Social Impact Assessment on

Healthy School Programme

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Research Report Submitted to

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Submitted by

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CHAPTER 1 Introduction

1.1 Background

Literature reveals that school settings are the critical agent of change in substance use behaviour among youths. Flay (2000) observed that students' perception about substance use can be influenced by the school environment which consists of teachers' behaviour, students' bonding to school and school policies, highlighting the importance of social environments in determining youths' behaviours.

In order to lower the possibility of drug use, it is important to understand the causes of it. Fletcher, Bonell, Sorhaindo & Strange (2009) identified the reasons for youth taking drugs which include boosting identity and bonding, to fit in and to reduce anxiety about school. With these reasons, it is likely that a positive school environment can reduce the risk factors of drug-use behaviours. Besides, a systematic review suggested that positive school environments that promoted students' participation in extracurricular activities and facilitated positive teacher-student relationships were associated with reduced drug use (Fletcher, Bonell & Hargreaves, 2008). With school being the major socialization institution where youths adopt societal values, norms and behaviours, it is considered as an appropriate setting for substance prevention programme (Benningfield, Riggs and Stephan, 2014).

In Hong Kong, substance abuse among youth is a crucial social problem. The origin of this social ill can even be traced back to the Qing dynasty when opium was popular in China. Public responses towards anti-substance abuse emerged since the 1960s where early policy focus was largely prohibitive (Cheung & Chien, 1996). At that time, there was no specific anti-drug strategy focusing on youth until 2007 when there was a second uprise of substance use among population under the age of 21 (Task Force on Youth Drug Abuse, 2008). In response to the increase of drug use among youth, The HKSAR government appointed the Secretary for Justice to lead a high-level inter-departmental Task Force on Youth Drug Abuse to tackle drug abuse issue specifically on the youth population.[1] The Task Force proposed two strategies. The first was to institutionalize a

[1] See Report of the Task Force on Youth Drug Abuse. (2008). Executive Summary, Retrieved from https://www.nd.gov.hk/en/report/pdf/yda/executive_summary.pdf

Healthy School Policy that focuses on anti-drug work in an educational setting. It aims to help students to reach a state of physical, mental and social well-being with a focus on developing students' healthy lifestyles, positive attitudes and values, practical life skills and refusal skills to resist temptation.[2] The second strategy was to carry out the Trial Scheme on School Drug Testing in Tai Po District (Trial Scheme) for early detection and intervention for current drug users. After the Trial Scheme, the government introduced the Healthy School Programme with a Drug Testing Component (HSP(DT)) comprising anti-drug programmes and school drug testing to foster substance prevention work in youth.

The HSP(DT) is a school-based anti-drug preventive education initiative. The major aims of the HSP(DT) are 1) helping students develop a healthy lifestyle and cultivate positive life attitudes so as to enhance their skills in resisting temptations of drugs and in handling different life challenges, and 2) encouraging schools to foster a drug-free culture on campus and to establish a safe environment for students with joint efforts from schools, parents and NGOs. 43 schools participated at its early phase (in the school year of 2011/12) and the number of participating schools increased gradually to 135 schools in 2017/18.

This study is supported by the Beat Drugs Fund (BDF) Association to conduct a social impact assessment on the HSP(DT). It aims to outline the design of different projects within the programme, the decision underlying the programme design based on the institutional and contextual factors underpinning the decision, to unearth these factors which may have affected the implementation of the programme and finally, and to develop recommendations for its future development.

1.2 Study Objectives

The objectives of this study are as follows:

1. To develop a social impact assessment (SIA) framework suitable for the HSP(DT) in the local context, including identification of social objectives and outcomes, ways to measure the outcomes, and methodology to account for the outcomes, to illustrate the relationship

[2] See Education Bureau. (2019). Objective, Retrieved from https://www.edb.gov.hk/en/edu-system/primary-secondary/healthy-sch-policy/objective.html

between inputs, outputs, and outcomes of HSP(DT);

2. To assess the social value of HSP(DT) by different elements of the programme;
3. If feasible, to place a monetary value on the social impact using the accounting methodology of social return on investment (SROI), making the results more intelligible to the general population; and
4. To ensure that development in HSP(DT) can maximize its benefits and minimize its costs.

1.3 Structure of the report

The report is organized in 6 chapters. The first chapter introduces the background and objectives of the report. The second chapter discusses the context and design of the HSP and further explains the evaluation approach used in this study. Findings of the evaluation is later structured into three chapters. In chapter 3, findings from the social impact assessment using a retrospective quasi-experimental design are presented. In chapter 4, the cost-benefit analysis using a Social Return on Investment (SROI) framework is presented. In chapter 5, results of a qualitative process evaluation are presented to illustrate how the contextual aspects and intervention mechanisms of the HSP(DT) affect the programme outcomes. Recommendations for the future development of the HSP are discussed in chapter 6.

CHAPTER 2 Context of the evaluation study and the evaluation approach

This chapter first outlines the context of this study, which is the HSP(DT), in particular, the design of the programme and relevant details relating to the implementation since 2011. The chapter then moves on to discuss the evaluation approach employed to address the research objectives.

2.1 Context of the study – The Healthy School Programme with Drug Testing Component HSP(DT)

The focus of this study is the HSP(DT), a territory-wide anti-drug programme for secondary school students in Hong Kong. HSP(DT) was the major policy initiative derived under the healthy school policy.[3] Essentially, it is a public grant system that provides financial support for schools to achieve the policy agenda of the health school policy. In other words, it uses schools (policy settings) as an implementation site to execute intervention actions for anti-drug work.

2.2 Overarching design of the HSP(DT)

HSP(DT) is an anti-drug education programme which adopts a whole-school approach and aims to promote a drug-free culture on campus. It focuses on the whole-school community rather than targeting students at an individual level. The programme comprises two major elements: preventive and anti-drug education (ADP) and school drug testing (SDT).

To address the specific needs of their own students, schools were given flexibility on how they would like to achieve the policy objectives through a variety of activities. Table 2.2 shows a summary of HSP(DT) objectives and corresponding activities which help achieve them[4]

Table 2.2 A summary of HSP(DT) objectives and examples corresponding activities

[3] The healthy school policy, recommended by the Task Force on Youth Drug Abuse and appointed by the Chief Executive of HKSAR in 2007, was a response to a rapid uprise of drug use among youth aged 12-18 starting from 2006 to 2008[3]. The healthy school policy was deliberated by the Education Bureau (EDB) and Narcotics Division (ND). The aim of the health school policy was to (1) help students develop a healthy lifestyle and cultivate positive life attitudes so as to enhance their skills in resisting temptations of drugs and in handling different life challenges, and to (2) encourage schools to foster a drug-free culture on campus and to establish a safe environment for students with joint efforts from schools, parents and NGOs.

[4] To understand, the team reviewed 34 proposals submitted by schools participated in HSP(DT) in 2017/18 with their proposed activities and description of activities stated.

Programme component	Main objectives	Examples of activities
School Drug Testing	• To encourage non-users to stay away from drugs • To render assistance to early drug users	• **Drug testing** with voluntary participation and strict confidentiality • **Support services** for drug users including counselling, treatment and rehabilitation
Preventive and Anti-drug Education	• To encourage schools to foster a drug-free culture on campus • To foster the healthy personal development of students and strengthen their sense of belonging and attachment to schools and families • To improve resilience towards life stressors	• **Preventive anti-drug education activities** including talks and seminars, drama performances and visits • **Skills training and life experiences** including camping, adventure programmes, leadership training, volunteering activities, interest courses including sports team, rock climbing and latte art workshops • **Programmes on appropriate values of healthy life** including health ambassador programme and health checks • **Parental support** including talks and workshops on improving communication with youth

At the beginning of each year, ND invites all secondary schools to participate in HSP(DT) and the participation in the programme is voluntary. Each school may choose to apply with other schools as a cluster, or as a separate entity.

As mentioned, HSP(DT) is often emphasized by ND and stakeholders as a school-based programme. The term school-based does not only contain the meaning that it is a programme implemented on a school campus, but also highlights the fact that HSP(DT) is institutionalized as an initiative mainly driven by the school according to their specific needs. The role of school in HSP(DT) is both the applicant and the service receiver.

2.2.1 School Drug Testing (SDT) component

The first key component of HSP(DT) is School Drug Testing (SDT), where its stated objectives are (1) to enhance the resolve of students who have not taken any drugs to continue to stay away from drugs, and (2) to motivate drug-taking students (especially those in the early stage of drug abuse) to quit drugs and seek help. SDT is a compulsory element in HSP(DT) and it is necessary for schools to partner with an NGO in order for the component to be carried out. One of the major designs of HSP(DT) is the voluntary-based drug testing procedure. A number of guiding principles for SDT have been put in place to ensure that consents are obtained from

parents/guardians and students as acceptance of participation and that students can join or withdraw from it anytime during implementation. During the process, students are randomly selected and each participating student has an equal chance of being selected.

Another major element of SDT is confidentiality. The procedures suggested in the Protocol place protection of identity at a high priority. The list of participating students is encoded, and the identity of students selected randomly is also strictly protected.

Upon positive results, the HSP(DT) adopts a non-punishment approach. That is, students who have been tested positive or admit to taking drug will not be prosecuted for consuming drug. Follow-up intervention will be provided according to identified needs.

2.2.2 Preventive and Anti-Drug Education (ADP) component

In HSP(DT), preventive and anti-drug education activities become the major part of the programme. In terms of implementation, participating schools have a high level of autonomy in most decision making. Schools can take full responsibility of the design and implementation of the preventative anti-drug activities on their own and integrate part of the programme into their curriculum. They also have the choice to partner with an NGO as a service provider to organize the activities. For schools that employ NGOs for ADP, the dual-role of participating schools places challenges on service providers, that when they design the activities, the preference of the school often places at a priority. However, between this collaboration, service providers often possess the necessary manpower with professional knowledge in tackling drug issue. Thus, meetings between social workers and teachers are required prior to the start of the programme to discuss the specific types of activities that will be most suitable for the students. Unlike other anti-drug programmes in school settings which have standardized and structured curriculum that are proven by researches as effective intervention, there is no standardized content that is mandatory to be followed in HSP(DT). The wide flexibility in HSP(DT) given to both participating schools and service providers poses significant challenges to monitor the impact created, and the way to assess the effectiveness under such variety.

The variety of activities ranged from traditional **talks and seminars** to interest classes and VR game design competition. The scope of activities suggested by ND and EDB include, 1) preventive anti-drug education activities, 2) skill training and life experience, 3) appropriate values of a

healthy life, and 4) support to parents. Participating schools and NGOs can design and arrange activities according to their will, and the activities can be integrated into the school curriculum or extra-curricular events.

After reviewing and analysing promotional materials from ND and EDB website and leaflet, the team observed that ADP serves 4 main objectives as below:

1. To facilitate students to cultivate healthy lifestyles
2. To develop positive life attitudes and values
3. To strengthen their sense of belonging and attachment to schools and families
4. To enhance their knowledge and skills to resist the temptations of drugs and capabilities to handle different challenges in life

Since receiving positive feedback about the Trial Scheme from 2009/10 to 2010/11, the government has expanded the Scheme to a full-scale school-based anti-drug campaign, also known as HSP(DT).

2.3 Implementation of the HSP(DT): A multi-stakeholder complex system

The HSP(DT) was launched very much as a descendant of the Trial Scheme from 2009/10 to 2010/11, which had at that time received substantial positive feedback, in 2011/12 school year with the participation of 43 schools from 7 clusters. Within the first batch of participating schools, 18 secondary schools participated in the Trial Scheme, one was an aided school, and the remaining 24 participants were government schools across the territory. The number of participating schools increased every year and in 2017/18 school year, a total of 135 schools implemented HSP(DT). For the figure of participating parties, please refer to Appendix 1.1.

These schools partnered with 22 identified organizers with supports from their affiliating service units in the past years. The form of partnership between the schools and organizers is heterogeneous. There are 67 schools from 8 clusters and 16 individual schools partnered with an organizer to implement both educational activities and school drug testing. 28 schools from 4 clusters and 10 individual schools partnered with multiple organizers to implement different components. While 14 schools organized educational activities by themselves and each partnered with an organizer conducted school drug testing only.

The actual implementation of the HSP(DT) at the project level is highly complicated, and because of the autonomy in programme design, the implementation is with great diversity across projects. Activities could range from educational talks to war games to competitive sports team, and choices of activities from each school are vastly different.

After reviewing the 34 proposals from 2017/18 funding exercise, we aware that there were a total of 524 activities conducted by new participating schools in the 2017/18 school year and many of them were multi-scoped according to the four non-mutually exclusive scopes of activities suggested by Narcotics Division, in which 60.69% (N= 318) of them are categorized as skill training and life experiences, 25.19% (N= 132) are categorized as appropriate values of healthy life, 24.05% (N= 126) are classified as preventive anti-drug activities and 5.73% (N= 30) are classified as parent support. In addition to the four main scopes, we further identified 11 elements from the diversified activities; these include talks and sharing sessions (N=102; 19.47%) such as those from former drug addicts and superintendents, exhibitions (N= 55; 10.5%), camping (N= 72; 13.74%), adventure-based counselling (N= 86; 16.41%), health assessments (N= 19; 3.63%), ambassador schemes (N= 32; 6.11%), volunteering (N= 48; 9.16%), site visiting (N= 26; 4.96%) e.g. to prison and correctional institutions, workshop and training (N= 166, 31.68%) e.g. enneagram personality workshop, extracurricular activities (N= 67; 12.79%) including latte art classes and eSport team, and other one-off events (N= 22; 4.20%). Apart from the content of activities, other information about each activity was captured from the proposals. ADP activities come in different forms, they can be extra-curricular or integrated into the school curriculum, some are offered to all students compulsorily, while others are designed to address a specific grade of students, some are joint-school activities, while most are carried out at one school, they can also be one-off events or regular sessions with shorter duration.

2.4 Evaluation approach

Conventionally, in the social and health domain, scientific research has typically merited the use of experimental study design for programme evaluation, i.e. viewing a priori set-up (randomized) “case-control” studies as the “gold standard”. However, in practice, experimental approach can be difficult or even impossible to implement, particularly in situations where the intervention involves many stakeholders (Mason and Barnes, 2007). In addition to the implementation difficulties and resource constraints, some evaluation scientists argue the use of experimental research fails to account the “real” effect of interventions in the real-work settings, as it did not

take into account other environmental and contextual factors influencing the programme outcomes (Bonell, Fletcher, Morton, Lorenc & Moore, 2012). Empirical evidence in the health promotion domain illustrated that the effect of the programme, when scaled into real-life implementation, diminishes substantially as the quality of the implementation considerably affects the programme efficacy.

In the context of drug abuse among adolescents, many experimental studies have illustrated school as a social institution for anti-drug programmes but few have identified the mechanisms behind, such as social norm, that work as the ingredient of the intervention. These studies typically take the "successionist" approach where the researchers in general have relatively good or even too much control of the other contributing factors (Bonell et al., 2012). Successionist usually fails to sufficiently consider the interaction between participants and the environment and brackets out the complexity of social causation. Currently, however, several studies have attempted to conduct impact evaluation of anti-drug prevention programmes in which researchers had relatively less control of the environment, yet it is arguably much more likely to exist in real-life settings.

In this study, we conducted an impact assessment study to evaluate the territory-wide programme in Hong Kong. The evaluation work, as we argued, took place in complex settings and hence the "successionist" approach has almost little or no practicability. So, although we originally proposed to carry out a large-scale survey. However, after reviewing the proposals in the 2017/18 funding exercise (34 in total) and more in-depth exploration, we found the design would not be good to reflect the diverse impact potentially created by different programs (see the explanation in the Chapter 2.5). Hence, we came to an alternative way using focus group interviews to first document the impact, and based on secondary data analysis of the CRDA data to approximate the impact of the HSP(DT).

The evaluation adopted a mixed-methods study design (i.e. quantitative and then qualitative). We argued that a mixed-methods study design was appropriate for our study as it gives a broader perspective and better understanding of the anti-drug programme. As HSP(DT) is comprised of many actors, several levels of interventions and sets of activities that shift in time, the outcomes are difficult to measure (Judge and Bauld, 2001). With the mixed-methods design, however, it is believed that qualitative results can provide the understanding of the context and give plausible explanations of the statistical results found in the quantitative method.

2.4.1 Quantitative Approach

The first part of the study was quantitative driven and the data were extracted from an archival review, secondary data, and official survey recording individuals' drug abuse episodes collected from Central Registry of Drug Abuse (CRDA) from 2012 to 2017. A retrospective time trend with the use of decomposition technique formed analytical tool was used to investigate the impact of HSP(DT) in drug prevention among the youth at the population level. After quantifying the social impact, we applied the SROI framework to monetize the economic value of the social impact of the HSP(DT) and expressed the results in a cost-to-benefit ratio.

Social Return on Investment (SROI) framework

Social impact is a key element in the evaluation of the HSP(DT). Social Return on Investment (SROI) is a framework that helps organizations measure and account for much broader concepts of value. SROI monetizes the social impact to ultimate targets of the programme, government and other stakeholders over the total investment. While SROI will be measured in terms of monetary value, the non-monetized social impact will be supplemented by brief descriptions (Additional details can be found in Chapter 4). The framework seeks to reduce inequality and environmental degradation and improve well-being by incorporating social, environmental and economic costs and benefits.[5] Focusing on SROI can help local authorities make informed decisions about how to spend their money effectively on services that improve lives, opportunities, health and wellbeing.

2.4.2 Qualitative Approach

Context-Mechanisms-Outcomes (CMO) Configuration

Building upon our quantitative results which revealed some aspects of HSP(DT) that worked and other aspects that did not, the next step of our analysis was to find out how and why such results were found through qualitative methods. To further understand, the team adopted a realistic evaluation approach to study the factors that influenced the level of impacts of HSP(DT). The realistic evaluation emphasizes the interplay between the context, mechanisms and outcomes, which is known as the CMO configuration.

[5] See Nicholls J, Lawlor E, Neitzert E, Goodspeed T. 'A Guide to Social Return on Investment' London: The Cabinet Office (2012)

The difficulty in analysing the effectiveness of any interventions is great due to the complexity in conceptualising the relationship between multiple levels of influences. Realistic evaluation posits that outcomes in open systems do not involve constant conjunction between a determinist cause and its effect. Rather, they result from the complex interplay of multiple causal mechanisms, the combination and activation of which will vary in different contexts. According to the CMO configuration, generative mechanisms can only be carried out if the context is right; hence, even though context does not directly influence the outcome, it works with mechanisms in a collaborative effort to produce an outcome. Thus, instead of using experimental techniques, realistic evaluation takes on an approach which observes the interventions that are successful in some settings but not in others. It intends to identify not simply 'what works or not', but 'what it is about a programme which works for whom in what circumstances'[6].

Realistic evaluation aims (1) to understand the mechanisms of an intervention which produces change; (2) to understand the contextual conditions necessary to trigger such mechanisms; and (3) to develop outcome pattern predictions according to the context and mechanisms triggered. This approach has been used in drug deterrence programmes and healthy school programmes in the past[7][8]. In this project, the context is school, the mechanisms are the content and mode of delivery of the programme, and the outcome is the impact HSP(DT) has on students. In total, 33 focus group interviews from 19 organizations were conducted to ascertain the mechanisms and contextual factors that influenced the level of impacts of HSP(DT).

This analytical approach will not only provide evidence of the effectiveness of HSP(DT), but also plausible explanations of the outcome which may provide ways to improve the intervention in the future.

2.5 The difference between the two methods

[6] Pawson, R., & Tilley, N. Realistic evaluation. 1997. *London, California and New Delhi: Sage*.

[7] Leone, L. (2008). Realistic evaluation of an illicit drug deterrence programme: analysis of a case study. *Evaluation*, *14*(1), 9-28.

[8] Pommier, J., Guével, M. R., & Jourdan, D. (2010). Evaluation of health promotion in schools: a realistic evaluation approach using mixed methods. *BMC public health*, *10*(1), 43.

First, it is worth pointing out that there is unlikely a 'perfect way' to capture and analyse the impact of HSP, and methodological and practical constraints are likely to emerge in different methods used for impact assessment. Here, we briefly explain the difference between the two methods – one is the survey (originally proposed) and one is the executed one (interview + secondary data analysis with CRDA data).

