

Immersion education: vice or virtue

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Abstract

While immersion education propels second language development more effectively than regular second language lessons, it may at the same time reduce first language exposure and impose hindrance to content subject studying due to the language barrier. Even worse, those potential shortcomings are feared to impact negatively pupils' learning motivation and mental well-being. To this end, a case of a Hong Kong primary school where immersion (termed enhancement) and non-immersion (termed non-enhancement) classes are run in parallel in Grades 1-3 equivalent is studied. Quantitative data from various sources, including final exam scores, student in-class behaviour in classroom observations and student questionnaire, are first collected and collated. Enhancement students (n=68) are then compared with the non-enhancement students (n=180) in terms of their scores in the language and content subjects, their percentages of class time showing motivation using 'Classroom Observation Scheme aided by MOLT (Motivation orientation of language teaching)', and their responses in 'Integrated Student Questionnaire on English learning motivation and level of happiness' using independent t-tests. There is evidence showing that enhancement students learn just as well if not better than the non-enhancement students in content subjects without jeopardising their first language achievement. Their motivation of learning and mental well-being is also on par with their non-enhancement counterparts. Despite the absence of true randomization samples, the results reconfirm the value of immersion education.

Keywords: English as a second language, Hong Kong, Immersion, Motivation, Primary level

1. Introduction

This report provides an analysis and evaluation of two different strands of Primary 1-3 students, namely enhancement classes (previously called immersion classes) and non-enhancement classes in the academic year (AY) 2021-2022 at a government-aided primary school in Hong Kong. It attempts to answer three pertinent questions:

- Q1. Whether there are differences of enhancement and non-enhancement classes on language performance, particularly in English, students' second language (L2)

- Q2. Whether there are differences of enhancement and non-enhancement classes on content subject performance
- Q3. Whether there are differences of enhancement and non-enhancement classes on personal development, namely a) learning motivation, and b) level of happiness

While Chinese, students' first language (L1), is undoubtedly the preferred language for learning (Llwyn Report, 1982), and has indeed been the default medium of instruction in Hong Kong government-aided primary schools since their inceptions, the evaluation results may shed light to an alternative arrangement which is welcome by students and parents out of their socio-economic interests.

