriculum deregulation	schools, teachers	Eliminate over-cramming, Relieve educational competition		
Symbolic and hortatory tools	12-year basic education microcinema	The masses	Adjust value distortion caused by credentialism	To be evaluated.	<ul style="list-style-type: none"> • Strength : Adjust the value of diplomaism • Weakness : explicit may cause aversion or no effect, the popularity of microcinema

It can be concluded that although those five kinds of policy instruments dealing with diplomaism can make certain effects, however, the effectiveness is not substantial stable enough to achieve a long-term success. For example, instruments of “system changing” usually tend to remove the educational stress—competitive exam and limited educational opportunities --which causes diplomaism. While such changes are usually “quantitative” expansion, not “qualitative” substantial improvement. In fact, the diploma-oriented culture still dyed in the wood, and the problem just continuously changes, not solved. Instruments of “symbolic and hortatory tools” even though have potential to adjust the bias value caused by diplomaism, the effectiveness is limited by the popularity of microcinema, and effect through explicit approach may also cause aversion or no effect.

Since diplomaism isn't merely explicit behavior, but also the implicit operation of mind; to deal with such problems may depend on “internal control”. Only through those traditional instruments to conduct “external control” is not enough and can't root out the causes of the problem. Newly developed policy instruments based on behavioral economics, such as nudges, maybe can serve this purpose. Behavioral policy instruments much focus on peoples' cognition deficits and irrational behavior and develop strategies to adjust these biases (Bhargava & Loewenstein, 2015; Gopalan, & Pirog, 2017). Just as Wang (2002) has mentioned, to deal with diploma disease, to focus on “culture-oriented” is less effective than focus “human-oriented”. The root problem is humanity. In order to solve the problem of diplomaism from the root, maybe behavioral policy instruments can make more effective.

VII. Conclusion

This study aims to evaluate the policy instruments adopted by the MOE to deal with diplomaism. Findings show that most of the instruments rest on “mandates” and “system changing”; seldom on “inducements”, “capacity building” and “symbolic and hortatory tools”. Each kind of those policy instruments may have the certain degree of effect, however, the effectiveness is relatively surface, unstable and is almost expansion of “quantity”, instead of substantial improvement of “quality”. This will lead to the problem just continuously change, while diplomaism still exists.

Since the root problem of diplomaism is humanity, and “internal control” is more important than “external control” conducted through those traditional instruments. Newly developed policy instruments based on behavioral economics, such as nudges, maybe can serve this purpose. It is suggested that in the future, behavioral policy instruments can be developed as a solution for diplomaism.

References

- Bhargava, S. & Loewenstein, G. (2015). Behavioral economics and public policy: Beyond nudging. *American Economic Review: Papers & Proceedings*, 105(5): 396-401.
- Department of Statistics, Ministry of Education (2018a). Education statistics, the Republic of China 2017. 2018, April 1. Retrieved from http://stats.moe.gov.tw/files/ebook/Education_Statistics/106/106edu_EXCEL.htm
- Department of Statistics, Ministry of Education (2018b). School at a glance 2017. 2018, April 1. Retrieved from http://stats.moe.gov.tw/files/main_statistics/b.ods
- Dore, R. (1976). *The diploma disease: Education, qualification and development*. London: Allen and Unwin.
- Elmore, R. F. (1987). Instruments and strategy in public policy. *Policy Studies Review*, 7(1): 174-186.
- Gopalan, M. & Pirog, M. A. (2017). Applying behavioral insights in policy analysis: Recent trends in the United States. *Policy Studies Journal*, 45(1): S82-S114.
- Hagood, D. (1971). *Diplomatism*. New York: Donald W. Brown.
- Hellstrom, T. & Jacob, M. (2017). Policy instrument affordances: a framework for analysis. *Policy Studies*, 38(6), 604-621
- Howlett, M. & Cashore, B. (2007). Re-visiting the new orthodoxy of policy dynamics; The dependent variable and re-aggregation problems in the study of Policy change. *Canadian Political Science Review*, 1(2), 50-62.
- Howlett, M. (2011). *Designing public policies: Principles and instruments*. New York: Routledge.
- Howlett, M. (2017). The criteria for effective policy design: Character and context in policy instrument choice. *Journal of Asian Public Policy*, DOI: 10.1080/17516234.2017.1412284.
- Howlett, M., & Rayner, J. (2013). Patching vs packaging in policy formulation:

- Assessing policy portfolio design. *Politics and Governance*, 1(2), 170-182.
- Howlett, M., Fraser, S. (2018). Matching policy tools and their targets: Beyond nudges and utility maximization in policy design. *Policy & Politics*, 46(1), 101-124.
- Hwang, T.-m. (2007) *The Education Rush in Taiwan since the late 1940s*. Doctoral dissertation of Department of Education, National Taiwan Normal University. Taipei, unpublished.
- Landry, R. & Varone, F. (2005). The choice of policy instruments: Confronting the deductive and the interactive approaches. In *Designing government: From instruments to governance* (pp.109-110). Montreal: McGill-Queen's University Press.
- Li, C.-c. (2011). *Pressure of credential and academic achievement: A case study of Taiwan, Japan, and USA*. Master's thesis of Department of Political Science, Soochow University. Taipei, unpublished.
- Mickwitz, P. (2003). A framework for evaluating environmental policy instruments. *Evaluation*, 9(4),415-436.
- Salamon, L. M. (2002). *The tools of government: A guide to the new governance*. Oxford: Oxford University Press.
- Salamon, L. M. (2011). The new governance and the tools of public action: An introduction. *Fordham Urban Law Journal*, 28, 1611-1674.
- Wang, C. W. & Lin, W. Y. (1994). The educational system and its symptoms. In Taiwan Research Fund (Ed.), *Taiwan's Educational Reform* (pp.502-539). Taipei: Vanguard
- Wang, C. W. (2002). The reason and myth of education fanaticism: A historical review. *Indigenous Psychological Research in Chinese Societies*, 17, 3-65.
- Weber, M, Driessen, P.P.J. & Runhaar, H. (2014). Evaluating environmental policy instrument mixes; a methodology illustrated by noise policy in the Netherlands. *Journal of Environmental Planning and Management*, 57(9), 1381-1397.