Practical constraints

One of the major differences between the two is practical constraints. As earlier mentioned, due to real-life circumstance, the research team found conducting territory-wide survey seem extremely challenging (and almost impossible), and because of the practical constraints, and the data yielded from the survey, as we strongly believe, will unlikely to be good and representative (i.e., an impeded validity). Hence, sticking to the original plan where we forcefully collect data from the survey will likely to fail into the "garbage-in and garbage-out" scenario. To avoid that, using the CRDA data as a reflection of the impact of HSP(DT), admittingly is a more in-direct approach. Given that the CRDA data has been consistently collected and maintained by the authority with well-documented procedures, it to a certain extent still provide a good basis for some form of data extraction and analysis, although the CRDA data is not an absolute pretty dataset (as it is well-known that there is a hidden-drug issue creating underestimation; Kwok, Lo, Lam & Lee, 2018). While both data collection methods will involve a measurement issue that reduces the validity of this research, the "limitation" of the latter method (interview + CRDA) seem less destructive than the former. Hence, we use it for this study

Interpretation of the results

Another major difference introduced by the methods used is related to the interpretation of the results. While using survey methods, there is an advantage that we can be more 'microscopically' access the "between-school" difference impact, the use of the CRDA method, however, does not allow us to attribute school difference from our findings. Instead, it tells the impact of the HSP(DT) as a whole. This, unfortunately, is something we have to tolerate from this secondary data analysis design. While in the future this is certainly good to investigate the impact of the HSP(DT) at individual school-level (or as we have done in section 5.2 at cluster-level (i.e., collective of schools having similar program design)), it should be bundle to the application proposal, so that when the programme under HSP(DT) started, it incorporates some tailored SIA component to monitor and assess the impact of the HSP(DT) programme.

CHAPTER 3 Estimating the Impacts of HSP(DT): a decomposition analysis

This chapter investigated the impact of the HSP(DT) in drug prevention among youths. Rather than studying the impact at the individual level, the unit of analysis of this examination was at the population level. That is, we quantitatively evaluated whether the HSP(DT) has contributed to a reduction in drug use (annual episodes) among youths in Hong Kong. A retrospective time-trend analysis with the use of decomposition technique formed analytical tool was used for the examination.

The chapter is organized as follows. First, a brief overview of the anti-drug policy in Hong Kong in past few decades is described, along with the situation of drug use among youth in Hong Kong. Back the backdrop explained, the chapter next describes details of our quantitative methods (decomposition technique) to illustrate the impact of the HSP(DT) on reduction of drug use among youths. Estimates of the extent of the HSP(DT) in reducing drug use episodes and incidences since the introduction of the HSP(DT) (until 2017) are reported in this chapter.

3.1 Background

In Hong Kong, drug abuse among adolescent is a crucial social problem. The origin of this social ill can even be tracked back to the Ching dynasty when opium was popular in China. From a public policy perspective, public responses towards anti-substance abuse emerged since 1960s, and the early policy focus was largely prohibitive (Cheung & Chien, 1996). At that time, there was no specific anti-drug strategy focusing on young people until 2007 when there was an upward trend of illicit drug use among population under the age of 21 (Task Force on Youth Drug Abuse, 2008).

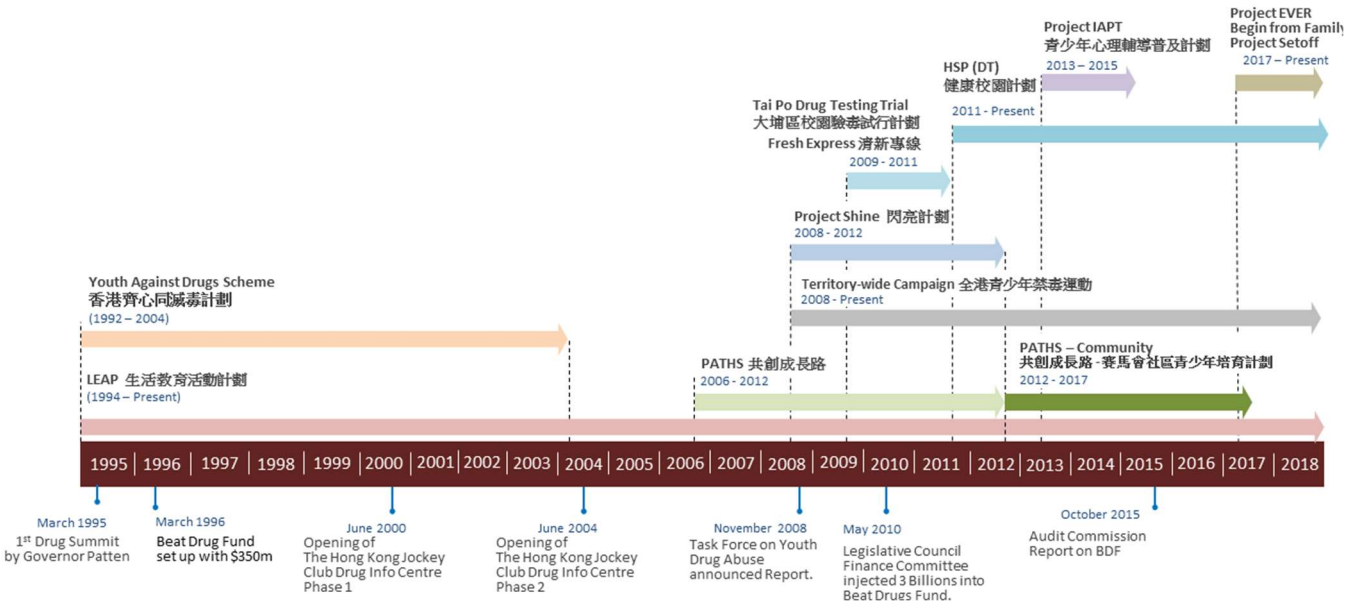
In response to the increase of drug use among youth, The HKSAR government appointed the Secretary for Justice to lead a high level inter-departmental Task Force on Youth Drug Abuse (Task Force) to tackle drug abuse issue specifically on youth population.[9] The Task Force proposed two strategies. The first was to institutionalize a Healthy School Policy that focuses on anti-drug work in educational setting. It aims to help students to reach a state of physical, mental and social well-being with a focus on developing students' healthy lifestyles, positive attitudes and values,

[9] See Report of the Task Force on Youth Drug Abuse. (2008). Executive Summary, Retrieved from https://www.nd.gov.hk/en/report/pdf/yda/executive_summary.pdf

practical life skills and refusal skills to resist temptation.[10] The second strategy was to carry out the Trial Scheme for early detection and intervention for current drug users.[11]

Concomitantly, driven by the civic community, there was a notable increase in scaled effort to develop anti-drug prevention programme for adolescent. For instance, The Hong Kong Jockey Club launched 'P.A.T.H.S. to Adulthood' Project (PATHS). (For more details, see figure 1) Some of these programs were also supported by the BDF (e.g., Project Shine, Project IAPT, and freshexpress)

Figure 3.1 Timeline representing multiple anti-drug prevention programmes



The Trial Scheme was considered a success, and it was recommended to scale the programme and add anti-drug preventive and education programmes in the anti-drug work for youths. This experience provided a foundation for the development of the HSP(DT), which can be considered as the descendant of the Trial Scheme.

[10] See Education Bureau. (2019). Objective, Retrieved from https://www.edb.gov.hk/en/edu-system/primary secondary/healthy-sch-policy/objective.html

[11] The Trial Scheme was implemented in the school year of 2009/10 with participation of all 23 public sector secondary schools in the Tai Po district (3). More than 50% of the students joined the Trial Scheme with around 20% of the participating students being randomly selected for the screening test. No positive case was found in this trial.

From the evaluation research of the Trial Scheme, it was recommended that more resources should be devoted to anti-drug preventive and education programmes. Therefore, the HSP(DT) was introduced. The major aims of HSP(DT) are 1) helping student develop a healthy lifestyle and cultivate positive life attitudes so as to enhance their skills in resisting temptations of drugs and in handling different life challenges, and 2) encouraging schools to foster a drug-free culture on campus and to establish a safe environment for students with joint efforts from schools, parents and NGOs. The HSP(DT) had two major components, namely the anti-drug education and school drug testing. 43 schools participated at its early phase (in the school year of 2011/12). The number of participating schools increased gradually to 135 in the 2017/18 school year.

There was a study assessing the effectiveness of HSP(DT), with focus on measuring the changes in knowledge and awareness of the participants (students). The study distributed questionnaires to students from 49 participating schools and 51 non-participating schools. Based on a pre- and post- study design, the study reported that, in general, students from both participating and non-participating schools have adequate knowledge of drugs, understand the risk of taking drugs and strong resolve to stay away from drugs. Various factors contribute to students' ability in refusing drugs. For instance, over 60% of students agreed participating in activities could increase their knowledge and enhance their ability in refusing drugs.

However, there was no in-depth analysis of whether the 'expected' outcomes have been translated into actual behavioural changes (e.g., reduction in drug use) at the population level. Therefore, this present analysis aims to fill this gap by exploring whether the HSP(DT) has actual impacts on the society at large.

3.2 Objective

To examine the impacts of HSP(DT) on anti-drug prevention among youths in the school setting.

3.3 Rationale of the analysis

We are aware that the number of drug abuse episode among adolescent population in Hong Kong had continuously subsided since 2008 (see Appendix 2.1). The substantial reduction of drug use among this group of population is clearly co-incidentally with the emergence of community anti-drug programme in Hong Kong, including the inception of HSP(DT) since the 2011. Given this observation, we make our fundamental presumption in which a proportion of the reduction of

the drug abuse episode (n) across this period of time (t) would be contributed by the community anti-drug programme such as the HSP(DT). Our analysis primarily built on this fundamental premise.

With this fundamental presumption set, we therefore explore the impact of the HSP(DT) by identifying whether HSP(DT) has any contribution to the recent reduction in drug abuse episodes among the youth population in Hong Kong. The conception of the analysis essentially involves two steps.

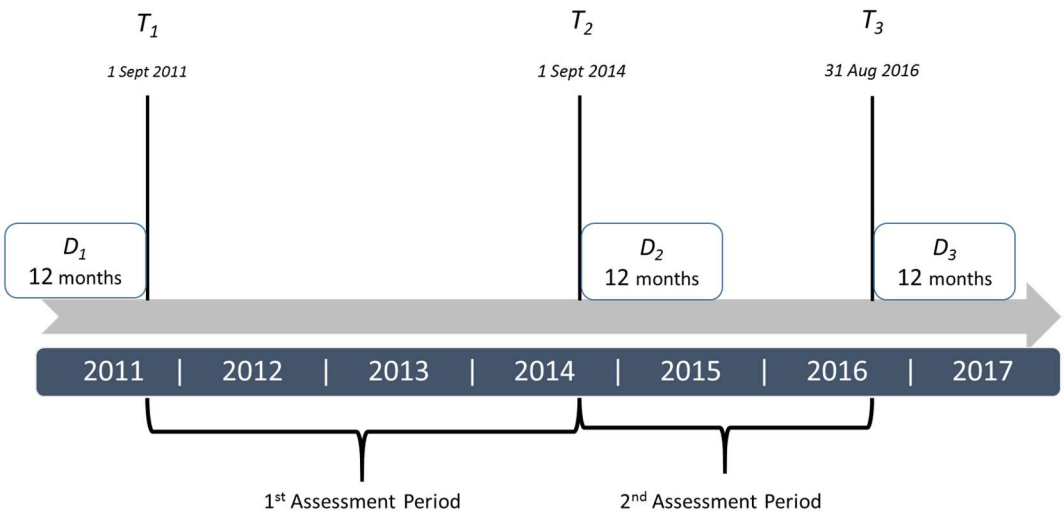
Table 3.3.1 Conception of the analysis

1st-step	In first step, we applied the heuristics of elimination to estimate the extent of impact on drug abuse reduction most probably contributed by the anti-drug community work. HSP(DT) is considered as one of which. That is, by removing other co-contributors that reduce the number of drug abuse in Hong Kong, we estimated the number of reduction of drug use episode among youth that was more probably contributed by the community-based anti-drug prevention work.
2nd-step	With the number estimated, we can build upon it to explore evidence indicating the effectiveness of HSP(DT). Essentially, we split the reduction into two groups: (1) reduction contributed by HSP(DT) participating agencies; (2) reduction contributed by non-HSP(DT) participating agencies. We conceived a favorable indication for the effectiveness of the HSP(DT) if the average reduction of drug abuse episodes per HSP(DT) participating agency is larger than the average reduction per non-HSP(DT) participating agency in a given assessment period. On the other hand, if the average reduction of drug abuse episodes per HSP(DT) participating agency is smaller than or equivalent with the average reduction per non-HSP(DT) participating agency in a given assessment period, we conceive that as a non-favorable indication.

3.3.1 Assessment period

The team set our impact assessment into two periods. The first assessment period was defined as from 1 September 2011 (T_1) to 31 August 2014 (T_2), and the second assessment was defined as from 1 September 2014 (T_2) to 31 August 2016 (T_3).

Figure 3.3.1 Two assessment periods



The rationale of choosing these time-points as critical inflection points was multiple folds, although some reasons were albeit *posteriori*. First, as shown in the CRDA data, there appeared to be a notable shift in trend between the period from T_1 to T_2 and from T_2 to T_3. The change in trend may reflect the potential change in the magnitude in the impact of the interventions (i'effect), and hence separating the decomposition (shown in Figure 3.3.2 below) would reflect the potential change in impact.

To estimate the degree of drug abuse behaviour among the adolescent population in Hong Kong before the inception of the HSP(DT) (T_1), the annual frequency of drug abuse episode among the adolescent population (aged 12-18) occurred in the 12-month period prior to the inception of the HSP(DT) (i.e. from September 2010 to August 2011) was used (D_1). For estimating the degree of drug abuse behaviour among youths after the first assessment period for the HSP(DT) (T_2), the annual frequency of drug abuse episode among the respective population in the 12-month period after the first assessment period (i.e. from September 2014 to August 2015) was used (D_2). For estimating the degree of drug abuse behaviour among the adolescent population after the second assessment period for the HSP(DT) (T_3), the annual frequency of drug abuse episode

among the respective population in the 12-month period after the second assessment period (i.e. from September 2016 to August 2017) was used (D_3).

The reason of setting 31 August 2016 as the end of the assessment period was due to data availability during the data collection phase. In particular, during our data collection phase, the latest available data in the CRDA was until 31 December 2017. Given that D_3 requires data from a 12-month period, the data only allow us to study the number of drug episode among the 12-month period after the end of 2015/16 school year (i.e., 1 September 2015 to 31 August 2016).

3.3.2 Mathematical Formula

The following provides a more elaborated account on our analytical rationale, and in a mathematical expression:

Notations

a: age sub-group

s: sex

t: time period

d: number of drug abuse episodes;

N: population size in Hong Kong;

p: changes in population size;

i: changes resulting from some interventions; and

ϵ: changes resulting from the unobserved factors (e.g., measurement error).

Step 1: Estimating the number of reduction of drug use episode among youth that were more probably contributed by the community-based anti-drug prevention work

We explicitly hypothesized that changes in number of episodes in drug abuse (Δd; $d_2 - d_1$) among adolescent population at a specific age group *(a)* across the two time periods *(e.g., t_1, t_2)* are affected by three factors: (1) change in population size (n), (2) emergence of some interventions (*i*), and (3) other unobserved factors (ϵ). It can be expressed as follows,

$$\Delta d = d_2 - \ d_1 \ = N'\text{effect} + i'\text{effect} + \epsilon \quad (1)$$

where N' effect can be estimated by

$$p = n_1 \times \left(1 - \frac{N_2}{N_1}\right) \quad (2)$$

Rearranging the equation (1) will help to estimate the intervention effect ($i'\text{effect}$)[12],

$$= \Delta d - p - \epsilon \quad (3)$$

Step 2: Identifying the effectiveness of the HSP(DT)

With the intervention effect ($i'\text{effect}$) being estimated, we then attempted to estimate the proportion $i'\text{effect}$ that is most probably contributed by the community-based anti-drug work, where HSP(DT) is considered part of this effort. This is represented in equation 4,

$$i_c = i'\text{effect} - i_o \quad (4)$$

where

i_c: effect of drug abuse reduction between two time periods that is more probably contributed by community-based anti-drug interventions (HSP(DT))

i_o: effect of drug abuse reduction between two time periods that is more probably contributed by interventions other than community-based anti-drug work.

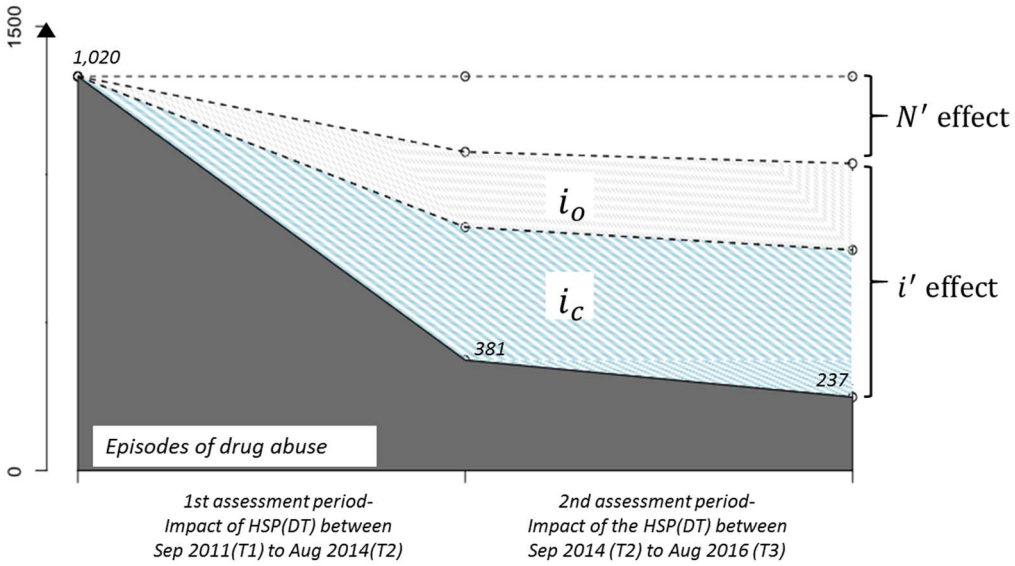
The effect of community-based anti-drug intervention (i_c) can in principle be conceptualized as constituting two forces: (1) force constituted by HSP(DT) (i_{hsp}) , and (2) force not constituted by HSP(DT) ($i_{\overline{hsp}}$). To test our preposition, we derived our hypothesis as

H_1: average i_{hsp} *> average* $i_{\overline{hs}}$; and

H_0: average i_{hsp} *≤ average* $i_{\overline{hsp}}$

[12] In estimation, as we do not have information related to the unobserved factors such as measurement error, we assumed its effects on Δd as negligible. The validity and the potential effect of the assumption is discussed later.

Figure 3.3.2 Decomposition method



3.3.3 Data

To test the hypotheses, the team retrieved data from CRDA database to assess the change in drug use episode among youth before and after introduction of HSP(DT). CRDA is an official reporting system that provides drug abuse statistics in Hong Kong. It aims to regularly identify and demonstrate trends and characteristics of drug abusers to facilitate anti-drug programmes[13]. Individual information on the drug user recorded in the CRDA database include demographic information, pattern of drug use, details of each drug episode and reasons for drug use. The CRDA database[14] is the only official database recording the episode of drug use existed in Hong Kong. Many previous studies used it as the basis of analysis and it was regarded as an important and useful database for reflecting changes in Hong Kong (Pau, Lee & Chan, 2002; Cheung & Cheung, 2006; Shek, 2007; Tang, Liang, Ungvari & Tang, 2011). Based on the information provided from the informants about the typical referral and the reported pathway (in Appendix 2.2), the effect attribute to community efforts *(i_c)* and other efforts *(i_o)* can be estimated by the type of reporting agency. Similarly, the effect attribute to HSP(DT) could be estimated with

[13] See Narcotics Division. (2019). CRDA: Introduction. Retrieved from https://www.nd.gov.hk/en/crda_annual_report_introduction.htm

[14] However, the team also acknowledged that the CRDA data had its limitations. For instance, a study highlighted that, due to the increasing group of "hidden" drug abusers, the underreporting problem may have been enlarged in recent years (Kwok, Lo, Lam & Lee, 2018). Another study highlighted the willingness to report cases across the reporting agencies may vary and that could also introduce systematic basis for analysis (Cheung & Chien, 1996).

information of agency code provided by the Narcotic Division to identify HSP(DT) participating agencies and non-HSP(DT) participating agencies.

3.4 Findings

Table 3.4.1 Results of change in number of episodes of drug abuse

	Both Sex	***Male***	***Female***
Change in episodes of drug abuse			
Episodes of drug abuse at T_1	1020	680	340
Episodes of drug abuse at T_3	237	177	60
Reduction in drug abuse episodes (Δd)	(783)	(503)	(280)

Table 3.4.1 summarizes the changes (reduction) in number of episodes of drug abuse among the adolescent population during the overall assessment period (between 1 September 2011 and 31 August 2016). The difference between episodes of drug abuse at T_1 and T_3 indicates the reduction in drug abuse (Δd).

We observed that the reduction in episodes of drug abuse among the adolescent population in the overall assessment period (from 1 September 2011 (T_1) to 31 August 2016 (T_3)) dropped from 1,020 episodes to 237 episodes (Δd is 783). For sex-specific, the number of episodes of drug abuse among the adolescent male population dropped from 680 episodes to 177 episodes (Δd is 503), while the number of episodes for female dropped from 370 episodes to 60 episodes (Δd is 280).