2. Background of school and English Enhancement class

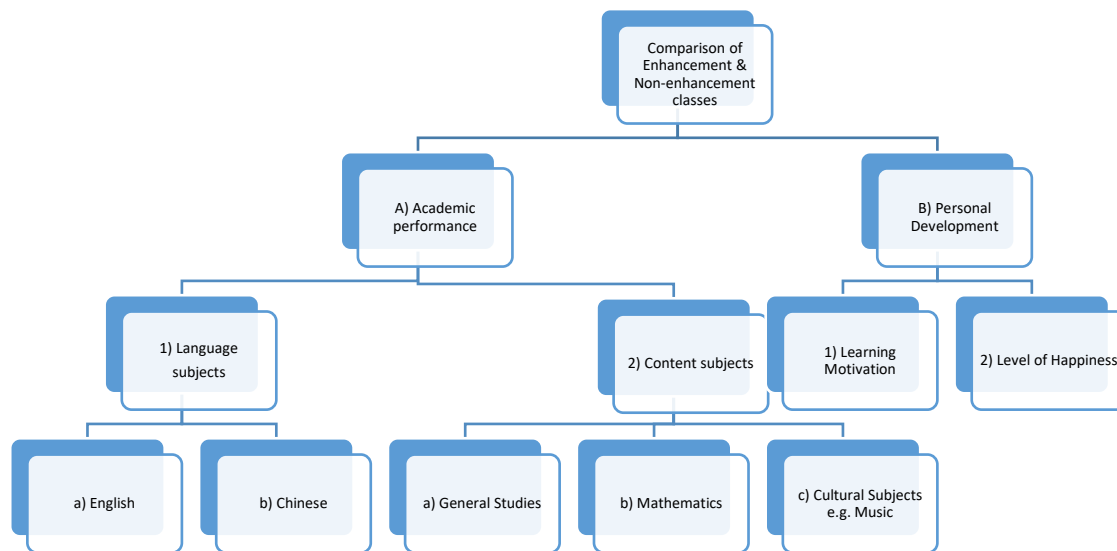
The target school is a local aided school in Hong Kong which debuted one English (L2) immersion class in Primary one (Grade one equivalent) in the academic year 2019-20 in the predominantly Chinese (L1) environment within the school and its neighbourhood, a remote public-housing-dense town sited in a district with a larger poor population (Government of the HKSAR, 2016). Demand for English medium classes there, like the other districts of Hong Kong, has nevertheless been strong because of the prestige attached to English. Such demand is typically catered for by fee-paying private or direct-subsidy (semi-private) schools. The default medium of instruction (MOI) in tuition-free government or aided primary schools is Chinese (L1). While tuition-free primary schools which adopt English as the MOI are present, their student populations are often ethnically and linguistically diverse, justifying the use of English as the lingua franca there. A chat with the target school principal revealed that it is widely understood, though never written as rules, that Education Bureau (EDB) in Hong Kong is not in favour of seeing (partial) English (L2) as the MOI adopted at primary level in tuition-free schools, because of its skepticism on the effectiveness of immersion education at the said level. The immersion class (now renamed as English enhancement class based on EDB's suggestion) initiated at the target school, therefore, is one of the few pioneers of Hong Kong immersion education at primary level in a largely monolingual, tuition-free setting. There are four English enhancement classes (P1: 1D, 1E; P2: 2E; P3: 3E) at the target school in AY 2021-22. Despite the original plan of expansion, the school has decided to revert to one enhancement class per form from AY 2022-23 for quality assurance purpose. The enhancement class generally admits students whose performances in English are better. Parents' readiness to support their children in learning in L2 is also an important consideration. It is fair to say that most of the students in those classes possessed desirable qualities of L2 learning, though there is a sizeable minority not possessing all such qualities out of the lack of suitable candidates as revealed by the principal.

It is noteworthy pointing out that immersion as a means of raising students' L2 proficiency is akin to another educational approach, namely Content and Language Integrated Learning (CLIL), which has been widely adopted in Europe in the last two decades with generally positive results (See Cañado, 2018; Merino and Lasagabaster, 2018; Song, 2005).

3. Scope of evaluation and methods

The following is the schematic diagram of the scope of evaluation:

Figure 1: Scope of evaluation:



Taking the advantage of the natural setting of groups receiving intervention (English enhancement classes) and non-intervention (non-English enhancement classes), the evaluation is largely grounded on the comparison between the two groups. The comparison aims to reveal the differences (if any) in students' academic performance (A), and personal development (B), in the enhancement and non-enhancement classes.

Specifically, three pertinent questions are to be answered:

- Q1. Whether there are differences of enhancement and non- enhancement classes on language performance, particularly in English, students' second language (L2) (A1a)
- Q2. Whether there are differences of enhancement and non-enhancement classes on content subject performance (A2a; A2b; A2c)

Q3. Whether there are differences of enhancement and non-enhancement classes on personal development, namely learning motivation (B1), and level of happiness (B2)

Three quantitative research tools, namely final exam scores, student questionnaire and class observation will be used. The next section will detail how they help answer the research questions.

4. Research Tools

The research tools to be used to answer the three research questions are summarised as follows:

Table 1 Research questions and research tools

	Research Questions	Research Tools
Q 1.	Whether there are differences of enhancement and non-enhancement classes on language performance, particularly in English (A1a)	Final Exam scores from SAMS
Q 2.	Whether there are differences of enhancement and non-enhancement classes on content subject performance (A2a; A2b; A2c)	Final Exam scores from SAMS
Q 3.	Whether there are differences of enhancement and non-enhancement classes on personal development, namely a) learning motivation (B1), and b) level of happiness (B2)	I) Classroom Observation Scheme aided by MOLT (motivation orientation of language teaching) II) Integrated student questionnaire on learning motivation and happiness

The following sections describe how the tools help answer the research questions.