Table 3.4.2 **Decomposition results of change in number of episodes of drug abuse during first and second assessment period**

	Both Sex		*Male*		*Female*	
	1st period	*2nd period*	*1st period*	*2nd period*	*1st period*	*2nd period*
Change in episodes of drug abuse						
Episodes of drug abuse at T_n	1020	381	680	270	340	111
Episodes of drug abuse at T_{n+1}	381	237	270	177	111	60
Reduction in drug abuse episodes (Δd)	(639)	(144)	(410)	(93)	(229)	(51)
Results of the Decomposition						
Population size (N' effect)	162 (25%)	40(28%)	106(26%)	29 (31%)	55 (24%)	11 (22%)
Intervention effect (i'effect)	477 (75%)	104(72%)	304(74%)	64 (69%)	174 (76%)	40 (78%)
Breakdown of the intervention effect (i'effect)						
Attributable to community efforts *(i_c)*	284 (60%)	45(43%)	161(53%)	*21 (33%)*	126 (72%)	25 (63%)
Attributable to other efforts *(i_o)*	193 (40%)	59(57%)	143(47%)	*43 (67%)*	48 (28%)	15 (37%)

First assessment period (1st period) refers to 1 Sep 2011 (T_1) to 31 Aug 2014(T_2)
Second assessment period (2nd period) refers to 1 Sep 2014(T_2) to 31 Aug 2016 (T_3)

Results of the decomposition analysis during the first and second assessment period as shown in table 3.4.2[15], clearly illustrate that the decrease of the youth population (N' effect) was not the only contributor to the decrease in number of drug use episodes among this group. It is estimated that other forces such as the effect of interventions (i'effect) has contributed to the additional reduction in drug abuse episodes. The observation is consistent in sex-specific situation.

During the first assessment period in general, the reduction of the episodes in drug abuse among the adolescent population attributed to both youth population decrease and intervention effect is 639 episodes (i.e. dropping from 1,020 episodes at T_1 to 381 episodes at T_2; the average reduction of episodes of drug use per year is 213 episodes). In comparison, the reduction of the episodes in drug abuse among the adolescent population during the second assessment period is 144 episodes (i.e. dropping from 381 episodes at T_2 to 237 episodes at T_3; the average reduction of episodes of drug use per year is 72 episodes). There is a notable shift in trend from T_1 to T_2 and from T_2 to T_3 indicating that the overall reduction in drug abuse episode has declined in the second assessment period. It suggests that the intervention effect (i'effect) substantially diminishes during the second assessment period. The reduction of drug abuse episodes during the first assessment period attributed to community effort (i_c) is 284 episodes (approximately 95 episodes per year), whereas there are only 45 (approximately 23 episodes per year) reduction of drug abuse episodes ascribed to community-based interventions. Looking across sex-specific situation, the reduction of episodes in male attributed to community-based interventions dropped from 161 episodes (approximately 54 episodes per year) in the first assessment period to only 21 episodes (approximately 11 episodes per year) in the second assessment period. Similarly, the reduction of episodes in female attributed to community effort dropped from 126 episodes (approximately 42 episodes per year) to only 25 episodes (approximately 13 episodes per year) during the second assessment period.

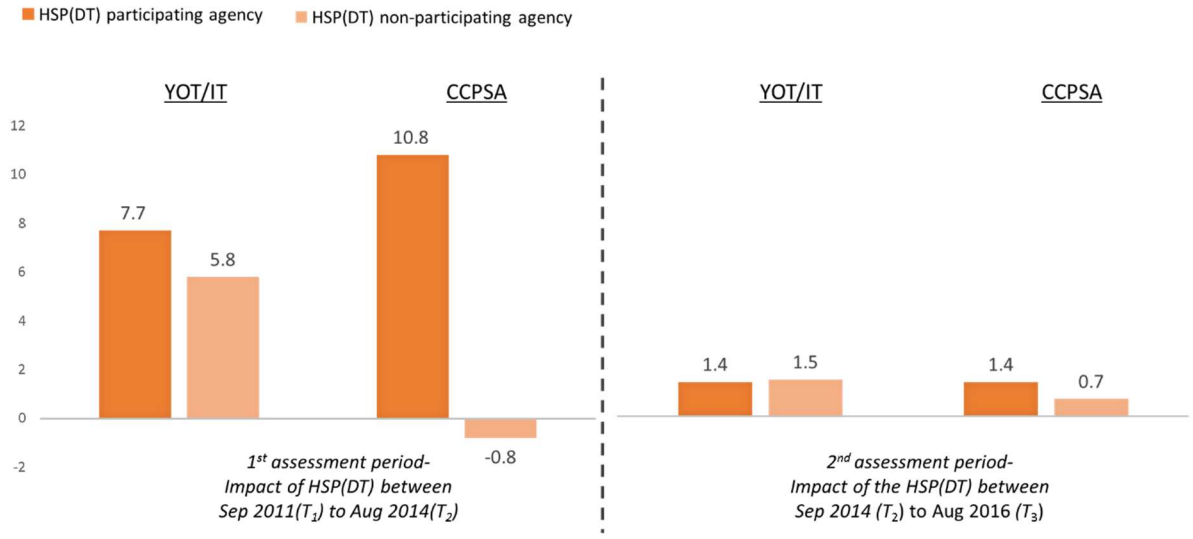
3.5 The effectiveness of the HSP(DT) during first and second assessment period

By dividing the number of unit, we now have the number of reduction per unit. During the first assessment period, for group Youth Outreaching Social Work Team/Integrated Children and Youth Services Centre (YOT/IT), the reduction number per unit for HSP(DT) participating agencies

[15] The difference between episodes of drug abuse at T_n and T_{n+1} indicates the reduction in drug abuse (Δd). The reduction in episodes is contributed by population size (N' effect) and intervention effect (i'effect). Intervention effect is further segregated into community efforts (i_c) and other efforts (i_o).

is 7.7 whereas it is only 5.8 for non-HSP(DT) participating agencies. On the other hand, for group Counselling Centre for Psychotropic Substance Abusers (CCPSA), HSP(DT) participating agencies reduce drug abuse episodes by 10.8 per unit whereas non-HSP(DT) participating agencies, in opposite, increase 0.8 episodes of drug abuse per unit. According to the hypothesis, the reduction per unit contributed to HSP(DT) participating agencies is bigger than the reduction per unit attributed to non-HSP(DT) participating agencies, hence the hypothesis is supported and seems to suggest that HSP(DT) participating agencies during first assessment period has additional effect comparing with non-HSP(DT) participating agencies. In comparison, the difference between the number of reduction per unit contributed to HSP(DT) participating agencies and non-HSP(DT) participating agencies is not significant, group YOT/IT: 1.4 for HSP(DT) participating agencies and 1.5 for non-HSP(DT) participating agencies; group CCPSA: 1.4 for HSP(DT) participating agencies and 0.7 for non-HSP(DT) participating agencies, it suggests that HSP(DT) has no additional impact on episodes reduction and it is not effective during the second assessment period.

Figure 3.5 **Reduction of drug abuse episodes per unit for HSP(DT) participating agency and non-HSP(DT) participating agency**



3.6 Contribution of HSP(DT) towards reduction of episode in first assessment period

With the average number of reduction per unit being estimated, we then attempted to estimate the total reduction that is most probably contributed by HSP(DT) participating agency. The

additional effect of HSP(DT) from non-HSP(DT) was used to multiply the number of HSP(DT) participating agency. This is calculated as below,

$$(7.7 - 5.8) \times 14 \text{ agencies}^{16} + (10.8 + 0.8) \times 10 \text{ agencies} \approx 143$$

HSP(DT) contributes nearly 143 reduction of episode throughout the first assessment period from 2011 to 2014. On average, approximately 47.7[17] reduction of episode per year are attributed to the impact of HSP(DT).

3.7 Chapter Summary

This chapter uses a quantitative social impact assessment with decomposition technique to investigate the impact of HSP(DT) on drug abuse episode reduction among youth at the population level. It was estimated that population effect accounts for only a third of reduction in drug abuse episode where intervention effect contributes two third of total reduction in drug abuse episode. Community effort as part of the intervention effect has more contribution to the reduction drug abuse episode when compared with other non-community based intervention. The relatively high reduction in drug abuse episode during the first assessment period indicates that the intervention effect substantially diminishes during the second assessment period. The difference between number of reduction attributed to HSP(DT) participating agencies and non-HSP(DT) participating agencies suggests that HSP(DT) is effective during the first assessment period but not effective during the second assessment period.

[16] The number of HSP(DT) participating agency

[17] $142.6 \div 3 \approx 47.7$ (duration of three years in first assessment period)

CHAPTER 4 Social return on investment of the HSP(DT)

This chapter attempts to estimate the social impact of the HSP(DT), the team conducted a cost-benefit analysis of the HSP(DT) by adopting a return-on-investment (ROI) approach. Specifically, the Social Return On Investment (SROI) is estimated.

4.1 Definition of socioeconomic cost

In this study, the socioeconomic cost of drug abuse is a combination of different costs associated to drug using behaviour. This study attempted to estimate the cost reduction in drug abuse attributable to HSP(DT) among the youth population. There are social tangible cost, private tangible cost and private intangible cost. The team conducted cost-benefit analysis of the programme using a SROI framework, reflecting whether social benefits generated by HSP(DT) for its target beneficiaries outweigh its cost. The general form of the SROI calculation is as below:

Social Return on Investment (SROI)[18,19,20,21]

The general form of the SROI calculation is as below,

$$\text{SROI}_{SII} = \frac{S_t * (1 - dw) * (1 - at)}{I_t}$$

where:

(1) S_t: Monetized social return of HSP(DT) generated within assessment period *(t)*

(2) dw: Deadweight (calculated as a percentage) is a measure of outcome that would have happened even if the activity had not taken place

(3) at: Attribution (calculated as a percentage) is an assessment of how much of the outcome was caused by the contribution of other organizations or people

(4) I_t: Total investment/capital/equity of the HSP(DT) within assessment period *(t)*

[18] See Nicholls J, Lawlor E, Neitzert E, Goodspeed T. 'A Guide to Social Return on Investment' London: The Cabinet Office (2009)

[19] See the two research bulletins prepared by the Fullness Social Enterprises Society (FSES) that examined the effectiveness of the Government's grant funding investments on two SE funding schemes using simple SROI calculations: 'Social Return on Investment (SROI) of Enhancing Self-Reliance through District Partnership (ESR) Projects' and 'Social Return on Investment (SROI) of Enhancing Employment of People with Disabilities through Small Enterprise (3E) Projects', (Jun & Aug 2013)

[20] See Sammy Fung, Matthew Lee & Sophia So 'Social Impact Measurement. Consulting Report for Teach4HK' (Oct 2016)

[21] In the current approach, it is assumed that deadweight and attribution are 0% in order to estimate the maximum SROI generated by HSP(DT).

SROI involves calculating the total present value across all benefits and all years. And the total present value would be the summation of the different individual benefits discounted for the time value of money. To calculate the SROI ratio, divide the discounted total present value of benefits by the present value of the investment. Additional details of the calculation methods can be found in Appendix 3.1.

$$\text{SROI ratio} = \frac{Present\ Value\ of\ benefits}{Present\ Value\ of\ investment}$$

4.2 Social return estimation

The following section explains how the team conceptualized the social impacts of the HSP(DT). Specifically, the team formulated that HSP(DT) could potentially reduce cost related to drug abuse. The current cost-estimation exercise is further divided into three major categories, namely, (1) social tangible costs; (2) private tangible costs; and (3) private intangible costs.

Social tangible costs

Social tangible costs include (1) Loss of Productivity, indirect costs which reflect the loss of productivity borne by the society due to premature mortalities, disabilities, and absenteeism attributed to illicit drugs; (2) Crime and Law Enforcement Costs, direct social costs incurred in the criminal justice system, including arrests, customs, judiciary, and correctional services attributable to drug abuse. Medical treatments and property loss or damage borne by victims of crimes committed by drug users were also included. (3) Healthcare Costs, direct costs which involve the provision of treatments and rehabilitations (T&R) for drug users, and other medical services for drug-related comorbidity and trauma incidents. (4) Welfare Costs, direct social costs which reflect the expenditures on drug-specific welfare services and the excess usage of social welfare services attributable to drug abuse; and (5) Other Social Costs, other direct costs which do not fall into any of the above major categories. This includes preventive education, publicity and researches, Security Bureau, Government Laboratory, and mixed types of costs. HSP(DT) is targeting at secondary school students, who aged 12-18. However, the breakdown of age groups in this study on socioeconomic cost does not perfectly match with our target group. The closest match is the group aged under 21. The estimated total social tangible cost of drug users under 21 after adjustment was calculated as HK$631.3 million[22] in 2014. The number of drug

[22] Yip, Assessing the Socioeconomic Costs of Drug Abuse in Hong Kong SAR. 2017, CSRA, HKU: Hong Kong, P.224

users under 21 after accounted for hidden drug users is 3,570 in 2014. Hence, the average cost per drug user under 21 is HK$176,806[23].

Table 4.2 Social tangible costs breakdown of age group <21

Items	Amount (HK$ million)
Loss of productivity	295.9
Crime and law enforcement	132.2
Healthcare	30.5
Welfare	134.9
Drug productions	12.2
Other social costs	25.7
Total social tangible cost	631.3[24]
Number of drug users <21	3,570
Cost per drug user (HK$)	**176,806**[23]

Private tangible costs

Private tangible costs refer to the costs borne by the individuals making the consumption decisions (i.e. drug users in the current study), and do not justify government actions and interventions in general. In the previous study conducted by Yip et al., the private tangible costs incurred by drug users in Hong Kong do not have breakdown into age group. The team assumed that the portion of private tangible costs incurred by drug users under 21 is same as the portion of social tangible costs. Using this percentage, the amount of private tangible costs incurred by drug users under 21 in 2014 is HK$65,229[25] per drug users annually.

Private intangible costs

Intangible costs usually refer to pain, suffering and loss of life to drug users themselves (private costs) and to their dependents or crime victims (social costs) (Single et al., 2003). Apart from collecting relevant information through qualitative interviews, following the New Zealand cost estimation exercise (Slack et al., 2009), this study attempts to "quantify" the intangible costs

[23] Yip, Assessing the Socioeconomic Costs of Drug Abuse in Hong Kong SAR. 2017, CSRA, HKU: Hong Kong, P.224. Estimation of costs in this study involves a lot of sub-estimates, thus the figure may not be equal to the dividend due to rounding error.

[24] The amounts of social costs are rounded to one decimal place. The total social tangible cost may not equal to the sum of individual items owing to rounding.

[25] Average calculated from the total private tangible cost from Yip et al. (2017), P.130 with 22,658 drug users.

through estimating the potential years of life lost (PYLL) due to premature deaths, and years of quality life lost among drug users (i.e. private costs). Similar to private tangible costs, the previous study does not have breakdown of private intangible costs incurred by drug users under 21. The team assumed the portion of intangible costs incurred by drug users under 21 is same as the portion of social tangible costs. By applying the same method of estimation and percentage, the amount of private intangible costs incurred by drug users under 21 in 2014 is HK$139,519[26] per drug user annually.

4.3 Social return and the ROI of HSP(DT)

The team attempted to estimate the cost reduction in drug abuse attributable to HSP(DT) among the youth population. For previous study "Assessing the Socioeconomic Costs of Drug Abuse in Hong Kong SAR" (Yip, 2017), a prevalence-based cost-of-illness (COI) approach to measure the socioeconomic costs of drug abuse in Hong Kong was adopted. In this study, the team will largely adhere to our previous study. The following table shows the breakdown of each estimated cost after adjustment:

Table 4.3.1 Cost of drug use in per user in 2014

	After adjustments (i.e. CRDA + hidden)
Cost of drug use in per user in 2014	**HK$**
Total social tangible cost (Under 21)	176,806[27]
Total private tangible cost (All ages)	65,229[28]
Total private intangible cost (All ages)	139,519[29]
Total cost	**381,555[30]**

No. of episode reduced during assessment period: 143

No. of episode reduced per year: 47.67[31]

[26] Average calculated from the total private intangible cost from Yip et al. (2017), P.130 with 22,658 drug users.
[27] Yip et al. (2017), P.224
[28] Average calculated from the total private tangible cost from Yip et al. (2017), P.130 with 22,658 drug users.
[29] Average calculated from the total private intangible cost from Yip et al. (2017), P.130 with 22,658 drug users.
[30] The amounts of individual costs are rounded to integer. The total cost may not equal to the sum of individual items owing to rounding.
[31] 142.6÷3≈47.67 (duration of three years in first assessment period)

Average cost saved per year: HK$18,187,443.37[32]

Social Returns

The total social tangible cost attributable to drug abuse per user in 2014 was estimated at HK$176,806. The total private tangible cost attributable to drug abuse per user was estimated at HK$65,229. Combining with the social tangible cost, the total tangible cost was estimated at HK$242,035. This study also quantified the private intangible cost of drug abuse per user. The associated total private intangible cost per user was estimated at HK$139,519. Combining social and private costs, tangible and intangible costs, the total cost of drug abuse per user in 2014 was estimated at HK$381,555. It is found HSP(DT) contributes nearly 143 reduction of episode throughout the first assessment period from 2011 to 2014. On average, approximately 47.67 reduction of episode per year are attributed to the impact of HSP(DT). Hence, the total average cost saved per year was estimated at HK$18,187,443.37[32].

Investment

The 'investment' component will be accounted by the actual spending to implement HSP(DT), which includes the cost on organizing anti-drug activities, performing school drug testing and providing supports to school. Starting from 2013/14 Funding Exercise, school can apply funding period for maximum 2 consecutive years. Thus, the actual spending of 2013/14 Funding Exercise also includes spending in 2014/15 school year, which will be taken out from the calculation. The amount of actual spending will be the difference between approved grant and outstanding commitments, via the following subtraction:

$$\text{Approved grant} - \text{outstanding commitment for HSP(DT)} = \text{Actual spending}$$

The financial figures of HSP(DT) obtained from BDFA financial reports are listed in table below:

Table 4.3.2 Summary of financial figure of HSP(DT)

Year of Funding Exercise	Approved Grant (HK$) [a]	Outstanding Commitments (HK$) [b]	Actual Spending (HK$) [a-b]
2011/12	15,525,883.00	2,391,282.23[33]	13,134,600.77

[32] The total cost of drug abuse per user is rounded to the nearest integer, thus the product may not be equal to the final estimates due to rounding error.

[33] Includes a grant of $411,375 to a project, which was withdrawn by the grantee in August 2012.

2012/13	15,811,980.00	1,001,797.12	14,810,182.88
2013/14	37,097,916.00	600,006.62	36,497,909.38
Total	68,435,779.00	3,993,085.97	64,442,693.03

Source: Narcotics Division

In the previous study conducted by Yip et al., the cost was calculated based on figures in 2014. To account the effect of inflation, the actual spending of School Year of 2011/12 and 2012/13 are adjusted with Adjusted Consumer Price Index (CPI) obtained from Census and Statistics Department[34]. Within the assessment period, the HSP(DT) received HK$49,526,734.74 of funding in total. The average investment per year was HK$16,508,911.58.

Details of the amount of investment for the assessment period before and adjusted by School Year are listed in table below:

Table 4.3.3 Summary of actual spending of HSP(DT)

School Year	Actual Spending (HK$)	CPI Adjusted (HK$)
2011/12	13,134,600.77	14,302,004.09
2012/13	14,810,182.88	15,402,590.20
2013/14	19,822,140.45[35]	19,822,140.45
Total	47,766,924.10	49,526,734.74

Total spending is HK$49,526,734.74

Average investment per year: HK$16,508,911.58

Social Return on Investment (SROI) of the HSP(DT)

Summing up the monetized social return generated from the HSP(DT) (i.e. the sum of social tangible costs, private tangible costs and private intangible costs), drug abuse total average cost reduction per year attributable to HSP(DT) was estimated at HK$18,187,443.37. Estimated

[34] Actual spending are adjusted with Adjusted Consumer Price Index (CPI) obtained from Census and Statistics Department. The CPI of 2012 and 2013 were 4.7% and 4.0% respectively.

[35] Out of the 63 schools applied for 2013/14 Funding Exercise, 54 schools applied for 2-year funding, and 9 schools applied for 1 year-funding. Among the schools applied for 2-year funding, 1 school withdrawn in 2014/15 School Year (Total (53x2)+10=116 school years). Thus, the average spending per school per year is HK$36,497,909.38÷116 = HK$314,637.15. The actual spending of those 63 schools in 2013/14 school year is calculated as HK$314,637.15 x 63 schools = HK$19,822,140.45.

Social Return on Investment (SROI) yielded from the HSP(DT) within the assessment period is 1.10. A SROI greater than 1 suggests a positive return. That is, the return is more than the total capital invested in the HSP(DT), i.e. the HSP(DT) with ROI of 1.10 indicates that for every $1 invested by the BDF, it is able to generate a total social return of $1.10. The detailed calculation is shown below:

Annualized ROI = Average cost saved per year / Average investment per year

= HK$ 18,187,443.37/ HK$ 16,508,911.58

= 1.10

4.4 Additional Cost-benefit analysis

The approach above is relatively conservative as the team only included so-called 'realized' social impact, the team believed that future cost reduction on drug abuse could be possible preventing or delaying drug use among the youth, and could potentially lead to a reduced drug use in the future. For this, the team conducted an additional cost and benefit analysis featuring life-time social returns estimation related to drug prevention programme for the youth. An extensive literature review was conducted to identify relevant activities or components synthesizing the costs in tackling drug abuse from both local and overseas experiences. Among these studies, multiple benefit estimation methods have been proposed and adopted in the identified studies of the drug-prevention programme. However, to estimate the amount of estimated return, the team relied on some assumptions. However, these assumptions are not currently substantiated by empirical evidence and are difficult to be ascertained due to lack of available data and existing research. The reader should make note of this. Details of the findings can be found in Appendix 3.2.

CHAPTER 5 Contextual Factors and Intervention Mechanisms affecting the impact of HSP(DT): A qualitative process evaluation

This chapter explored the policy process (policy implementation, i.e. the HSP(DT)) of the Healthy School Policy. The chapter is organized as follows. First, we categorized the activities by the objectives outlines from the proposals at the school level, and identified groups of schools based on the mix of the activities implemented. Then, the chapter made explicate the impact (policy outcome) in relation to the intervention mechanisms deployed and contextual factors which influenced the impact. This chapter provided an overarching overview of how HSP(DT) works.

5.1 Methods

Data Collection and Analysis

First, we studied a total of 524 activities from the 34 proposals from 2017/18 funding exercise, and the research team categorised the activities by their attributes. The ratio of each attribute was calculated for each school. A cluster analysis was performed to identify groups of schools, which has a similar programme design.

In addition, focus group research was carried out to explore the views on HSP(DT) among the NGOs, school principals, teachers and students. During the semi-structured interviews, participants were asked to share their views and opinions on their experience of participating in HSP(DT), including any perceived impacts. Special attention was given to unearth their subconscious perceived linkage between the direct impacts related to different activities, and drug use prevention.

The team recruited and interviewed school principals and teachers from 11 schools, students from 7 schools, and social workers from 8 NGOs. Both the SDT and ADP components were carried out in all schools whereas some NGOs only participated in one of the components. Student participants from each school were separated into two focus groups, whilst school principals and/or teachers from each school were interviewed in the same group, as well as social workers from each NGO. In total, 33 focus group interviews from 19 organizations were involved in this qualitative study. Details of the participated schools and NGOs are provided in Appendix 4.1.

5.2 Cluster Analysis on the Programme design

5.2.1 Categories of Activities

The HSP is an anti-drug program that is tailored made based on the need of each school. These customised programmes are designed with diversified activities in cooperation with the NGOs. The anti-drug activities consist of both internal or external activities, ranging from internal school talks to external rehabilitation centre's visits, targeting mainly students, but also the involvement of parents and the schools.

Stemming from the high diversity of activities selected from 93 different schools, 6 main categories are conceptualised from the wide range of activities. By identifying the main categories, this will help to identify the categories adopted by each school via cluster analysis, thus, further provide insights into how to improve the effectiveness of those specific activities for each school. The 6 categories are derived through categorising the attributes from each of the activities. For example, the implementation of drug-education seminars includes attributes of health and peer education, which then falls under the categories of knowledge. Accordingly, 6 main categories are devised including mental strength, knowledge, social skills, healthy alternatives, parental support and generic education.

<u>Mental Strength</u>

This category reflects the activities of HSP helps with the internal development of positive self-perception on one's self-image and ability. Mental strength includes self-esteem, ability to cope with stress and self-control. It is postulated that a stronger mental strength helps to build one's resilience to resist the temptation to engage in drug use. The improvement in self-esteem can be built by identifying own passion and potentials, thus, participating in interest classes such as latte art can help to develop more understanding of their own strengths. In addition, stress coping skills can also be acquired in outdoor activities including problem-solving challenges which allow students to learn practically through their first-hand experience. Finally, the disciplinary training camp has allowed students to learn how to self-control under rules and regulations. This serves as a pilot training into the real world with the idea to obey drugs regulations.

Knowledge

The category of knowledge consists of attributes of drug-related information (drug types and impacts), decision making under drug-related scenarios and refusal skills. Learning about drug-related knowledge is crucial since it is the starting point of behavioural change, supported by the Knowledge-Attitude-Behaviour model that knowledge directly affects attitude change and indirectly influences the behavioural change. The organisation of drug-educational talks and sharing from drug users have helped to reveal the reality to students about the types of drugs and the relative consequence of taking drugs. In addition, the scenario role-plays workshops also help to challenge students to make decisions based on dilemmas between curiosity and drug-taking. The Preventive Anti-Drug Education focuses specifically on the refusal skills training which equips students with more competence to refuse the temptation from peer pressure or engaging in drugs. A more lasting understanding of drug-related information reported by students reflects the effectiveness in delivering drug-related knowledge through role-plays and external visits due to the active participation of students in an interactive manner.

Social Skills

The acquisition of social skills refers to attributes such as communication, leadership and emotional management skills. Improving social skills can help students to express themselves better so that parents and the schools can know how to help with students' problems. In other words, better social skills help to build a more healthy and supportive support system so that students are less likely to turn to the wrong crowd to engage in drug-related activities. This is because the environment (i.e. social circle) is a crucial factor which acts as a protection and guidance measure to refrain students from making poor decisions. Participating in sports game has shown to help with building communication and leadership skills through team building. Through participating in outward bound helps to connect peers in school as well as build a sense of belonging to the school, hence, more social cohesion is achieved at school. Seminars and educational talks focusing on teaching emotional management and communication skill can further improve the effectiveness of expressing oneself, thus, better relationships can be built with teachers, parents and other peers. When there is a close relationship between students and within the school environment, the school then acts as a social support system for students to resist the temptation of drugs. In sum, the enhancement of a healthy support system via learning better social skills improve one's psychosocial competencies, hence, more capable to resist drug use.

Healthy Alternatives

Healthy alternatives are activities that keep students occupied, designed based on the identification of their passion, potential and interest. Instead of engaging in drug activities, healthy alternatives serve as a method to manage life stresses in a healthy way. The adoption of healthy alternatives allows students to work on their strengths and maximise their potentials which is beneficial to their self-development as well as career planning. Interest classes such as cake making, latte art and cooking classes have exposed students to learn technical working skills, hence, more prepared for the future working world. When students have found their own potentials and directions, this may build on their self-identity which make them better able to resist the drug.

Parental Support

Apart from students, supporting parents is an important element to build a protective environment for students. This is because a poor home environment can be a vulnerability factor for students to engage in drugs or hang out with the wrong crowd, thus, ensuring a healthy home environment can then acts as a guidance for students to get the support they need. Attributes of the parents support category include stress relief skills, communication skills and parenting skills to help students manage their emotions. Parents are invited to go to seminars that present ways to communicate more effectively with students. Talks are also given to parents on transferrable skills to manage their own stress as well as to guide students to cope with stress at home. Along with the support from the family, this made students realise the availability of home support system, thus, more capable to persevere a healthy lifestyle and resist drug use.

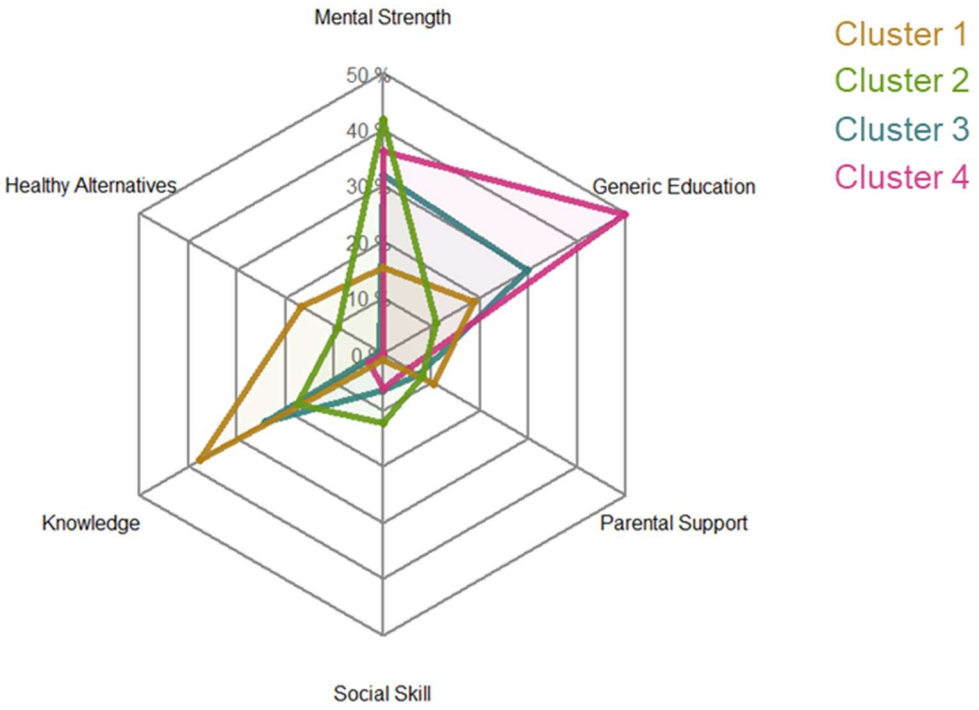
Generic Education

Generic education is the category where attributes are not directly related to drug information but are seen to be helpful in cultivating a healthy perception and behaviour among students. This includes body check, sex education, talks on bullying and law enforcement. The introduction of body checks is related to raising awareness about health, thus, promote a drug-free lifestyle to students. By organising talks on sex education and bullying, students are made to be aware of the social issues which help to enhance both their knowledge and guide them to make the right decisions in life. Regarding talks on law enforcement, it provides a reality check to students and their social responsibility in making a lawful decision such as refuse drug-taking activities. By being more educated on health information and their social responsibilities, students are then more prepared to make healthy decisions in life.

5.2.2 Clusters of the schools by the categories of activities

In order to evaluate the different programme designs, cluster analysis is performed. The participating schools with a similar programme design were grouped into 4 clusters as seen in **Fig 5.2.1**. Overall, the majority of schools adopted activities with attributes based on mental strength, generic education and knowledge attainment, whereas healthy alternatives, parental support and social skills training are less chosen. Summary of each cluster is provided in Appendix 4.2.

Fig 5.2.1 Clusters of the schools by their programme design



A distinctive difference is seen between Cluster 1 and 2 where the former is more knowledge-oriented (37.5%) and the latter focuses more on mental strength building (41.7%) of students. For Cluster 1, following knowledge, generic education is also preferred (18.8%), demonstrating the emphasis on the education of both drug-related and generic knowledge in this cluster. Schools in Cluster 2 also consider knowledge following the domination of mental strength building suggest a view on the importance of enhancing internal competence to resist drugs.

Similar programme design is found between Cluster 3 and 4 with most resources placed on activities on mental strength building and generic education. Particularly, Cluster 3 also recruits

more activities to enhance knowledge (24.0%) compared to Cluster 4 (2.8%) with the least engagement among the four clusters. In comparison to Cluster 1 and 2, little or no activities selected are based on healthy alternatives or parental support in Cluster 3 and 4, illustrating the preference on building individual competence more than external protective environment.

Since the area of focus in this study is on the impact of the HSP(DT) at the policy level, the research team did not examine the differences in the impact of each Cluster. However, behavioural change among students after participated in activities under the HSP(DT) could be identified during the focus group interviews via the Knowledge-Attitude-Behaviour (KAB) model. The KAB model is proposed to evaluate behavioural changes by explaining the role of knowledge, and its interaction with attitude and behaviours [36], thus, providing a more comprehensive reflection of the perceived impact on the schools and students on multiple levels seen in Appendix 4.3.

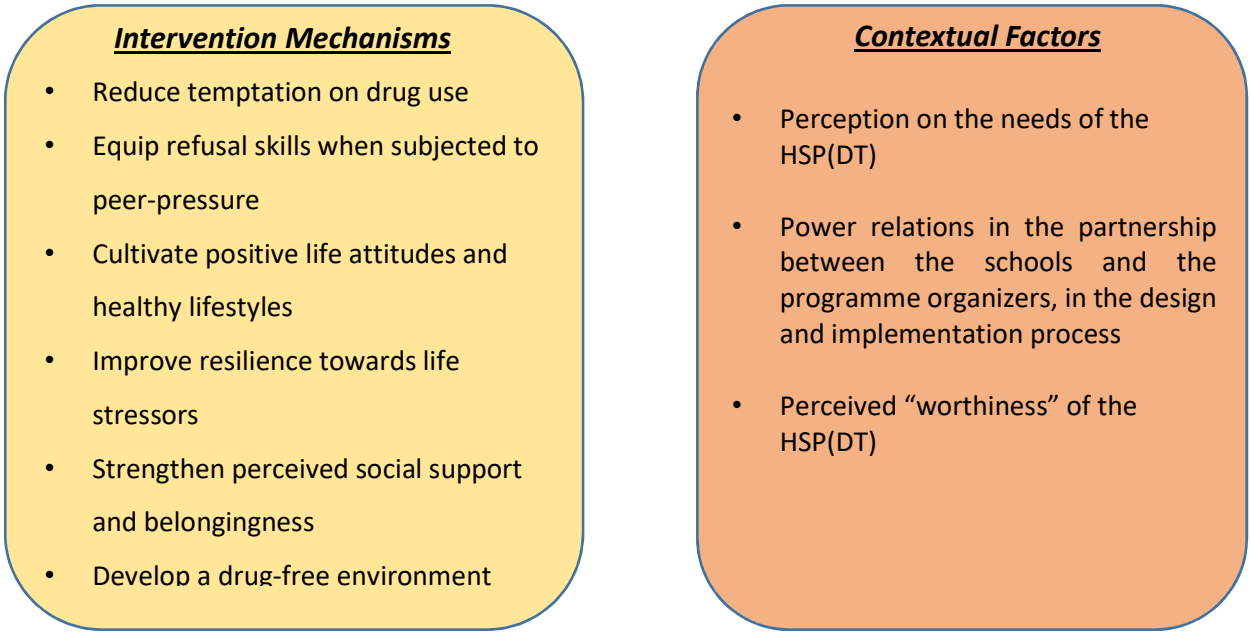
Suggestion on Future Research

The results on the cluster analysis can be used in evaluating the impact of HSP(DT) by comparing the different programme designs. Accordingly, through identifying the 6 categories from the activities, future research is suggested to evaluate the effectiveness of the HSP(DT) by the behaviour changes based on the programme designs from the 4 main clusters. This will further help to illustrate the direct interaction between attributes of the activities to the effectiveness in the reduction of drug use among the students.

[36] See Kemm J, Close A. (1995) Health promotion: Theory & practice: Palgrave

5.3 Findings on the implementation based on a Context-Mechanism-Outcome configuration

Fig 5.3 Exploring the implementation of HSP(DT) based on a Context-Mechanism-Outcome configuration



5.3.1 Perceived impacts of intervention Mechanisms

The present findings revealed that there are some inconsistencies between the expected impact from NGOs and teachers as seen in their proposals, and the actual perceived impacts from students. Among the actual perceived impacts, informants also reported diversified opinions. In particular, it was observed that different mechanisms have led to different outcomes that may or may not achieve policy objectives.

Enhancing their knowledge and skills in resisting temptations

One of the most effective and direct methods to minimise the risk factors for drug-use behaviours is to reduce students' curiosity about drugs by increasing their drug-related knowledge and this was reported to be achieved through preventive anti-drug education activities in the ADP component. Social workers and teachers had mixed opinions on the perceived effectiveness of preventive anti-drug education on deterrence of drug use. They observed that students were moved by the heartfelt sharing from former drug users about

their experiences. By listening to their stories, social workers reported that the students gained new and more realistic perspectives on drugs and became more aware of their own emotional state in order to reduce temptation on drug use. Teachers and social workers also observed that students' resolve to resist drug use was enhanced as they acquired drug-related knowledge from experts. Others, however, did not recognise the effect of knowledge-based education on deterrence, and postulated that it did not lead to any behavioural changes. They believed that cultivating positive values, improving interpersonal skills and resilience are far more important than knowledge input in resisting drugs.

> *"Nowadays, adolescents' knowledge about drugs is limited and this can lead to heightened curiosity and low alertness towards drugs, hence increasing the risk factors for drug use. United Nations have also pointed out that drug knowledge is a form of basic knowledge. Therefore, instilling drug-related knowledge has a high chance of reducing temptation on drug use."* (#N15; NGO)

> *"We invited some former drug addicts to share their experiences and we observed that this has made a great impact on our students. They have come to realise that this is not something that only happens in the movies and are now aware of the potential negative effects of drugs."* (#S7; teacher)

> *"The students may not choose to listen because it only stays at the level of head knowledge. They might not take it seriously and I doubt if it causes any behavioural change."* (#S6; teacher)

Students agreed that preventive anti-drug education activities were successful in enhancing their skills and capability in coping with situations that prone drug use to a certain extent. They explained that these programmes had increased their knowledge on differentiating different types of drugs, the negative effects, social and legal consequences of drug-use which had helped them with the process of weighing up pros and cons of drug-taking behaviour. The programmes also reduced their curiosity in general and thus strengthening their resolve to stay away from it. It was reported that talks from former drug addicts produced the most significant deterrence of drug use because they stood out

as truthful accounts of how drugs can influence one's life and gave students a chance to put themselves in their shoes, hence increasing their alertness towards it. Introducing real-life scenarios and possible situations also provided students with a mental preparation of how to practically protect themselves and resist the temptation when they encounter similar experiences later in life.

> *"I got to know more about the negative effects of drugs, including what is going to happen in prison. This has deepened my understanding of drugs on different levels!"* (#S3; students)

> *"The lady shared about her experiences after taking drugs. I realise that this is something that can actually happen in real life and I will make sure I will stay away from it."* (#S1; students)

> *"During the talks, we learned about the examples of the locations where adolescents are usually being asked to traffic drugs for the dealers, such as parks and back alleys."* (#S4; students)

However, out of different ways of delivering the anti-drug message, some students found these educational talks to be boring, repetitive or irrelevant. It put the majority of students to sleep, making it difficult to get the message across and scaling down the effect of reducing temptation on drug use. On the other hand, students reported that they engaged more in drama performances, war games, carnival games and visits in which they expressed that these experiences were more memorable and had a lasting impact on their understanding and insight towards drugs.

> *"They were reporting the statistics on drug use which is actually irrelevant to us but we were forced to listen. Therefore, many people were falling asleep."* (#S2; students)

> *"I guess students are more interested in games. These activities also make a more lasting memory."* (#S1; students)

> *"It made a lasting impression because we experienced how it was like to be handcuffed in court and we actually lied on the bed in a correctional institution. I will now beware of violating the law."* (#S4; students)

Apart from head knowledge, social workers and teachers suggested that it is equally important to equip students with refusal skills. NGOs organized talks or seminars in which social workers provided direct and effective methods to say no to drugs when subjected to peer-pressure. They also designed programmes to enhance transferrable skills including communication and interpersonal skills which were believed to be useful in resisting drugs.

> *"We talked about situations of making friends online and news that were reported in the past. Social workers also taught them a lot of tips and tricks on how to say no."* (#S7; teacher)

> *"We have seen changes in students after participating in these activities. They have become more confident and more willing to step out and talk to different people."* (#N15; NGO)

Students reported that these programmes, including camping, leadership training, volunteering and interest courses, provided opportunities for the students to interact with schoolmates from different forms and even members from different sectors of the society. They had learned to adjust their communication style according to the group of people that they talk to, to speak with clarity and confidence and to maintain appropriate boundaries with one another. These skills that students gained through the programmes can help them communicate their thoughts effectively with different people, even when facing oppositions.

> *"I used to be very timid in the past. But the leadership training programme helped me to become more confident in chatting with different people and to understand different ways of communication."* (#S2; student)

> *"I have learned to get along with the elderly and be more patient with them… we have to speak louder and in more details when we want to explain something."* (#S6; student)

Developing positive life attitudes and values

The interviews revealed that both schools and NGOs believed that having a healthy mindset, a good sense of judgment and being a responsible person with positive life attitudes are crucial in helping a person in resisting drugs. Accordingly, programme designers organized talks that advocate positive thinking and resilience, lectures on treasuring freedom and time, and workshops on stress relief methods and decision-making skills under the ADP component.

> *"After discussing with the school, we agree that, instead of directly telling pupils what they should do or what they should avoid, it would be far more effective to take a step back and work on building the fundamental core values in them, for example, in becoming a responsible person, developing stronger discernment skills and a good morale, learning about the value of freedom etc."* (#N17; NGO)

Students reported that these activities had helped them to view things from a more positive perspective and they could put the stress-relief techniques into practice when facing challenges, reducing the urge to take drugs as an escape. They also became more aware of the boundaries of making friends after listening to the talks about trust which helped them build healthier relationships with peers. One student even confessed that he used to consider smoking tobacco and taking drugs as 'cool', but after these programmes, he realised how unwise these actions were and decided to stay away from it and cherish the life and time that he was given. However, some students reported that these programmes did not help much because they fell asleep during them.