3.1 Ascertaining language and content subject performance through Final Exam scores

School Administration and Management System (SAMS) is a platform where all Hong Kong public sector schools, the target school included, save and retrieve their student academic and personal data. It also allows generation of basic statistical data (e.g. mean scores of different sections in each subject of each class) for post-exam evaluation which is in line with assessment literacy practice. To ascertain student performance in languages and content

subjects, the first and second research questions, the final exam scores in AY 2021-22 of the enhancement and non-enhancement classes were retrieved and compared. Although markers of different exam papers, namely the subject teachers, did not undergo the rigorous moderation process, they followed the same marking guidelines written by the exam paper setters and were approved unanimously by the relevant team members. The exam scores are therefore reasonably reliable in informing student achievement at school.

3.2 Ascertaining learning motivation and level of happiness through observation and student questionnaire

Two tools are used to answer the third research question, namely whether there are differences of enhancement and non-enhancement classes in learning motivation and level of happiness. The first tool is called 'Classroom Observation Scheme aided by MOLT (motivation orientation of language teaching)'. A sample of six content subject lessons (English MOI: two Maths, two General Studies, one Music; Chinese MOI: one Maths) were recorded. For comparison purpose, a teacher who taught Maths in both the enhancement and non-enhancement class in the same form was strategically observed. Video camera was set in front of the classroom with a wide angle, allowing the greatest number of students being captured, with the first researcher sitting at the back of the classroom for monitoring. MOLT (motivation orientation of language teaching) classroom observation scheme (Guilloteaux & Dörnyei, 2008) was used to gauge student motivated behaviour in those content subject lessons. MOLT allowed observers to code and gather students' motivated behavior in classroom in a minute-to-minute fashion objectively, with the validity empirically tested (Guilloteaux & Dörnyei, *ibid*). The details of the observation variables are as follows:

Table 2. Variables of MOLT classroom observation scheme

Variable s	Attention	Participation	Volunteering for teacher-fronted activity
Description	The extent to which students appear to be paying attention without displaying any inattentive or disruptive behavior.	Students are actively taking part in classroom interaction or working on assigned activity.	Students are volunteering without the teacher having to coax them in any way.
Proportion needed	At least two-thirds of the class	At least two-thirds of the class	At least one-third of the class
Examples (where applicable)	-looking at the teacher and following his/her her movements - looking at visual stimuli -turning to watch another student who is contributing to the task - following the text being read -making appropriate nonverbal responses	NA	NA

Prior to the coding, the researcher and an assistant watched and coded a sample lesson separately. They achieved a 92% of similarity before the assistant embarked on the actual coding and tallied them.

The second tool is the ‘Integrated student questionnaire on learning motivation and happiness’. It is a questionnaire consisting of two parts: the first consists of 12 statements which measure motivation in second language learning (Gardner, 2010). Findings of this part complement with those of the general academic learning motivation collected by the first tool aforementioned to provide a more comprehensive assessment of learning motivation of both groups.

The second part of the questionnaire is adopted from the shorter version of The Oxford Happiness Questionnaire (OQH), which consists of eight single statements on different aspects of happiness with proven validity (Hills & Argyle, 2002). Considering that the respondents were junior primary students, the six-point Likert scale was easified into the six emoticons ranging from high disagreement to high agreement for each of the statement in the questionnaire. Bilingual presentation assisted by teacher’s reading aloud and explanation (where necessary) was also in place in hope to facilitate young respondents’ comprehension. Inferential statistical analyses (independent t-tests) would be carried out to compare differences (if any) between the two groups.