> *"We were taught to think twice before making any decisions and this can be applied to friendships; there are lots of ways to make friends and you never know when they are going to betray you. The talk emphasized*

on slowly building trust instead of blindly believing in anyone before getting to know them." (#S7; student)

"I used to think that it was cool to smoke and take drugs. I even got paid for beating people up so I was really enjoying my life! But after attending the talks I have realised how foolish I was and I will treasure the time and my life from now on." (#S3; student)

"I honestly can't recall what I've learned… I started falling asleep ten minutes into the talks." (#S5; student)

Apart from talks and seminars, a variety of leadership training, adventure programmes, alongside with the regular interest classes and volunteering activities, were reported to cultivate positive life attitudes and values that can be applied to everyday life. For instance, students pointed out that the training in latte art workshops had an impact in improving their work ethics and volunteering activities emphasised the importance of helping others. However, some students reported that they did not enjoy the reflection sessions after these programme set by teachers and social workers, who believed that these were able to consolidate the values instilled in students.

"Latte art requires lots of steps and each step will directly affect the end product. Therefore, I have learned to be more dedicated, focused and pay more attention to details to get a better end result. This mentality can be applied to other areas of life." (#S3; student)

"We have learnt the importance of helping people in need through volunteering." (#S6; student)

"I never attend those reflection sessions… Every time we have to write our feelings and reflection after each activity it is actually quite annoying." (#S7; student)

Programme designers believed that higher self-esteem buffers the negative effects at times of challenges and reduces students' tendency to engage in drug-taking behaviour. Therefore, schools and NGOs reported activities aiming to improve students' sense of

worth through adventurous activities, extra-curricular activities and opportunities to organize events. Through these, schools and NGOs found that students gained more understanding about their strengths and came to realise that they are someone of value. As a result, students had more confidence to say no to the activities they did not want to engage in. Teachers and NGOs reported providing healthy alternatives for students to engage in and that these activities helped to foster positive affirmation to one's performance and enhance their self-image.

> *"Our students have very low self-image and they don't have any goals in life. As they feel lost, there is a higher chance for them to wander in the streets and seek validations from friends they meet, increasing the risk to take drugs. Therefore, through these activities, for example, organizing a big event or competing in eSports tournaments, we are aiming to give them more affirmation and help them realise that they can actually contribute to the school and that they are someone of great value. As they know their worth and have a goal that they want to achieve, they can be more confident in themselves and reject the activities that are detrimental to them."* (#S3; teacher)

Even though student informants did not make the link between the activities and reducing risk for drug use, they did provide an overall positive feedback, stating that the activities in HSP(DT) helped to enhance their self-esteem.

> *"It really gives me a sense of accomplishment. I realise that I'm no worse than others."* (#S1; student)

Schools and NGOs believed that improving students' future orientation is an important aspect that prevents students from taking drugs. They reported that a clearer direction in life helps enhance their life meaning and as a consequence, reduce the chance of taking drugs. Therefore, career and life planning programmes were conducted for students to plan and think about their future. With some activities targeting to equip students with specific practical skills, programme designers believed that it is one way to promote a clearer life direction to students.

> *"Instead of telling them what to do, these activities provided opportunities for the students to think about their future orientation and planning; as some students are used to being spoon-fed at school, we would like to make them think more on this matter."* (#N17; NGO)

> *"At first, we thought that these activities could build up their perseverance, but as time goes on some students have even found their career prospect and would like to become hiking coaches in the future. They are now working part-time at the organization."* (#S5; teacher)

The responses from students were in accord with the perceived impacts of the teachers and social workers that their future orientation had been enhanced. Student informants felt that the programmes of HSP(DT) equipped them with skills that might be useful for their career path. They also had more insights about planning for the future and became more responsible in every decision they make. With a more positive mindset about the future, it was believed that their likelihood to engage in drug-taking behaviours was reduced.

> *"We learned about different career paths and I even got to experience a taste of some occupations, including the life of baristas, Youtubers and pet shop workers! It has given me great insights."* (#S4; students)

> *"Without this activity I would not have discovered my passion and my career prospect. It helped me to get the part-time job that I have and also with gaining a professional license."* (#S5; student)

Cultivating healthy lifestyles

The interviews revealed that social worker, teacher and student informants all perceived that a number of activities in ADP were able to achieve this objective.

Teachers believed that cultivating a healthy lifestyle must start with awareness-raising actions, as they are recognised as the beginning of change. One of these actions is to provide a variety of health body checks for students, such as BMI check and pulmonary

function test, giving students the opportunity to understand the healthy standard of different indicators, to examine their own physical conditions and to become aware of the particular aspects that they could improve to live a healthier life. Further, other programme designers emphasized the importance of infusing drug knowledge into the health test so that students could understand how their health can possibly be affected by drug usage in a range of aspects. It was important to take this opportunity to clarify any misconceptions related to health and drug use in person.

> *"We conducted a health test programme for all F.1 students so that they are now aware of their health conditions and in what particular aspects they should pay more attention on based on their test scores."* (#S7; teacher)

> *"For example, we can clarity the misconceptions around how the usage of ice can help people lose weight when students get their BMI scores, and as they get their pulmonary function results we can talk about how smoking tobacco lowers lung capacity. Because students are very concerned with their personal scores, this is the perfect opportunity to tie it back to substance abuse information while we had their attention."* (#N19 NGO)

Students agreed that there was a perceived positive impact of these health checks in terms of raising awareness about their own body conditions; during the process, however, students revealed that service operators did not provide any further knowledge on how to cultivate a healthy lifestyle.

> *"The BMI test can check if we overindulge ourselves in unhealthy food."* (#S7; student)

> *(Did they pass on any knowledge to you?) They simply asked us to complete the tests and did not tell us anything apart from that."* (#S7; student)

Programme designers recognised educational health talks as a gateway to improving students' cognitive understanding about health on a large scale within a limited time.

> *"The simplest way to promote health knowledge to all students is to organize educational health talks."* (#N14C; NGO)

Some students acknowledged that these talks have enhanced their understanding on cultivating a healthy lifestyle, especially on their personal choice of diet. Yet, other students commented that these educational talks were not appealing nor engaging to them, and that the majority did not pay attention to the speaker, leading to a minimal impact on increasing health knowledge.

> *"Our school has organized many talks about health… For example, there was one about healthy diet… These talks have deepened my understanding towards what I need to avoid to live a healthy lifestyle."* (#S1; student)

> *"Someone from the Department of Health came and gave a presentation in such a monotonous voice, putting the majority of us to sleep, including me."* (#S6; student)

On the other hand, interviews revealed that interest courses, under the spectrum of skill training and life experiences, contributed to a major part in cultivating a consistent healthy lifestyle for students. Programme designers, teachers and students perceived that joining a regular activity, especially a competitive sport could occupy time after school and during weekends. This was particularly beneficial in framing a regular sleep schedule and a disciplined lifestyle. Being dedicated to a hobby with a group of peers can also reduce the risk of meeting other peers who may bring negative influences and hence the risk of developing an unhealthy habit. In addition, those who competed in sports would also pay more attention to their physical health and therefore are more likely to choose actions that would improve their performance instead of actions that are detrimental to their health, including drug usage. Overall, interviewees from different positions all reported that participating in a regular activity, especially sports can improve students' physical and mental wellbeing and reduce the risk of drug use.

> *"The trainings usually last from 4pm to 6pm during weekdays, with extra competitions during the weekends. It is noticeable that their risk*

to take drugs is reduced as they are occupied with such regular healthy activities" (#S3; teacher)

"I'm always busy and occupied. We are also reminded to sleep early and to have a more disciplined schedule. This has definitely stopped us from taking drugs at night!" (#S1; student)

Another attempt to cultivate a healthy lifestyle for students was to encourage students to join the health ambassador programme as organised by the schools/NGOs themselves. Some programme designers perceived that students who took on the role of health ambassadors became role models that were able to pass on the knowledge to those who were in the lower forms and those who were relatively less healthy, shifting the school culture towards the healthier side of the spectrum. However, others perceived that this programme only focused on students who were already considered as healthy instead of those who were in the high-risk group that were prone to drug use. Student informants did not mention about the programme during the interviews because the programme was not introduced in those schools. (One school did provide training for mental health first aid ambassadors but the student informants did not participate in the programme.)

"The effectiveness of the health ambassador programme is limited because in order to become a health ambassador you have to be fit, and this is not the group that we are targeting at." (#N13; NGO)

Improving resilience towards life stressors

Teachers and social workers believed that one of the risk factors of drug-use behaviour is the poor ability in facing life stressors. They suggested that, if individuals are not able to cope with the challenges they encounter, it increases their risk of resorting to drug use as an escape. Teachers observed that some of the activities of HSP(DT) including interest courses, camping and adventure programmes provided experiences for students that increased their perseverance and resilience towards life stressors. For example, students who participated in a competitive sport such as cycling competitions and eSports tournaments had regular training which occupied a lot of time and dedication over a long period of time. However, their passion and goals had motivated them to overcome various challenges. Teachers also observed that those team members applied this mentality to

other aspects in life, including academic challenges, where they became more proactive and worked harder towards their goals instead of giving up, reducing the risk of drug use.

> *"Those who are in the cycling team always show up at school on time no matter how exhausted they are from their trainings. You can tell that they have become more resilient during the process."* (#S3; teacher)

> *"We also organized activities that enhance students' resilience, including various adventure programmes."* (#S6; teacher)

The fact that student informants did not mention any interest courses that improved their resilience towards life stressors during the interviews may suggest that only a small number of students participated in such activities that required rigorous training described by teachers. However, students reported that resilience was developed through activities including camping and adventure programmes. Encountering challenges during these activities and being able to overcome it with encouragement from leaders and peers gave them the confidence to face other life stressors in an appropriate way even when it may seem difficult, thereby increasing their perseverance. It also expanded their capacity in adapting to different situations as these activities gave them more exposure to step out of their comfort zone.

> *"These adventure programmes have pushed me out of my comfort zone and helped me to face other challenges and adapt to unexpected changes. I have now become more resilient when facing academic challenges."* (#S1; student)

Strengthening perceived social support and belongingness

Schools and NGOs recognised social support as a valuable resource to students' resilience in times of difficulties. Thus, a variety of activities were aimed at improving students' relationship with friends, teachers and families and fostering a greater sense of belonging to school in order to enhance the social support of students. By this, teachers and social workers believed that students could look for more appropriate solutions from their social support group instead of taking drugs to withdraw from stressful situations. They also

presumed that having solid and healthy social support at school can prevent youth from having to take drugs in order to make friends.

> *"Of course they know what is right or wrong. But when you are vulnerable and have a lack of social support, you will be easily wavered by temptations."* (#S6; teacher)

> *"You know how most of the time people give in to drugs due to peer pressure… therefore, we aim to strengthen their social circle in a healthy way."* (#S6; teacher)

Teachers and social workers believed that school is a safe environment that prevents students from exposing to drugs. Therefore, instead of simply providing students with lots of activities to occupy their time, they intentionally designed activities that enhanced their school engagement. For example, NGOs specifically designed programmes which provide opportunities for students to use the skills that they learnt during interest courses to contribute to the school, such as using the techniques they learnt in latte art workshops or performing a music piece that they learnt in band practice during school open days. This had given students a strong sense that they were an important part of the school. They believed that with students being more engaged at school, their chance to be exposed to drugs would be reduced.

> *"The suggestions we have for schools is that, for interest courses, we hope that the skills they gain can be used to contribute to the school. For example, students can use their barista skills during open days for the teachers and parents. This will improve their sense of belonging to school and consolidate their identity as a useful member, thereby increasing their resilience."*
> (#N12; NGO)

> *"We provided opportunities for students to perform at school and outside school. Because they are contributing to the school and serving their students, we observe an increased self-esteem and sense of belonging to school."* (#S4; teacher)

Having more opportunities to interact with students of different forms during the activities of HSP(DT) including camping, interest courses, competition, adventure and leadership programmes, teachers observed a significant difference in students. Teachers observed that, once students felt more belonged to school through more interaction during different activities, they behaved better and became more willing to stay at school.

> *"I have been the extra-curricular activities department head for over ten years and I observe that during the period where a lot of activities are going on, students put more energy into participating at school and develop a stronger sense of belonging. They start to behave better and as they spend more time at school, they are less likely to encounter friends outside school that bring negative influences."* (#S1; teacher)

In the same way, student informants perceived an expanded social circle and increased social support and school engagement. Participating in different activities introduced more topics for students to communicate, and through receiving support from coach or classmates during adventure programmes and competitions, the bonding and trust among classmates and teachers had been strengthened. Students perceived the importance of the close bonding within school because it provided more chances for them to watch out for each other and support one another in times of hardship and difficulties, reducing the temptation on drug use that temporarily alleviates stress.

> *"Through spending 2 days and one night with my classmates we got to know each other in a deeper way and our relationship has improved. We had amazing team spirit especially during the games session."* (#S6; student)

> *"The HSP(DT) activities have introduced a lot more common topics for us to communicate and opportunities to share our feelings with one another, the whole atmosphere at school has got better ever since."* (#S3; student)

> *"More frequent communication allows us to pass on knowledge and positive attitudes to people. When we have the knowledge we will*

not attempt to do illegal things and we will watch out for one another." (#S5; student)

"There was one time when the organizer asked us to role play as someone who was pressured to take drugs and many of us responded with enthusiastic reactions. Some of us said that, 'hey, drugs are bad for you, please don't take it. I will walk with you', or 'I can refer some help if you need it', creating a healthy school atmosphere." (#S1; student)

"As our social bonding improves, we can share our negative emotions and burden to our friends instead of turning to some bad habits." (#S5; student)

Schools and NGOs were aware that strengthening belongingness to family is also crucial in reducing the temptation on drug use for youths. They organized workshops and talks to raise awareness on the needs of students and equipped parents with ways to improve their parenting skills to strengthen bonding within the family. Some teachers and programme designers perceived that parents found the workshops useful. However, despite the amount of attention schools placed on parent support, other teachers and social workers expressed immense difficulty in providing parent support due to their poor attendance. Many parents were busy at work or had to spend time taking care of younger children, leaving no capacity to focus on elder siblings. Nonetheless, teachers reported that students whose parents were more involved in these events displayed greater maturity due to greater family support.

"So the talk was about communication with youth. We believe that if parents know how to communicate with their children the risk of drug use will be reduced. Parents agree with this vision and are satisfied with the workshop." (#S2; teacher)

"Our school, especially our principal, sees the need and urgency to provide parent support. However, this is also one of the biggest challenges because the parents do not see the importance of it." (#N12; NGO)

> *"We have tried our best to ask the parents to come to school and listen to our talks. Unfortunately, most of them are busy and did not make it to these events. It is such a pity because we can observe the difference between students whose parents came and those who did not.* (#S3; teacher)

When asked about parent support, student informants expressed that they were unaware of these activities. This may suggest that their communication at home was not as good as expected and that parent support may not be effective due to the challenges they encounter.

> *"(Any parental activities?) Not sure about activities for parents."*
> (#S7; student)

In sum, there was an overall perception from different stakeholders that the vast range of activities in HSP(DT) was able to strengthen students' sense of belonging to school but not to families. They recognised the importance of social support at school and in families in combating temptation to drug use.

Enhancing the determination of non-drug users to stay away from drugs and the detection of early drug users

Informants had diversified opinions on the impact HSP(DT) had on enhancing the determination of non-drug users to stay away from drugs. Many programme organizers from NGOs perceived that SDT was able to promote awareness and create a drug-free atmosphere; as students understood the explicit intention of school in drug prevention and detection through the official action, it amplified their overall alertness towards it, hence increasing the deterrence of drug use. However, others did not agree with the impact of deterrence due to the voluntary participation element of SDT. Because students were allowed to withdraw from drug testing anytime, it would not stop them from taking drugs as they knew they could get away with it. Nonetheless, some social workers believed that the requirement of parents' consent provides a communication opportunity with their children and reduces their tendency to refuse to participate in SDT. Some however argued that the design of random selection could not leave a significant impression of drug

deterrence because only a small number of students were able to experience the process of SDT.

Some teachers and students agreed that SDT was able to deter drug use by serving as an obligatory gesture and stressing the message that the school was serious with the issue of drug usage. They also believed that this component had become an effective tool for refusal when subjected to peer pressures for drug use.

A number of students acknowledged the positive impact of SDT component on developing a drug-free environment as every student had to sign the consent form and there was a possibility for every student to be selected for testing. Some feared that if they did not consent, it would raise suspicion from teachers or social workers that they might be taking drugs. Once they signed the consent, the possibility of being selected for SDT was able to deter them away from drug use.

However, others expressed that drug deterrence was not effective since SDT is voluntary based. Some students refused participation in SDT because they thought that urine testing was embarrassing or they did not want people to cut their hair, others did not prefer to wake up extra early on a Saturday, or they simply thought that there was not a need for it because they knew they did not take drugs. These informants did not perceive the SDT appeared to have the effect of drug deterrence.

Apart from being a symbolic gesture, some also expected SDT component to enhance detection for early drug users. Some students expressed that, because having a positive result in SDT would not lead to any legal consequences, they agreed that in principle, it provides a channel for drug users to seek help. However, informants from programme organizers, representatives from schools and students in general revealed that SDT could not achieve this objective. They explained that those who are taking drugs would normally not sign the consent form for participation, so in practice, SDT is unlikely a means for early detection and further referral mechanisms.

> *"We knew that no one will be detected once they've announced that it is going to be voluntary. The high-risk students would not take the risk."*
> (#S1; Teacher)

"It is more effective in sending a message than in detecting any drug users." (#S4; Teacher)

"I personally think that the SDT component is good due to its voluntary nature. If some drug users are afraid of the legal consequences or telling their parents, they might take the initiative to be tested so that they can have access to help from organizations." (#S2; Student)

In sum, most activities in HSP(DT) targeted at reducing the possible risk factors that cause drug-taking behaviours. Because of the high flexibility element of the programme, it is important to review the activities and observe whether each activity can be tied to the drug prevention aspect. From the focus group interviews, the majority of students reported similar impacts as highlighted by the programme designers. Whilst there is room for improvement for some activities to enhance student engagement, it is confirmed that the programme has achieved most of its objectives in improving students' knowledge, attitudes and behaviours in preventing drug use.

"The flexibility of HSP(DT) is so great, therefore we have to be aware of whether the students can actually receive the anti-drug message." (#N18; NGO)

5.3.2 Perceived impacts of contextual factors

Interviews with teachers and NGOs revealed a few contextual factors that influenced the outcome of HSP(DT); these factors were reviewed and summarised into three main contextual aspects that affected the impacts of HSP(DT).

The level of perceived needs of HSP(DT) for students

Among stakeholders from school, including principal and teachers, a wide perception of the need for HSP(DT) from students was observed. Some of the stakeholders recognized that their students were at risk of drug use and acknowledged the need for HSPT(DT) in

tackling the drug issue. Others perceived that HSP(DT) can give the students the exposure they needed to build up a healthy lifestyle and a healthy school atmosphere. Whether the school acknowledged the need of HSP(DT) in tackling the drug issue at school seemed to have influence on the level of impact it potentially had on students. For schools with greater motivation and effort in making sure that HSP(DT) was being implemented to its full extent, it was noticed that these were usually the schools that recognized their students' risk of drug use. For schools that did not recognize the need to protect students from drugs or believed that students already had sufficient exposure without HSP(DT), social workers reported that the purpose of the programme was usually reduced to merely executing extra-curricular activities, rather than targeting on drug prevention.

> *"At first, our school saw the need to help students in Tai Po District, as the drug issue was quite serious. We became the pioneer in school drug testing programme." (#S6; teacher)*

> *"The school did not see a need for their students to engage in any activities related to drug prevention because they do not think that their students are at risk of drug use. Accordingly, they wouldn't care about what types of activities are being carried out. The school itself did not have much extra-curricular activity going on, so as long as there is something organized by the NGO it is already considered as acceptable. Therefore, the activities are not really targeting on drug issues."* (#N13; NGO)

One powerful driving force observed was principal support. The principal is the major leader of the school who makes important decisions and sets the climate of the school. Interviews revealed that principal's endorsement on the programme helped motivate staff and students to participate in the programme, as well as maintaining focus and ensuring follow-through by implementers.

> *"We approach the school and introduce HSP(DT) to them. Principal agrees to join after our presentation. The principal has great interest to foster a health school environment."* (#N17 on #S4; NGO)

> *"Principal discussed with the teachers about the possibility to utilise the resources from HSP(DT). Teachers agree that the programme is beneficial to the students as it is voluntary basis."* (#S3; teacher)

> *"When we first joined HSP(DT), the principal consulted a lot of people about what kind of activities should be implemented under HSP(DT)."* (#S9; teacher)

Interviews exhibited that school's perception of students' needs was important because it affected how engaging they were in the design, implementation and reviewing process; which brings us to the next point: the partnership between school and NGO.

Co-involvement between the schools and service providers in the phase of programme design and delivery

The collaborative knowledge between schools and NGO was reported to be important in determining the level of impact of HSP(DT). On the whole, schools are able to provide school knowledge, including preference and needs of students, the prime time for different kinds of activities for the students and logistics, whereas NGOs can provide their professional intervention knowledge. Comments from social workers and teachers highlighted that knowledge from both parties are important in designing programmes that are tailor-made to the specific needs of students and effective in reducing risk factors for drug-taking behaviour.

> *"Why would the school prefer the programme to be school-based? Previously, the NGO used the same approach for 4 different schools with different banding and characteristics and it didn't work well. Therefore, the principals prefer programmes that are specially designed to suit their own need."* (#N17 on #S4; NGO)

Social workers explained that trust and communication between school and NGO were important in programme design and debriefing process. NGOs perceived trust from schools when they were given the autonomy to design the programme. This way, social workers

suggested that they could deliver programmes that were more suitable for the needs of the students with the adaptations catered to the concerns raised by schools after communication. On the other hand, some social workers reported that their partner schools did not trust the service providers; and at the same time, a lack of communication and a relatively trivial impact on the students brought about by the activities were observed, suggesting that there may be a relationship between the level of trust and communication and the level of impact in achieving the policy objectives.

> *"It would be ideal if the school can work with an organization that they trust. If that's the case the school could hand over the high-risk students to the organization so the social workers can provide the students with specific activities that they can engage in."* (#N13; NGO)

> *"Our teachers will plan future activities for HSP(DT) together with 4-5 suggestions. We will then discuss with the NGO to see if there are available resources or suggestions for those ideas."* (#S3; teacher)

The lack of communication in the co-designing process of the programme observed may be created by the impression of power imbalance. Commonly, schools take on the proactive role as they are the ones who made the decision on how to use the funding from BDF, whereas NGO takes on the passive role as a service provider. Even though NGOs had their knowledge and skills, some schools did not allow the space for them to raise any questions regarding the design of the programme. This potentially created a major problem because the activities chosen may not be a proven intervention and tailored to specific needs in tackling drug issue. It was also difficult to assess whether the programme was designed based on school's preference or the actual needs of the students.

> *"Both schools that we worked with simply randomly picked out a few activities for us to carry out without taking in our suggestions. We are now simply trying to meet the needs of the school instead of the needs of the students."* (#N13; NGO)

"It would be better to design and carry out the activities on our own. We know our students better and it is also easier to communicate with the people we know." (#S11; teacher)

Teachers are important key opinion leaders on campus, and their role in promoting and supporting the programme was reported to be important during the interviews. They provided additional manpower and knowledge for service providers to implement the programme. For schools with teachers that were more involved in the design and implementation of HSP(DT), students reported greater impact in building a healthier lifestyle.

"Teachers are involved in organizing activities. Different kinds of activities require teachers from different aspects, including counselling, academic development, extra-curricular activities or leadership training, etc." (#N17; NGO)

"During the camp, we utilized full force to support the students. Class master/mistress and principal visited the students every day. This is what we called, the whole-school approach." (#S1; teacher)

"The workload of teacher has increased. They realize their participation is key to motivating students to join the activities. Teachers take on the role to lead the students and bring them to competitions which often happen during weekends, where teachers will bring their own family with them." (#S3; teacher)

However, some schools did not even have a committee to follow through the programme and they simply handed over the responsibility to social workers to deliver it after they picked out the activities. In these schools, a lower impact in drug prevention and cultivating a healthy lifestyle was reported. Thus, it was suggested that there may be a correlation between teachers' level of involvement towards the programme and the level of impact on drug prevention and holistic growth of the students.

"We don't have a particular committee to follow through HSP(DT). If they have any questions they will directly contact me."

(#S11; teacher)

Apart from design and implementation, social workers revealed that teachers' opinion was also crucial in the reviewing process. Their observation of students provided valuable insight to what worked and what did not with the activities. With in-depth discussion between schools and NGOs, the programme can be revised to a better version that caters to the needs of the students.

> *"We had discussions with the teachers after the first semester and reflected on what we can improve to reduce the risk of drug use for students. If the themes were not relevant, or if something did not work, then we would cancel the activity. Teachers' opinions are important in the process."* (#N13; NGO)

Perceived impact of HSP(DT) in drug prevention and early drug-use detection

From the interviews, diversified opinions were collected from teachers and social workers on whether HSP(DT) was able to improve the atmosphere and norm on campus. For schools that believed that HSP(DT) can help promote healthy lifestyles and deterrence of drug use, it was more likely that teachers would encourage students to participate in the programme. This greater enthusiasm in tackling drug issue was also observed along with better quality in programme delivery and an increased student engagement in the activities.

> *"There is no resistance among teachers, and they appreciate HSP(DT) provides resource to help the students."* (#S3; teacher)

On the other hand, it was reported that low belief in the effectiveness of the programme led to minimal encouragement for the students to participate in it. Some teachers believed that their students have already had the exposure even before HSP(DT) and that the programme would not add to any value in drug prevention, thus, it was not worth putting in any extra effort to improve the activities. Other teachers simply focused on getting the job done instead of ensuring that there would be a long-lasting impact on drug prevention. For these cases, social workers and teachers did not report seeing any significant difference before and after HSP(DT). Hence, it is proposed to highlight to the schools about

the quality of HSP(DT) that lead to a perceived impact of the programme in promoting a drug-free and healthy environment at school.

> *"I only treat it as a game for our students so I find it acceptable as long as someone is maintaining the programme. I honestly do not think there would be any huge impact on becoming a healthy school so we never push the students into joining it. The social workers are taking care of those who are close to them and we support them. We just never intervene."* (#S11; teacher)

> *"Some schools have a different vision with the funding so the cooperation with us would be challenging. Some of them only considered it as an activity and simply wanted someone to implement it for them."* (#N13; NGO)

> *"To see a great impact, you have to put a lot of effort into it. However, our students are already busy with their own work and I don't think our programmes are gimmicky enough to attract students' attention. This is a challenging task that requires a lot of effort."* (#S11; teacher)

5.4 Chapter Summary

From the interviews, the team observed an overall heterogeneity of the outcomes of HSP(DT) due to the differences in the context and intervention mechanisms. We distinguish some of the characteristics related to relatively high impact settings and characteristics related to relatively low impact settings.

Table 5.3 **Characteristics of the HSP(DT) settings, by levels of impact**

	Relatively Higher Impact	Relatively Lower Impact
The level of perceived needs towards HSP(DT) for students	➢ A ***stronger*** level of perceived needs	➢ A ***weaker*** level of perceived needs
Co-involvement between the school and service providers in the phase of programme design and delivery	➢ A ***greater*** level of co-creation and co-involvement due to a more equitable power-relations	➢ A ***weaker*** level of co-creation and co-involvement due to a greater degree of power imbalance
Programme design	➢ A ***higher*** degree of customization towards the schools' needs ➢ A ***cohesive*** and ***pluralistic*** design	➢ A ***lower*** degree of customization towards the schools' needs ➢ A ***fragmented*** and ***monotonic*** design
Degree of reinforcement of engaging in HSP(DT)	➢ A ***greater*** degree of reinforcement due to a higher perceived value yielding from the programme	➢ A ***lower*** degree of reinforcement due to a higher perceived value yielding from the programme

Firstly, the perception of students' risk of drug use and the need for them to cultivate a healthy lifestyle is important in determining how motivated the school will be in the co-designing, implementing and reviewing process. Some schools perceived that a healthy school atmosphere was already built even before the implementation of HSP(DT) and that their students were not at risk to attempt drugs. For these schools, their perceived need for HSP(DT) was minimal, which may lead to a low motivation to be fully committed in the programme, and hence a relatively lower impact. Conversely, schools that acknowledged a need to tackle the issue of drugs and unhealthy lifestyles tended to be more involved in HSP(DT) from start to finish, resulting in a higher impact on pupils.

An unequal balance of power between schools and NGOs was reported by some social workers during interviews, in which the NGOs took on the passive role due to school's perceived superiority as a customer of the service. In these cases, a low level of co-creation in the phase of programme design was usually observed where the schools simply ordered the NGOs to implement a few activities they preferred with limited communication and involvement during implementation. Social workers also commented that the activities that they had chosen may not be proven to be effective in achieving the objectives. However, schools that highly valued

the intervention expertise from NGOs were observed to be more involved in the co-designing process, contributing their understanding of their students and the school culture and discussing about what they could to do to bring about a greater impact on drug prevention and cultivating a healthy lifestyle for their students. Further, teachers from these schools also put in a lot of effort during implementation of the programme, for example, bringing them to competitions during weekends. In these cases, students reported a greater impact in achieving the policy objectives.

Regarding intervention mechanisms, the design of activities and mode of delivery are crucial in generating an impact on preventing drugs and cultivating a healthy lifestyle. It was observed that a range of pluralistic activities were more effective than monotonic activities. Additionally, the level of involvement of students in the activities was reported to influence how much they can gain from the programme. During interviews, students spent most of the time mentioning the activities that they were highly engaged in and challenged, explaining how these activities had equipped them in a fulfilling way; at the same time, they reported falling asleep during the educational presentations that did not require students to be engaged in, indicating that they did not acquire much knowledge from these activities. One feature that enhances the attractiveness of an activity is to make the content personalised; as students are interested in learning about themselves, they would be more focused during these activities. For instance, it was revealed that students benefited more from workshops about personality tests and body health check booths than merely receiving information or knowledge that hardly relate to them. Lastly, the duration of the activity affects the scale of the impact. Teachers often aimed to design adventure programmes or activities with the longest time period within their budget because they observed the difference on their attitudes and character.

The perceived effectiveness of HSP(DT) on students may also affect the reinforcement of engaging in the programme. Interviews revealed that if schools had low belief in the effectiveness of HSP(DT), the principal and teachers were less likely to encourage their students to join the activities. Hence, students were less eager to participate in the programme. Moreover, it was observed that teachers who had low perceived impact would treat HSP(DT) as any other extra-curricular activities and would not expect anything from it as long as it was being carried out by somebody. On the other hand, schools that saw the potential impact of HSP(DT) took the opportunity in creating more ideas for a variety of activities and tied these ideas with the drug prevention element in order to leave a lasting impact on students.

CHAPTER 6 Summary and Recommendations

6.1 Summary of the Study

In this study, the team investigated the impact of HSP(DT), a large-scale school-based anti-drug prevention work, on reducing drug abuse behaviours among the youth in Hong Kong. Based on a retrospective time-trend study using decomposition methods, the team identified evidence that, when during a period where the number of drug abuse among the youth was relatively 'high' (i.e. 2011 to 2014), HSP(DT) had its additional impact contributed towards the drug abuse reduction on top of other community-based work. The cost-benefit analysis illustrated that, during this period, the social return of the HSP(DT) – the estimated amount of reduction in socioeconomic cost related to drug abuse was larger than the total investment made towards funding and the HSP(DT) projects (SROI: 1.1). It illustrates a period that the HSP(DT) has an effective anti-drug programme and with positive 'economic' value.

Through our qualitative enquiry of the impact of HSP(DT) at the project level, our findings illustrated that the heterogeneity across the programme. While some informants such as students and teachers on one hand explicated the great benefits they received from the HSP(DT), other suggested the impact of HSP(DT) was not explicit. The study identified some intervention mechanisms that seem to deliver the impact (on drug use reduction), and also the team detected several contextual factors that influence the impact delivery. Overall, the team argued that there are many micro-processes in the HSP(DT) delivery and implementation (at the project level) accounting the variability of the impact.

Consolidating what have been observed, the HSP(DT) clearly has its legacy and impact in contributing the gradual decline of drug use among the youth in Hong Kong. Its impact was particularly notable during the time when drug abuse among the youth was at a relatively 'high' level (2011 to 2014). From our interviews with various groups of informants, HSP(DT) has a crucial role to safeguard 'at risk' individuals not to take drugs. The team argued that the question that should be asked should not be 'whether we need HSP(DT)', as the answer is quite an absolute yes, but we should focus on asking 'how' we want to deliver HSP(DT) and to 'whom'.

Drug abuse behaviours are associated with various health and social problems, such as mental health wellbeing. While over the past few years, there have been emergence of other school-

based programmes in these areas, HSP(DT) could have considered to have a greater joint effort with similar programme (being complimentary with each other) to scale up the programme impact as well as holistically benefit to our youth in the society at large.

6.2 Good practice model

The research team has identified four good practices that may be useful for ensuring the optimal performance of the HSP(DT) projects:

a) Applicants assessing and demonstrating the perceived needs of their schools

- HSP(DT) is a school-based preventive education programme. Flexibility is built in for schools to, according to their circumstances and needs, partner with NGOs of their choice to implement the Programme. Applicants (i.e., schools) , partner with NGOs, and design the programmes based on their own needs and preferences to organise different types of activities in order to address the needs of the students.

- The team found there to be considerable inconsistency in the degrees to which applicants conduct needs assessments and their methods of doing so. A higher level of perceived needs is associated with better outcomes. Consequently, it is recommended that more be done to help applicants to understand the needs of their students. Adding a section in the proposal for applicants to demonstrate an understanding of how to assess the specific needs of their school settings. Applicants can utilise the HSP(DT) criteria as a reference for conducting a needs assessment that enables them to identify the areas where interventions ought to focus. Involving NGOs at the needs assessment stage will help ensure a shared appreciation for the challenges that need to be addressed and will also help to identify the resources that will contribute to achieving program objectives. This will help schools to think more deeply about the potential impact of interventions and to identify areas where partners may play an important role.

b) Making good use of various monitoring tools and mechanisms for evaluation and assessing the impact and effectiveness of the programmes;

- Currently, there are various monitoring tools and mechanisms in place under HSP(DT) at

the school level (i.e., post-activity questionnaires, ND's visits and provision of feedback to schools, regular reports submitted by the schools, etc.) and other measures deployed by ND (e.g. vetting of HSP(DT) applications and the Evaluation Research on HSP(DT)) at the policy level. Given that schools are given great flexibility and autonomy to design their own programmes, from a governance perspective, mechanisms to enhance strong gatekeeping of evaluation metrics for impact monitoring should be considered. This will help to ensure that the activities of HSP(DT) are closely aligned with the vision of the programme. For rigorous programme planning and evaluation, the team also encourages partnership with third parties in evaluation and strategic learning (e.g. Higher Education institutions (HEIs).

- The adoption of a rigorous and continuous monitoring procedure which is consistent with positive program outcomes may help schools to be aligned with the HSP(DT) vision. The existing outcome-based assessment of the programs, which is conducted by the applicants themselves, should be tailor-made for each program and performed regularly to better monitor the effects of the programme on students. A strengthened impact monitoring procedure will not only help to prevent unnecessary spending on purposes that do not correspond to HSP(DT) but also ensure the quality of the programme and its function as a learning tool for programme implementers.

c) Post-activity reviews and co-design of programmes with the involvement of key stakeholders

- It is noted that the flexibility and autonomy provided to applicants allow programs to be customised to the individual needs of schools. As a result of this, evaluation and learnings after interventions become particularly important. Schools that hold review meetings with participation from partner NGOs can help to embed and build upon lessons learned, ensuring that future activities are well planned. Learnings can then also be shared with other organisations for the purpose of facilitating HSP(DT) knowledge exchange and encouraging future co-creation efforts.

- With positive feedbacks received from students during qualitative interviews, it was observed that the co-involvement of schools and NGOs is a key factor in bringing about a programme with activities that are suitable for the students and effective in achieving the policy objectives. One current issue with the programme design was the imbalance in

power between schools and programme designers, which may lead to a low level of co-creation in project design. For these schools, the programme design was reported to be fragmented and the activities were disconnected with a lower overall impact disclosed by students. Hence, the team suggests that HSP(DT) consider implementing additional institutionalized measures to strengthen the element of co-creation and to encourage continuous communication and collaboration between the two parties during the whole process of designing, implementing and evaluating. Specifically, schools should be instructed to outline their protocols for ensuring co-involvement in their proposals before the start of the project, such as the designing of prospective needs assessments and review meetings that NGO delegates participate in. The team anticipates that, by facilitating the collaboration between schools and NGOs in project design and implementation, the most suitable programme for the students that maximizes the level of impact can be delivered.

d) Making good use of and actively participating in the platforms for inter-project and inter-organisational learning.

- The team observed that many activities in HSP(DT) were siloed and fragmented. Teachers and NGOs did not know what other organizations were doing for HSP(DT), and within the school, they were unclear about how different activities chosen could complement one another to produce an overall impact on drug prevention. Thus, the team encourages HSP(DT) to make good use of existing platforms such as ND's website and sharing sessions or create a new inter-project and inter-organizational learning platform to encourage knowledge exchange within the community. In this way, there will be a consensus that the organizations are working towards the common goals of preventing drug abuse and cultivating a healthy lifestyle, bringing about a more cohesive theme despite the very divergent modes of delivery carried out by different organizations. Programme designers and implementers would then be clearer about their role in the project and how each of them contributes to the same vision. These sharing platforms will also allow programme designers to learn from others' experiences, adopt different ideas and modify their work to create a programme that is suitable for their students. The team believes that this will serve as a knowledge-sharing hub that helps programme designers in designing activities that better target the policy objectives in a manner that is efficient and produces an optimal return on investment.

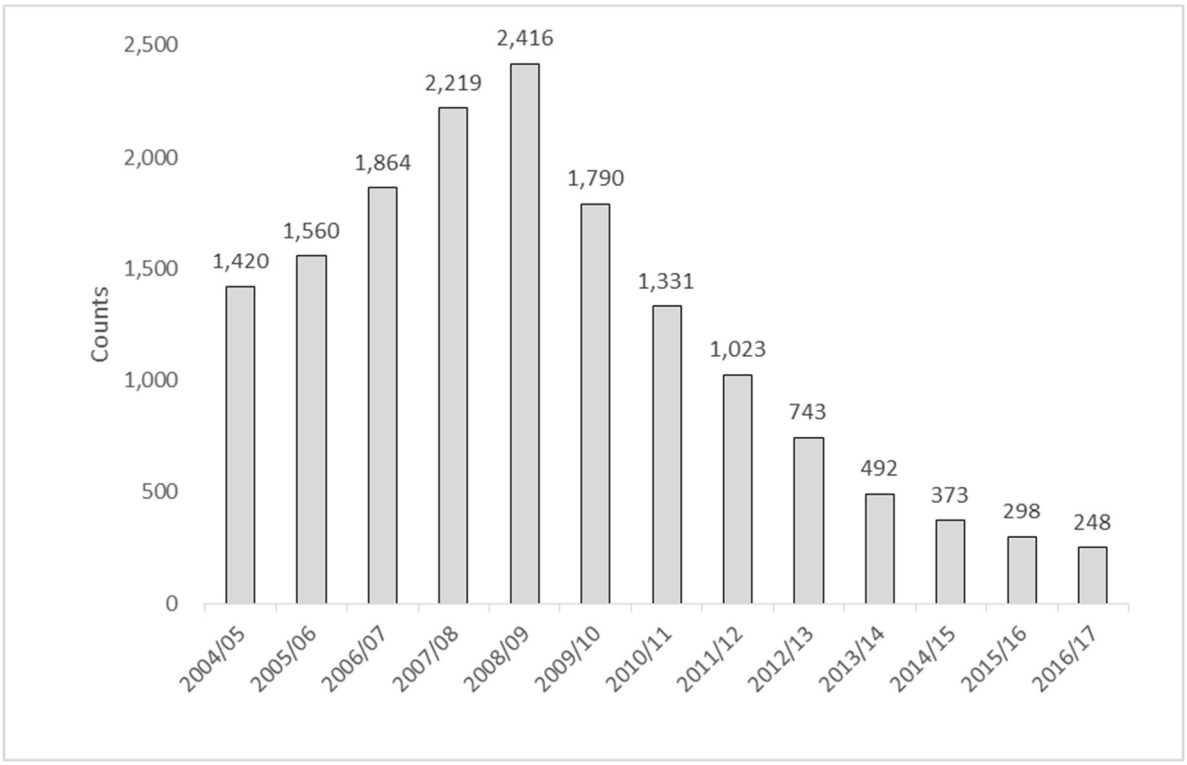
Appendix 1.1 Number of Participating Schools in HSP(DT)

School Year	*Schools*
2009/10 (Tai Po Trial)	23
2010/11 (Tai Po Trial)	23
2011/12	43[37]
2012/13	53
2013/14	63
2014/15	71
2015/16	92
2016/17	122
2017/18	135

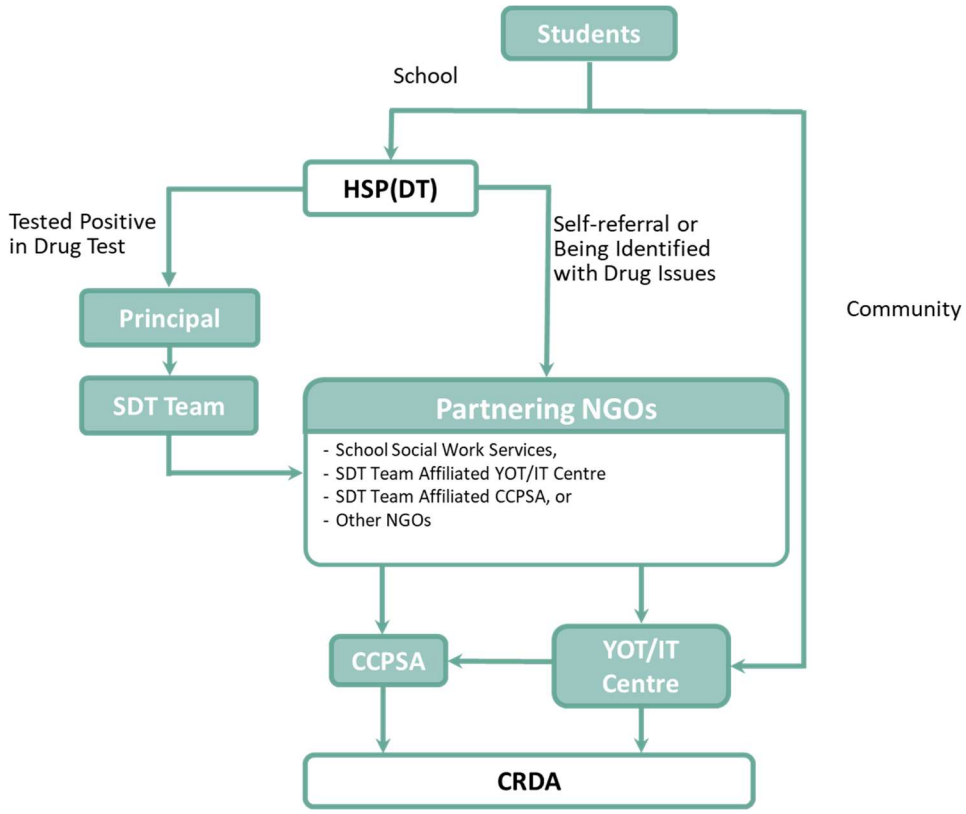
Source: Narcotics Division

[37] In 2011/12, funding was approved for 45 schools to implement the HSP(DT). One school subsequently decided not to participate in the programme and another school closed down.