Having described the research tools used, the next section will present the findings.

4. Findings

It is worthwhile reiterating the three research questions again:

- Q1. Whether there are differences of enhancement and non-enhancement classes on language performance, particularly in English (L2)
- Q2. Whether there are differences of enhancement and non-enhancement classes on content subject performance
- Q3. Whether there are differences of enhancement and non-enhancement classes on personal development, namely a) learning motivation and b) level of happiness

4.1 Whether there are differences of enhancement and non-enhancement classes on language performance, particularly in English

L2 immersion has been reported to be conducive to promoting L2 proficiency (See Cummins & Swain, 2014). However, at the same there are findings showing that it can adversely affect L1 development (Baus, Costa, & Carreiras, 2013) and content subject performance (Lo & Macaro, 2012). The issue of content subject performance will be dealt with in the second research question. For the first research question, Final Exam scores from SAMS will shed light on the immersion effects on L1 and L2. Percentages of high achievers (≥ 80 marks) and failures (≤ 59 marks) in English and Chinese in each form are presented below to show the patterns of performance of both groups:

Table 3. English exam scores

		Enhancement	Non-enhancement	Difference
High achievers ≥ 80	P 1	87.0%	36.5%	+50. 5%
	P 2	88.5%	26.5%	+62. 0%
	P 3	100.0%	33.3%	+66. 7%
Failure ≤ 59	P 1	6.6%	37.8%	- 31.2%
	P 2	0%	43.7%	- 43.7%
	P 3	0%	48.5%	- 48.5%

Table 4. Chinese exam scores

		Enhancement	Non-enhancement	Difference
High achievers ≥ 80	P 1	58.1%	42.5%	+15.6%
	P 2	44.0%	38.3%	+5.7%
	P 3	45.5%	40.3%	+5.2%
Failure ≤ 59	P 1	17.9%	30.0%	-12.1%
	P 2	24.0%	28.2%	-4.2%
	P 3	22.7%	20.9%	+1.8%

For English language, L2, it is clear that enhancement classes across the three forms did better than the non-enhancement classes. The overwhelming majority (87%-100%) of the enhancement classes were high achievers. Failure rates were low (P1: 6.6%; P2-3: 0%). The non-enhancement classes, on the other hand, displayed a much wider range of scores obtained by the students there. This result is in line with the expectation where students from enhancement classes already possessed higher command in English than their counterparts from non-enhancement classes prior entering to the target school.

Another point worthy of attention is the results of Chinese language, L1. The enhancement classes again outperformed the non-enhancement classes across the three forms in the category of high achievers (from 5.2% to 15.6%). Their failure rates were also generally lower, except in P3 where they were marginally outperformed by the non-enhancement classes (1.8%). All this show that no adverse effect on Chinese (L1) proficiency was observed for classes adopting English (L2) as the MOI.

Having presented the findings of immersion on language proficiency, I now turn to the possible effects of immersion on content subjects.

4.2 Whether there are differences of enhancement and non-enhancement classes on content subject performance

The following tables summarise the performances of enhancement and non-enhancement classes in Mathematics and General Studies:

Table 5. Mathematics exam scores

		Enhancement	Non-enhancement	Difference
High achievers ≥ 80	P 1	45.0%	30.0%	+15. 0%
	P 2	70.8%	54.6%	+16. 2%
	P 3	50.0%	31.3%	+18. 7%
Failure ≤ 59	P 1	28.9%	36.9%	- 8.0%
	P 2	8.3%	22.0%	- 13.7%
	P 3	22.7%	37.4%	- 14.7%

Table 6. General Studies exam scores

		Enhancement	Non-enhancement	Difference
High achievers ≥ 80	P 1	55.7%	45.0%	+49. 2%
	P 2	80.0%	52.7%	+58. 9%
	P 3	63.6%	49.0%	+52. 5%
Failure ≤ 59	P 1	17.8%	30.1%	- 25.4%
	P 2	4.0%	20.5%	- 16.8%
	P 3	9.0%	18.8%	- 16.2%