Appendix 2.1 Episodes of drug abuse among adolescent population (aged 12-18) in Hong Kong from 2005-2017



Appendix 2.2 Typical referral and the reporting pathways



Based on in-depth interviews with nine social workers, who either have prior working experiences in anti-drug services units for youth, and (or) currently working as person-in-charge of HSP(DT), we identified how a case of student drug abuse is typically referred, and eventually reported to the CRDA dataset. This typical referral and the reporting pathways are shown in figure above.

Through exchanges with social workers, we found that in a school setting, student drug abusers were discovered either by self-referral to a social worker or by a school staff via observation in the school setting. In the former case, the social worker would not report to the school in accordance with the students' will. The school staff would then refer the student back to the school social worker, who gather all information and refer the student to downstream support programmes offered by Youth Outreaching Teams (YOT) / Integrated Children and Youth Services Centres (ICYSCs also known as IT) or Counselling Centres for Psychotropic Substance Abusers (CCPSA). YOT might further refer cases to CCPSA for more professional and specialized support when necessary. Eventually, depending on the decision of the social worker, the case will be reported to CRDA by either the social worker himself, YOT, or CCPSA.

For students participating in HSP(DT), drug use could also be revealed by testing results and reported to the school principal. Together with the project manager of the School Drug Testing Team (SDT Team), the principal meets with the student and the parents, and after obtaining consent, helps find suitable further counselling or treatment services. According to our informants, CCPSA in the same district is usually the first option, and cross-distinct referral case was rare. In some cases, the student or parents may prefer to be handled by the SDT Team. The case would then be followed by their affiliated IT centre, outreach team, or be referred to CCPSA later. Either handled by CCPSA in the same district or the SDT team, the case would be reported to the CRDA eventually.

Additionally, a student drug abuser can be identified out of school settings by outreaching teams of CCPSA[38] in popular youth hang-out place, or by service providers in IT centres in the community. In these cases as well, they would be reported to the CRDA via YOT/IT centres or CCPSA.

[38] CCPSAs also have outreaching teams, which actively reach out to drug users outside of schools.

Appendix 3.1 Calculating the SROI

In this study, the team conducted cost-benefit analysis of the projects using a SROI framework, reflecting whether social benefits generated by a programme for its target beneficiaries outweigh its cost. The general form of the SROI calculation is as below:

Social Return on Investment (SROI)[39,40,41,42]

The general form of the SROI calculation is as below,

$$\mathrm{SROI}_{SII} = \frac{S_t * (1 - dw) * (1 - at)}{I_t}$$

where:

(1) S_t: Monetized social return of HSP(DT) generated within assessment period *(t)*

(2) dw: Deadweight (calculated as a percentage) is a measure of outcome that would have happened even if the activity had not taken place

(3) at: Attribution (calculated as a percentage) is an assessment of how much of the outcome was caused by the contribution of other organizations or people

(4) I_t: Total investment/capital/equity of the HSP(DT) within assessment period *(t)*

Deadweight

- Deadweight is a measure of the amount of outcomes that would have happened naturally if people did not receive any interventions. It is an important measure in economic evaluations, as it ensures as much as possible that evaluators do not overestimate the impact an intervention, project or programme has had. In the current approach, it is assumed that deadweight is 0% in order to estimate the maximum SROI generated by HSP(DT).

Attribution

[39] See Nicholls J, Lawlor E, Neitzert E, Goodspeed T. 'A Guide to Social Return on Investment' London: The Cabinet Office (2009)

[40] See the two research bulletins prepared by the Fullness Social Enterprises Society (FSES) that examined the effectiveness of the Government's grant funding investments on two SE funding schemes using simple SROI calculations: 'Social Return on Investment (SROI) of Enhancing Self-Reliance through District Partnership (ESR) Projects' and 'Social Return on Investment (SROI) of Enhancing Employment of People with Disabilities through Small Enterprise (3E) Projects', (Jun & Aug 2013)

[41] See Sammy Fung, Matthew Lee & Sophia So 'Social Impact Measurement. Consulting Report for Teach4HK' (Oct 2016)

[42] In the current approach, it is assumed that deadweight and attribution are 0% in order to estimate the maximum SROI generated by HSP(DT).

- Attribution is an assessment of how much of an outcome is due to the contribution of other organizations. For example, treatment alone is rarely enough to address families' complex needs: treatment providers, children and family services and other local support services all work together to provide a basis for recovery. Attribution (the proportion of the outcome that is attributable to an organization) is calculated as a percentage. It will never be possible to get a completely accurate assessment of attribution, but it is important to note that an activity from a specific service may not be the only factor contributing to an observed change in a client. In the current approach, it is assumed that attribution is 0% in order to estimate the maximum SROI generated by HSP(DT).

Drop-off

- Drop-off refers to the deterioration of an outcome over time, for example, while people's health may improve as a result of becoming abstinent, their life expectancy and quality of life will naturally reduce over time as they get older. Such considerations are taken into account when producing life tables for quality-adjusted life year (QALY) models.

Discounting

- Discounting is the process by which future costs and benefits are recalculated to present-day values. It is a technique used to compare costs and benefits occurring in different time periods based on the economic principle that society prefers to receive benefits sooner and defer costs to future generations ('social time preference'). All future costs and benefits are discounted in standard economic and SROI evaluations. The discount rate is obtained by taking the average of annual rates of change in Composite Consumer Price Index (CPI). The standard real discount rate, recommended by the C&SD, is obtained from "Consumer Price Index and Its Movements during 2009 to 2018" (C&SD, 2019).

Appendix 3.2 Additional Cost and benefit analysis

A review of international experiences

The team conducted a literature review on documents featuring (social) returns (benefits) estimation related to drug prevention programme for youths. In particular, a systematic search for relevant English language publications were undertaken in online databases Google Scholar and PubMed, and other relevant websites. Keywords relating to substance abuse (substance abuse, drug abuse, drug misuse, alcohol, tobacco), cost-benefit analysis (cost, benefit, cost-benefit analysis, economic analysis) and intervention (prevention, intervention, treatment, program) were used for the searches. The search period was restricted from 1990 to June 2019. Of all studies related to cost-benefit analysis of substance abuse intervention identified, a total of 8 studies [study 1-8 refer to reference list] were further reviewed.

Through a systematic search, the team identified 3 studies that conducted cost-benefit analysis of substance abuse interventions targeting youth population [1, 7-8]. Given that few studies targeting the youth population were identified, the team relaxed the search to wider population, and included 5 studies in addition that did not target youth population[43].

Regarding the 3 studies aiming at youth, all were conducted in U.S.A. The targeted youth population were 7^{th}-9^{th} graders [1], 5^{th}-9^{th} graders (aged 10-14) [7] and 6^{th}-7^{th} graders [8] respectively. One study conducted by Caulkins et al. analyzed the cost and benefits of a hypothetical national implementation of school-based drug prevention programs, and concluded that the monetized benefits of reducing cocaine consumption outweighed its cost [1]. Another study conducted by Kuklinski et al. assessed that a community-based intervention was cost-beneficial for preventing adolescent tobacco use, alcohol use and delinquency behaviour [7], while another study conducted by Pentz estimated that a large community-based prevention trial yielded benefits larger than its cost for reducing smoking, drunkenness and marijuana use [8]. Among the 3 studies, the cost-benefit ratios range from 1.69:1 [8] to 8.22:1 [7].

Regarding the other 5 studies, 4 were conducted in U.S.A. [3-6] and 1 was conducted in Taiwan [2]. The study of Chen et al. conducted a cost-benefit analysis of outpatient smoking cessation services targeting programme participants, and concluded that the intervention was cost-beneficial from a societal perspective but not from a healthcare perspective [2]. Another study conducted by Ettner examined the cost and benefits of substance abuse treatments targeting treatment clients in California,

[43] The 5 studies target general population with no specific age group

with a positive finding that the benefits of treatment outweighed its cost [3]. French et al. assessed the costs and benefits of two different substance abuse treatment options targeting treatment clients. Both treatments were cost-beneficial [4]. Horn et al. examined the cost and benefits of SBIRT intervention (a measure that identifies, intervenes and makes referrals for at-risk persons with substance abuse disorder present in Emergency Department), and found cost-beneficial result for SBIRT intervention no better than that of control treatment [5]. Irwin et al. estimated the cost and benefits of a hypothetical establishment of supervised injection facility targeting people who inject drugs in Baltimore, and found positive cost-beneficial ratio [6]. Among the 5 studies, the cost-benefit ratios range from 4.35:1 [6] to 23.33:1 [4].

Among these studies, multiple benefit estimation methods have been proposed and adopted in the identified studies of the drug-prevention programme. The following tables summaries the results. The benefit estimation methods include (1) averted health cost, (2) forgone earning, (3) forgone tax revenue, (4) averted crime cost, (5) averted welfare expense, (6) improved health status, (7) reduction in substance abuse, (8) saved lives

Table 1 Number of studies used for each estimation methods

methods	studies used
Averted health care cost	[2-8]
Forgone earning	[1-7]
Forgone tax revenue	[7]
Averted crime cost	[1, 3-4, 5, 7]
Averted welfare cost	[3]
Improved health status	[4-5]
Reduction in substance use	[4]
Reduction in mortality risk	[7]

Benefit estimation on averted health care costs

In general, averted health care cost referred to savings in medical expenditure to the health sector due to a program. The underlying assumption is that if a youth does not use drug, his lifetime usage of medical services including emergency services, hospital inpatient services, medical outpatient services will be reduced, and his usage of drug abuse treatment services will be prevented.

Averted health care costs is an encompassing term for a range of sub-items of health-care costs. For instance, two studies estimated total costs of emergency service, hospital inpatient services, medical outpatient services and various treatment services averted by a drug abuse treatment [5-6]. Table 2 summarizes the sub-items of health care costs adopted in previous studies [2-8].

Table 2 Sub-items of health care costs adopted in previous studies

Items	studies used
Hospitalization	[3-6, 8]
Emergency service	[3-8]
Mental health service	[3, 8]
Treatment services	[4-5, 7-8]
Clinic/ physician visit	[4-5, 8]
Nursing care	[8]

Benefit estimation on forgone earnings

In general, forgone earning refers to financial benefits generated by a programme in the form of labour market earnings of programme participants. The underlying assumption is that if a youth does not use drug, he will have increased life expectancy and hence increased working-life to generate income. Further, he will have higher chance to join the labour force and lower chance of unemployment.

Benefit estimation on forgone tax revenue

In general, forgone tax revenue refers to financial benefits generated by a programme in the form of tax revenue received by the government. The underlying assumption is that if a youth does not use drug, he will have more labour market earning and pay more taxes to the government. In a previous study conducted by Kuklinski, forgone tax revenues were estimated as benefits of a prevention programme on alcohol and tobacco use initiation. However, the definition and details of estimation are not described in the paper.

Benefit estimation on averted crime costs

In general, averted crime cost referred to savings in expenditure of criminal justice system and crime victims due to a program. The underlying assumption is that if a youth does not use drug, his will have lower chance of committing crimes, and hence have lower chance of going through the criminal justice system and producing crime victims.

Averted crime costs is an encompassing term for a range of sub-items of crime costs. For instance, a study estimated total costs of incarceration, law enforcement, court and victimization [3]. Table 3 summarizes the sub-items of crime costs adopted in previous studies [1, 3-4, 5, 7].

Table 3 Sub-items of crime costs adopted in previous studies

Items	studies used
Law enforcement	[1, 3-5]
Court	[3-5]
Incarceration	[1, 3-5]
Victim	[1, 3-5, 7]
Crime career	[1, 4-5]

Benefit estimation on averted welfare cost

In general, averted welfare expense refers to savings in government expenditure on transfer payments due to a program. The underlying assumption is that if a youth does not use drug, he will apply for lower amount of government's welfare, unemployment or disability/retirement benefits.

Averted welfare costs is an encompassing term for a range of sub-items of welfare costs. For instance, a study estimated change in unemployment benefits, disability/retirement benefits and welfare payments due to a drug abuse treatment [3].

Benefit estimation on improved health status

In general, improved health status refers to increase in well-being of programme participants due to improvement in health conditions attributable to a program. The underlying assumption is that if a youth does not use drug, he will have less pain and discomfort caused by medical and psychiatric problems attributable to drug abuse. For instance, two studies estimated the monetized value of increase in well-being due to reduction in number of days experiencing medical problem [4-5].

Benefit estimation on reduction in substance use

In general, reduction in substance abuse refers to reduction in amount of spending on abused substance due to a program. The underlying assumption is that if a youth does not use drug, he will not spend money to purchase any drug. For instance, a study estimated the change in expenditures on alcohol and drugs among treatment clients [4].

Benefit estimation on reduction in mortality risk

In general, reduction in mortality risk refers to reduction in the risk of premature death among programme participants due to a programme. The underlying assumption is that if a youth does not use drug, he will have no chance of having an earlier-than-expected death that is caused by drug abuse. For instance, a study estimated the total monetized value of reduction in mortality risk due to alcohol and tobacco use prevention programme [7].

Calculation method

From a previous study conducted by Yip et al., drug abusers in Hong Kong incur various aspects of socioeconomic costs. Since HSP(DT) prevents adolescents from drug abuse, the benefits of HSP(DT) could be considered as reduction in socioeconomic cost caused by Hong Kong drug abusers based on Yip's study. The benefits of HSP(DT) mostly correspond to previous studies conducted overseas. However, some benefits in previous studies do not reflect the situation in Hong Kong, and therefore not estimated in this study.

Adopted from the previous studies, the team conceptualized the benefits of HSP(DT) as averted health care cost, forgone earning, averted crime cost, averted welfare cost and reduction in substance use.

Averted health care cost

Contextualizing into our study, the averted health care cost can be considered as lifetime cost saving in medical expenditure attributable to reduction in drug abusers due to HSP(DT).

From a previous study conducted by Yip et al., drug abusers in Hong Kong utilized health care services including (1) methadone clinic treatment, (2) non-hospital based treatment and rehabilitation services, (3) hospital inpatient services, (4) substance abuse clinic treatment, (5) specialist outpatient clinic services, (6) accident and emergency services and (7) accident and emergency services. Corresponding to previous studies, the team found all of these health care cost items utilizable in the benefit estimation. Table 4 summarizes the unit costs for benefit estimation of averted health care cost of HSP(DT).

Given the findings show that if a drug use can be prevented, there are likely to have one use less in these services. We therefore consider them as part of the benefits of the HSP(DT) (when it successfully deterred or prevented a student from using drug).

In this sense, the averted health care cost can be illustrated as the following equation,

Averted health care cost = {cost of emergency service, cost of hospital inpatient service, cost of outpatient service, cost of treatment service}

Forgone earning

In this study, the team contextualized forgone earnings as lifetime labour market earnings that are not lost by programme beneficiaries as a result of HSP(DT). From a previous study conducted by Yip et al., drug abusers in Hong Kong has lower productivity due to (1) premature death, (2) diminished size of workforce, (3) absenteeism. Corresponding to previous studies, the team found all data utilizable in the benefit estimation. Given the findings show that if a drug use can be prevented, there are likely to have one engage more in economic production. We therefore consider them as part of the benefits of the HSP(DT) (when it successfully deterred or prevented a student from using drug).

Averted crime cost

Contextualizing into our study, the averted crime cost as lifetime cost saving in expenditure of criminal justice system and crime victims attributable to reduction in drug abusers due to HSP(DT). From a previous study conducted by Yip et al., drug abusers in Hong Kong produce crime costs of categories including (1) arrests, (2) customs, (3) legal and adjudications, (4) incarceration, (5) medical treatments and property loss of victimizations. Corresponding to previous studies, the team found (1) arrests, (3) legal and adjudications, (4) incarceration, (5) medical treatments and property loss of victimizations utilizable in the benefit estimation. Table 4 summarizes the unit costs for benefit estimation of averted health care cost of HSP(DT).

Given the findings show that if a drug use can be prevented, there are likely to have one use less in these services. We therefore consider them as part of the benefits of the HSP(DT) (when it successfully deterred or prevented a student from using drug). In this sense, the averted crime cost can be illustrated as the following equation,

Averted crime cost = {cost of law enforcement, cost of legal adjudication, cost of incarceration, cost of victim}

Averted welfare cost

Contextualizing it into our study, the averted welfare cost can be considered as lifetime cost saving in government expenditure on transfer payments attributable to reduction in drug abusers due to HSP(DT). From a previous study conducted by Yip et al., drug abusers in Hong Kong have higher rates of utilization of social welfare services including (1) comprehensive social security assistance, (2) drug counselling services, (3) services for offenders, (4) family and child welfare services and (5) outreaching services. Corresponding to a previous study, the team found (1) comprehensive social security assistance utilizable in the benefit estimation. Table 4 summarizes the unit costs for benefit estimation of averted welfare cost of HSP(DT).

Given the findings show that if a drug use can be prevented, there are likely to have one use less comprehensive social security assistance. We therefore consider them as part of the benefits of the HSP(DT) (when it successfully deterred or prevented a student from using drug).

Reduction in substance use

Contextualizing it into our study, reduction in substance use can be considered as reduction in amount of spending on abused drugs attributable to reduction in drug abusers due to HSP(DT). From a previous study conducted by Yip et al., drug abuses in Hong Kong have monthly expenditure for consumption of different types of drugs. The team found it utilizable in the benefit estimation. Table 4 summarizes the unit costs for benefit estimation of reduction in substance abuse due to HSP(DT).

Given the findings show that if a drug-use can be prevented, there are likely to have one not purchase drugs. We therefore consider it as part of the benefits of the HSP(DT) (when it successfully deterred or prevented a student from using drug).

Table 4 **Unit Costs in benefit estimation of HSP(DT)**

Aspect	Item	Sub-item	Unit cost ($)
Averted health care cost	Emergency service	/	1115 per visit
	Hospital inpatient service	General ward	4533 per bed-day
		Psychiatric ward	2420 per bed-day
	Medical outpatient service	/	1117.5 per visit
	Treatment services	Methadone clinics	25.4 per visit*
		Residential drug treatment and rehabilitation centres (DTRCs)	69067 per case
		Substance abuse clinics	1117.5 per visit
Averted crime cost	Law enforcement	/	21057 per arrest
	Legal adjudication	/	2668 per court case
	Incarceration	/	387157 per inmate per year
	Victim	Medical cost	865.4 per wounding 700 per robbery
		Property loss	3175 per robbery 2577 per snatching 2268 per pickpocketing 964 per other personal theft 4082 per burglary 189709 per theft of vehicle 1966 per theft from vehicle 393 per other household theft
		Productivity loss	180 per wounding 60 per robbery 60 per pickpocketing 60 per other personal theft 60 per burglary 60 per theft of vehicle 60 per theft from vehicle

Averted welfare cost	Comprehensive Social Security Assistance (CSSA)	/	4173.8 per month (male applicant) 4626.8 per month (female applicant)
Reduction in substance use	/	/	165 per time (heroin) 800 per time (cocaine) 100 per time (MDMA) 250 per time (methamphetamine) 200 per time (cannabis) 300 per time (ketamine) 100 per time (cough medicine) 40 per time (TMZ) 200 per time (others)

Source: Yip. (2017). Assessing the Socio-economic Costs of Drug Abuse in Hong Kong SAR; reference year: 2014

Results

No. of students being benefited by the HSP(DT) = 47.67

Benefits

As explicated, HSP(DT) prevented a total of 47.67 drug abusers from school year 2011/12 to 2013/14, and therefore produced monetized benefits in five key aspects: averted health care cost, forgone earnings, averted crime cost, averted welfare cost and reduction in substance use. Table 5 summarizes the breakdown of monetized benefit produced by HSP(DT) from school year 2011/12 to 2013/14 on each aspect.