Patterns of performance observed earlier in the language subjects were present in the two content subjects. Without exception, the enhancement classes across the three forms did better than the non-enhancement classes in Maths and General Studies. To illustrate, the high achiever rates in Maths of the enhancement classes were higher (from 15.0% to 18.7%) whereas the failure rates were lower (from 8.0% to 14.7%). Also, the high achiever rates in General Studies were much higher (from 49.2% to 58.9%) whereas the failure rates were much lower (from 16.2% to 25.4%).

Summarising from the Final Exam results, the enhancement classes outperformed their non-enhancement counterparts, irrespective of languages or content subjects.

4.3 Whether there are differences of enhancement and non-enhancement classes on personal development

Two tools were employed to ascertain differences (if any) of enhancement and non-enhancement classes on personal development, namely 'Classroom observation Scheme aided by MOLT (Motivation orientation of language teaching)' and 'Integrated Student Questionnaire on English learning motivation and level of happiness'.

4.3.1 Classroom observation Scheme aided by MOLT

A total of five Enhancement class lessons in Maths (P2 & P3), General Studies (P1 & P3) and Music (P1) were sampled to assess the general academic learning motivation at school. Another non-enhancement class lesson (Maths P2), taught by the teacher who was also responsible for one of the enhancement class lessons aforementioned, was observed for comparison purpose. MOLT classroom observation scheme (Guilloteaux & Dörnyei, 2008) was used to quantify observations for ease of comparison and discussion.

Here is a summary of the student motivation pattern in the sampled Enhancement and Non-enhancement classes:

Table 7. Percentage of class time showing student motivation

Variables of motivation	Criterion	Non-enhancement class % of class time fulfilling the criterion	Enhancement classes % of class time fulfilling the criterion
Attention	2/3 class	81	74
Participation	2/3 class	63	50
Volunteering	1/3 class	27	45

From the table, it can be seen that the sampled non-enhancement and enhancement classes displayed strengths in different variables of motivation. The non-enhancement class fared better than the enhancement classes in attention (81% Vs 74%) and participation (63% and 50%). However, the enhancement classes fared significantly better than the non-enhancement class in volunteering (45% Vs 27%). Despite these differences, however, the researcher's impression was that students of the two class types were motivated in learning. The Maths teacher who taught both immersion and non-immersion classes also confirmed that the overall level of learning motivation was comparable to each other in her judgment.

4.3.2 Integrated Student Questionnaire on English learning motivation and level of happiness

Independent t-tests were conducted with SPSS software to compare responses of the enhancement and non-enhancement classes. For English learning motivation, enhancement

class students held more positive attitude toward it than their non-enhancement class peers (47.66 Vs 37.73). More specifically, P1 and P2 enhancement class students were more positive toward English than their non-enhancement counterparts (P1: 46.25 Vs 38.79; P2: 48.89 Vs 36.65). Nonetheless, P3 enhancement and non-enhancement class students did not differ much statistically.

The enhancement and non-enhancement groups were largely the same, however, with regard to the level of happiness (15.37 Vs 14.14). In other words, no detrimental personal development effects, such as excessive pressure or anxiety, were observed in the enhancement group.

Table 8. Overall Findings (P1, P2, and P3)

	Non-enhancement (N=180)	Enhancement (N=68)
Attitudes*	M=37.73, SD=11.83	M=47.66, SD=7.30
Happiness	M=14.14, SD=6.36	M=15.37, SD=7.31

Note: M is means. SD is standard deviation.