Averted health care cost

HSP(DT) has generated $959,598.6 for reducing emergency service use, $22,549,641.6 for reducing hospital inpatient service use, $1,197,555.0 for reducing medical outpatient use, $14,148,696.7 for reducing drug abuse treatment service use. In total, HSP(DT) has averted $38,855,491.9 health care cost.

Forgone earnings

HSP(DT) has produced $73,014,197.4 by recovering forgone earnings due to reduction in drug abusers.

Averted crime cost

HSP(DT) has generated $6,696,968 for reducing law enforcement (police) service use, $2,046,124 for reducing judiciary service use, $53,102,2345 for reducing correction facilities usage, $7,618,847 for reducing victimizations and associated cost borne by victims, including medical cost, property loss and productivity loss. In total, HSP(DT) has averted $69,464,273 crime cost.

Table 5 Breakdown of Monetized benefits of HSP(DT)

Aspect	Monetized item	Monetized benefit (HK$)
Averted health care cost	Emergency service	959,598.6
	Hospital inpatient service	22,549,641.6
	Medical outpatient service	1,197,555.0
	Treatment service	14,148,696.7
	Sub-total	**38,855,491.9**
Forgone earnings	Sub-total	**73,014,197.4**
Averted crime cost	Law enforcement	6,696,967.8
	Judiciary	2,046,124.2
	Incarceration	53,102,334.8
	Victimization	7,618,846.5
	Sub-total	**69,464,273.3**
Averted welfare cost	Sub-total	N/A
Reduction in substance use	Sub-total	N/A
	Total	**181,333,962.5**

Investment in HSP(DT)

The 'investment' component will be accounted by the actual spending to implement HSP(DT), which includes the cost on organizing anti-drug activities, performing school drug testing and providing supports to school. Starting from 2013/14 Funding Exercise, school can apply funding period for maximum 2 consecutive years. Thus, the actual spending of 2013/14 Funding Exercise also includes spending in 2014/15 school year, which will be taken out from the calculation. The amount of actual spending will be the difference between approved grant and outstanding commitments, via the following subtraction:

$$\text{Approved grant} - \text{outstanding commitment for HSP(DT)} = \text{Actual spending}$$

The financial figures of HSP(DT) obtained from BDFA financial reports are listed in table below:

Table 6 Summary of financial figure of HSP(DT)

Year of Funding Exercise	Approved Grant (HK$) [a]	Outstanding Commitments (HK$) [b]	Actual Spending (HK$) [a-b]
2011/12	15,525,883.00	2,391,282.23[44]	13,134,600.77
2012/13	15,811,980.00	1,001,797.12	14,810,182.88
2013/14	37,097,916.00	600,006.62	36,497,909.38
Total	68,435,779.00	3,993,085.97	64,442,693.03

Source: Narcotics Division

In the previous study conducted by Yip et al., the cost was calculated based on figures in 2014. To account the effect of inflation, the actual spending of School Year of 2011/12 and 2012/13 are adjusted with Adjusted Consumer Price Index (CPI) obtained from Census and Statistics Department[45]. Within the assessment period, the HSP(DT) received HK$49,526,734.74 of funding in total. The average investment per year was HK$16,508,911.58.

[44] Includes a grant of $411,375 to a project, which was withdrawn by the grantee in August 2012.

[45] Actual spending are adjusted with Adjusted Consumer Price Index (CPI) obtained from Census and Statistics Department. The CPI of 2012 and 2013 were 4.7% and 4.0% respectively.

Details of the amount of investment for the assessment period before and adjusted by School Year are listed in table below:

Table 7 Summary of actual spending of HSP(DT)

School Year	Actual Spending (HK$)	CPI Adjusted (HK$)
2011/12	13,134,600.77	14,302,004.09
2012/13	14,810,182.88	15,402,590.20
2013/14	19,822,140.45[46]	19,822,140.45
Total	47,766,924.10	49,526,734.74

Total spending is HK$49,526,734.74

Average investment per year: HK$16,508,911.58

Return on Investment (ROI)

HSP(DT) average investment per year at $16,508,911.58 and cost reduction attributable to HSP(DT) of $181,333,962.5, with a return-on-investment ratio of 10.98:1, which indicates that a social benefit worth of $10.98 is created per every $1 spent on HSP(DT).

Mortality rate of non-drug abuser and drug abuser

Adopted from *Hong Kong Life Table 2011-2066* (C&SD, 2017), the mortality rate of non-drug abuser by gender at each age from age 18 to 100 is estimated by taking the average of mortality rates at each age based on Hong Kong life tables from 2011 to 2016.

Since there is no available data about mortality rate of drug abusers in Hong Kong from age 18 to 100, in this study, the mortality rate of drug abusers at each age from age 18 to 100 is estimated by multiplying the standardized mortality ratio of individuals with substance use disorders by mortality rate of non-drug abuser at each age. The standardized mortality ratio of individuals with substance use disorders is adopted from international meta-analysis[47].

[46] Out of the 63 schools applied for 2013/14 Funding Exercise, 54 schools applied for 2-year funding, and 9 schools applied for 1 year-funding. Among the schools applied for 2-year funding, 1 school withdrawn in 2014/15 School Year (Total (53x2)+10=116 school years). Thus, the average spending per school per year is HK$36,497,909.38÷116 = HK$314,637.15. The actual spending of those 63 schools in 2013/14 school year is calculated as HK$314,637.15 x 63 schools = HK$19,822,140.45.

[47] See Aldridge et al. (2018). Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: A systematic review and meta-analysis. The Lancet, 391(10117), 241-250.

Discount rate

Benefits are discounted at an annual rate of 2.93 %. The discount rate is obtained by taking the average of annual rates of change in Composite Consumer Price Index (CPI) (removing the effects of all government's one-off relief measures) obtained from "Consumer Price Index and Its Movements during 2009 to 2018" (C&SD, 2019) in Hong Kong from 2009 to 2018.

References of Appendix 3.2

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Appendix 4.1 List of interviewed schools and NGOs

Organization no.	Participants	No. of interview groups	Included components
#S1	Students and principal and/or teachers	3	SDT and ADP
#S2	Students and principal and/or teachers	3	SDT and ADP
#S3	Students and principal and/or teachers	3	SDT and ADP
#S4	Students and principal and/or teachers	3	SDT and ADP
#S5	Students and principal and/or teachers	3	SDT and ADP
#S6	Students and principal and/or teachers	3	SDT and ADP
#S7	Students and principal and/or teachers	3	SDT and ADP
#S8	Principal and/or teachers	1	SDT and ADP
#S9	Principal and/or teachers	1	SDT and ADP
#S10	Principal and/or teachers	1	SDT and ADP
#S11	Principal and/or teachers	1	SDT and ADP
#N12	Social workers	1	SDT and ADP
#N13	Social workers	1	SDT and ADP
#N14	Social workers	1	SDT and ADP
#N15	Social workers	1	SDT and ADP
#N16	Social workers	1	SDT
#N17	Social workers	1	ADP
#N18	Social workers	1	ADP
#N19	Social workers	1	SDT and ADP

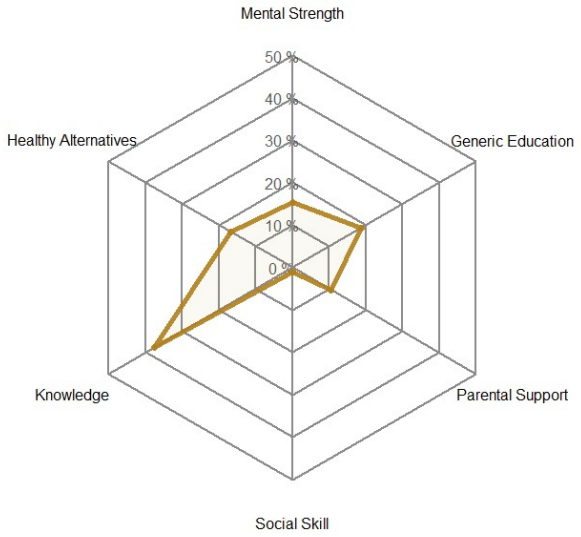
Typically, the interview lasted approximately 60 minutes. Focus groups were audiotaped, with prior consent from participants and were subsequently transcribed verbatim.

Appendix 4.2 Clusters analysis of the schools by the categories of activities

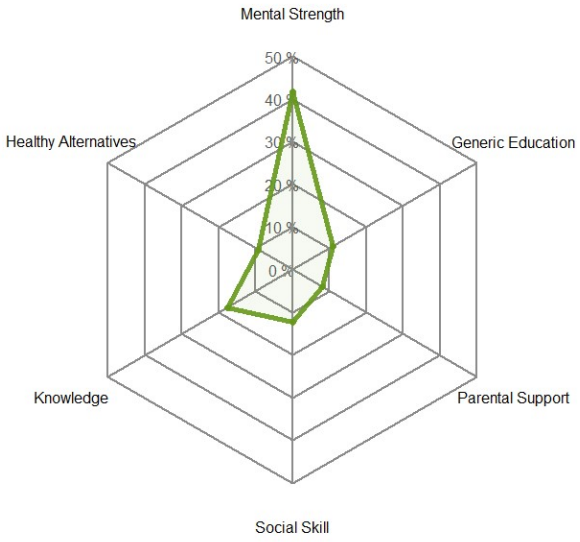
Summary of mix of activities of each cluster of schools

Categories	Cluster 1 (n = 17, 18.3%)	Cluster 2 (n = 28, 30.1%)	Cluster 3 (n = 35, 37.6%)	Cluster 4 (n = 13, 14.0%)
Mental Strength	15.3%	41.7%	31.7%	36.1%
Healthy Alternatives	16.9%	9.3%	0.8%	0.0%
Knowledge	37.5%	17.6%	24.0%	2.8%
Social Skills	1.0%	12.2%	6.4%	6.3%
Parental Support	10.4%	8.1%	7.4%	5.2%
Generic Education	18.8%	11.1%	29.7%	49.7%

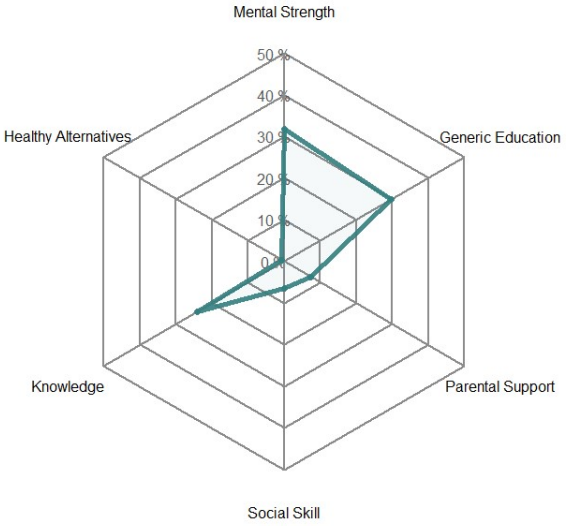
Cluster 1 (n = 17)



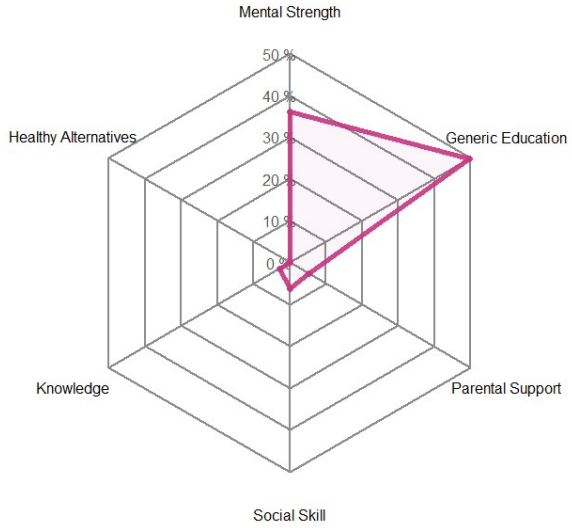
Cluster 2 (n = 28)



Cluster 3 (n = 35)



Cluster 4 (n = 13)



Appendix 4.3 **The behavioural change of HSP on students and the schools**

In order to improve the effectiveness of HSP in combating drug use of students, the objective of this section is to assess the behavioural change among students and the schools. By identifying behavioural changes through triangulation[48] of interviews with social workers, teachers and students, a more comprehensive reflection of the perceived impact on the schools and students will be reviewed. The Knowledge-Attitude-Behaviour (KAB) model states that the knowledge of a person influences his/her attitudes directly, and the attitude of that person also influences his/her behaviours indirectly. With reference to the KAB model, it can be assumed that within the HSP, students' enhanced knowledge of drug-related information affects their attitude change towards drugs, and thus, their attitudes will have an impact on their behaviours.

Knowledge

Knowledge change is the greater and more in-depth understanding of the information of a particular domain that accumulates overtime through education and personal experience[49]. In the case of HSP, knowledge change can be identified in (a) the types and impact of drugs, (b) drug taking awareness, and (c) the refusal skillset.

(a) Knowledge on the types and impact of drugs

Students themselves have reported a greater and lasting understanding on the effect and consequence of taking drugs as they were involved in out-of-school drug-educational activities such as drama performance, war games and carnival games. As reported by the social worker, the filming competition has also encouraged students to actively research on the lives of a drug user, thus, develop a deeper understanding into the drug-using experiences and its consequence.

> *"It made a lasting impression because we experienced how it was like to be handcuffed in court and we actually lied on the bed in a correctional institution. I will now beware of violating the law."*
> (#S4; students)

[48] See Triangulation, D. S. (2014, September). The use of triangulation in qualitative research. In *Oncology nursing forum* (Vol. 41, No. 5, p. 545).

[49] See Yi, Qinqiuzi, & Hohashi, Naohiro. (2018). Comparison of perceptions of domestic elder abuse among healthcare workers based on the Knowledge-Attitude-Behavior (KAB) model. *PloS One, 13*(11), E0206640.

> *" The topic of the micro-movie is around the theme of drug-users and abstinence of drugs, this provides an opportunity for students to research on the lifestyles of drug-users and their struggles with the consequence of the drugs. The process of researching then indirectly educate them about the reality of drug-use."* (#N17; NGO)

(b) Drug taking awareness

Regarding the awareness on drug-related information, with first-person experiences on the prison environment and sharing, social workers reflected that students have raised awareness on the consequence of drug uses, and students themselves reported a raised alertness that drug addiction is not a distant issue.

> *"After hearing the sharing of the ambassadors in the prison, students realised there is no typical type of person who engage in drug-taking activities. Instead, everyone regardless of the educational background or how others may view them as "life successors" may also get hooked on drugs."* (#N18; NGO)

> *"The lady shared about her experiences after taking drugs. I realise that this is something that can actually happen in real life and I will make sure I will stay away from it."* (#S1; students)

(c) Refusal skills

The learning of refusal skills, including acquiring problem solving and social skills in the HSP plays a role in increasing students' competence to refuse drug taking activities. As suggested by social workers, educating direct and effective methods to reject peer pressure in drug use during the drug-testing sessions has equipped students to refuse the drug invitation skilfully. Students also shared the gained insight on the healthy way of maintaining relationship which in turn serves as a protective factor against peer pressure.

> *"When students were given scenario questions in how to refuse the offer of drugs from peers, they were educated with multiple ways to avoid peer pressure. This made them realise they can approach peer pressure scenarios in different perspectives and methods."* (#N19; NGO)

"We were taught to think twice before making any decisions and this can be applied to friendships; there are lots of ways to make friends and you never know when they are going to betray you. The talk emphasized on slowly building trust instead of blindly believing in anyone before getting to know them." (#S7; student)

Attitude

Apart from the enhanced understanding about drug use and its impact, attitudinal changes were also found in students. Knowledge acts as a foundation for students to resist the temptation of drug use, but an attitudinal change is the motivational factor that strengthens the deterrence of drug use behaviours[50]. The KAB model illustrates the accumulation of knowledge cascades with the change in attitude overtime4. Attitude acts as the motivational media that can be reflected through valence and beliefs of individuals[51]. In agreement with the KSB model of the cascading interaction between knowledge and attitude, the findings reflected the improved competence in refusing drugs (knowledge) have brought more accurate and confident (attitude) about themselves and their decision makings. The attitudinal change of students in HSP can be reflected through the (a) the belief towards taking drug and, (b) self-perceived competence to refuse drug use.

(a) the belief towards taking drug

The inclusion of seminars about drug use and its consequence has corrected students' misconception of drug used as suggested by social worker and in turn, provided an accurate belief towards the use of drugs is not a "cool" behaviour for students.

"For example, we can clarity the misconceptions around how the usage of ice can help people lose weight when students get their BMI scores, and as they get their pulmonary function results we can talk about how smoking tobacco lowers lung capacity. Because students are very concerned with

[50] See Albarracín, D., & McNatt, P. S. (2005). Maintenance and decay of past behavior influences: anchoring attitudes on beliefs following inconsistent actions. *Personality & social psychology bulletin*, *31*(6), 719–733. https://doi.org/10.1177/0146167204272180

[51] *Rahbar T, Garg S, Tripathi R, Gupta VK, Singh MM (2007)* Knowledge, attitude, behavior and practice (KABP) regarding HIV/AIDS among pregnant women attending PPTCT programme in New Delhi". *J Commun Dis. 2007 Sep; 39(3):179-84.*

their personal scores, this is the perfect opportunity to tie it back to substance abuse information while we had their attention." (#N14; NGO)

"I used to think that it was cool to smoke and take drugs. I even got paid for beating people up so I was really enjoying my life! But after attending the talks I have realised how foolish I was and I will treasure the time and my life from now on." (#S3; student)

(b) self-perceived competence to refuse drug use

The same positive transition of students' self-perception was observed by both teachers and students themselves, that students were more confident in their communication skills and decision making after committing more to the extra-curricular activities and joining the leadership camp respectively. As a result, as suggested by the observation of teachers, higher self-confidence and positive perception to life promotes more motivation to engage in healthy activities and thus, more capable to refrain from peer pressure to use drugs.

"Our students used to have low self-esteem which made them susceptible to gain peer acceptance and thus engage in drug activities. By exploring their interests and finding their potentials, joining school trainings and competitions act as healthy diversions to build their sense of purpose and identity. By finding their own values, they would be more confident about themselves and hence, more able to trust their own decisions and to refuse to engage in unhealthy activities such as taking drugs" (#S3; teacher)

"I used to be very timid in the past. But the leadership training programme helped me to become more confident in chatting with different people and to understand different ways of communication." (#S2; student)

"Students became more motivated to do well at school as they have found their purpose in life. Once they engage more in healthy activities, it is more likely that they will stick with the right crowd and less likely to meet the wrong crowd. Also, by committing more to school activities, students can then fall into the guidance of teachers at school" ." (#S1; teacher)

Behaviour

Finally, through the accumulation of accurate knowledge which leads to positive attitudes, individuals may become convinced on the value of the behaviour, thus, behaviour change will be resulted4. Behavioural changes are the changes in physical action and responses depending on the context. The findings revealed that the HSP has brought greater cohesion in the school environment which further provided practical guidance for students' future development. This cultivation of a positive environment for student serves as a protective measure to retrain students from engaging drug-related activities. The behavioural change can be measured by (a) commitment to school work and activities and, (b) future orientation.

(a) Commitment to school work and activities

Teachers and social workers believed that the school is a safe environment that prevents students from exposing to drugs. Within the school context, students have been seen by teachers with a raised participation rate in school activities after joining the leadership camp. Also, social worker suggested that the award giving ceremony helped to recognise the improvement of students which positively reinforce the participation of school activities. The greater commitment to school activities helped to promote a more positive school climate which in turn motivates students to do well and plan ahead for their future. Consequently, students are occupied with healthy school activities which leave them little time to fall into the wrong crowd and face temptations.

> *"Students have reported stronger sense of belonging to the school community after leadership camps, this have improved their perseverance both in school work and in their sense of purpose in life "* (#S1; teacher)

> *"The award giving ceremony has encouraged students to work on themselves and we also see more students signing up for school activities"* (#N17; NGO)

(b) Future orientation

With more guidance in directing students to plan out their lives, students reflected that the inclusion of interest class helped them to identify their interests and abilities, hence, motivated them to plan for their future career. Similarly, teachers also agreed the positive impact of developing skills of students, such as sports class, can help students to develop a more positive self-perception which in turn become more resilient to the temptation to use drugs.

> *"Without this activity I would not have discovered my passion and my career prospect. It helped me to get the part-time job that I have and also with gaining a professional license."* (#S5; student)

> *"We believe designing sports classes can help to lead students to a positive life. This may include helping students to develop more skills, establish a more positive self-image. We believe with the more positive self-image, it is less likely there will be tempted to use drugs."* (#S2; teacher)

In summary, in consistent with the KAB model, the implementation of the HSP has enhanced the knowledge of students on the types and impact of drugs, drug taking awareness, and the refusal skillset. The increase in knowledge thus directly influenced the attitude of students towards taking drug and, their self-perceived competence to refuse drug use. As a result, the positively changed attitudes intermediately lead to higher commitment to school work and activities and, directed students towards their future orientations.

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