Table 9. P1 Findings

	Non-enhancement (N=52)	Enhancement (N=32)
Attitudes*	M=38.79, SD=11.99	M=46.25, SD=6.48
Happiness	M=13.33, SD=5.85	M=14.59, SD=5.67

Table 10. P2 Findings

	Non-enhancement (N=63)	Enhancement (N=19)
Attitudes*	M=36.65, SD=11.53	M=48.89, SD=8.67
Happiness	M=14.38, SD=7.01	M=16.84, SD=8.69

Table 11. P3 Findings

	Non-enhancement (N=65)	Enhancement (N=17)
Attitudes	M=48.94, SD=7.05	M=37.94, SD=12.07
Happiness	M=14.55, SD=6.11	M=15.18, SD=8.52

* Statistical significance present

Summing up from the data obtained from classroom observations and student questionnaire, it can be concluded that the learning motivation between the Enhancement and the Non-enhancement group is largely comparable. In addition, there is no evidence showing any detrimental effects on the enhancement class personal development, namely the level of happiness. The enhancement classes, however, displayed a higher liking in English (learning) than their counterparts did.

5. Conclusion and Recommendations

The findings are concluded as follows:

1. There is evidence showing that students from the enhancement classes outperform those from the non-enhancement classes in both English (L2) and Chinese (L1). The enhancement classes display greater high achiever rate (≥ 80 marks) than those of their non-enhancement counterparts. On the contrary, the failure rate (≤ 59 marks) is generally higher in the non-enhancement classes than that of the enhancement classes.
2. There is evidence showing that students from the enhancement classes outperform those from the non-enhancement classes in the two major content subjects, Mathematics and General Studies. The enhancement classes display greater high achiever rate (≥ 80 marks) than those of their non-enhancement counterparts. On the contrary, the failure rate of content subjects (≤ 59 marks) is generally higher in the non-enhancement classes than that of the enhancement classes.
3. As for the learning attitude of L2, enhancement classes generally hold a more positive attitude toward English than their non-enhancement classes do.
4. With regard to the motivation of learning, the non-enhancement classes fare better than the enhancement classes in attention and participation. However, the enhancement classes fare significantly better than the non-enhancement class in volunteering. Despite these differences, however, it is observed that students of the two class types are generally motivated in learning. Their overall level of learning motivation is comparable to each other.
5. With regard to the level of happiness, both groups are largely the same. In other words, no detrimental personal development effects are observed in the more academically challenging enhancement group.

Summarising from all findings, enhancement classes have better command in both L1 and L2. Despite some concerns over the challenging linguistic demand in content subjects, there is no evidence at present showing that these welcoming results are achieved at the expenses of either content subject performances or personal development.

Looking forward, the major challenge would be the increasing linguistic demand in homework and assessment, where fill in the blanks, and short and long questions involving writing, would be more dominant as the enhancement students are promoted to the higher forms. Vocabulary, in both receptive and productive sense, is another major challenge, as successful completion of homework and assessment cannot be rid of accurate understanding and spelling of key words. In fact, when evaluating a similar enhancement programme in another local primary school, the researcher observed that the two challenges aforementioned suppressed student performance rather significantly in formal assessments despite similarly favorable conditions were present in class observations. To raise students' ability to cope with the increasing linguistic demand, school administration can consider adopting language across the curriculum.

A major initiative of Language across the curriculum (LaC) is called curriculum mapping, which involves language and subject teachers in finding related topics and presenting them around the same time of the year. With this arrangement, students could learn the subject content in multiple perspectives and use the language taught authentically (See Chu, 2019; Curriculum Development Council, 2017). Also, structured repetitions of key vocabulary items and concepts would be present, promoting more effective storage and retrieval in the educational process and raising student academic achievement as a result (See McNeill, 2011; Ellis, 2001; Cobb, 1997).

In fact, the target school is of good potential to undertake LaC as the enhancement program involves only a finite number of staff who are already set to teach in the program. In addition, because of the comparatively small number of staff involved, there are occasions where a teacher may teach multiple subjects within the same enhancement class that year. This allows convenient communication within the same form and across forms when LaC is adopted in the future.

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