

Conducting School  
Surveys on  
Drug Abuse

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3



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# Conducting School Surveys on Drug Abuse

Global Assessment Programme  
on Drug Abuse

Toolkit Module 3



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For further information, visit the GAP web site at [www.unodc.org](http://www.unodc.org), e-mail [gap@unodc.org](mailto:gap@unodc.org), or contact the Demand Reduction Section, UNODC, P.O. Box 500, A-1400 Vienna, Austria.

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## Preface

The *Global Assessment Programme on Drug Abuse Toolkit Module 3: Conducting School Surveys on Drug Abuse*, has been prepared with the support of the United Nations Office on Drugs and Crime under the Global Assessment Programme on Drug Abuse (GAP). The main objective of GAP is to assist countries in collecting reliable and internationally comparable drug abuse data, in building capacity at the local level to collect data that can guide demand reduction activities and in improving cross-national, regional and global reporting on drug trends. To support that process, the *GAP Toolkit Module 3* has been produced to assist States Members of the United Nations to develop culturally appropriate systems, relevant to the countries concerned, for collecting drug information, to support existing drug information systems by promoting their conformity with internationally recognized standards of good practice and to focus on the harmonization of drug abuse indicators.

*GAP Toolkit Module 3* forms one component of a compendium of methodological guides on drug abuse epidemiology that have been developed to support data collection activities. Other modules provide support in the following areas: developing an integrated drug information system, prevalence estimation, data interpretation and management for policy formation, basic data analysis, qualitative research and focused assessments, and ethical guidelines.

The purpose of the *Toolkit* is to provide a practical and accessible guide to implementing data collection in core areas of drug epidemiology. The *Toolkit* modules are designed to provide a starting point for the development of specific activities, referring the reader to detailed information sources on specific issues, rather than being end resources themselves. They are based on principles of data collection that have been agreed upon by an international panel of experts and endorsed by States Members of the United Nations. Although the models are based on existing working models that have been found effective, a key principle is that approaches have to be adapted to meet local needs and conditions.

## Acknowledgements

*GAP Toolkit Module 3: Conducting School Surveys on Drug Abuse* was produced with the support of the United Nations Office on Drugs and Crime under the Global Assessment Programme on Drug Abuse (GAP). The Office would like to thank the distinguished members of the Expert Group whose articles comprise this publication. The Group included skilled researchers with wide experience of conducting school surveys at an international as well as a national level in different parts of the world. The members met to discuss the draft content, the areas to be covered and the structure of *Toolkit Module 3*. The various chapters were written by members of the Group and subsequently circulated to other members of the Group, who provided valuable comments. Particular thanks are due to Björn Hibell, who contributed articles as well as editing the publication. *Toolkit Module 3* was compiled by Riku Lehtovuori (GAP drug abuse epidemiologist at the United Nations Office on Drugs and Crime) and Paul Griffiths (programme coordinator at the European Monitoring Centre for Drugs and Drug Addiction since October 2002).

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The Office would like to express its gratitude to all those institutions and expert networks which kindly provided examples of methods, tools and related material and assistance for the compiling of *Toolkit Module 3*. In particular, thanks are due to the Caribbean Drug Information Network (CARIDIN); the European School Survey Project on Alcohol and Other Drugs (ESPAD); the Monitoring the Future study of the University of Michigan, United States; the Ontario Student Drug Use Survey, Centre for Addiction and Mental Health, Canada; The PACARDO (Panama, Central America and República Dominicana) study of the Inter-American Uniform Drug Use Data System under the Inter-American Drug Abuse Control Commission of the Organization of American States; the Pompidou Group of the Council of Europe; and the Swedish Council for Information on Alcohol and Other Drugs.

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# Introduction

## Background

In 1998, the General Assembly of the United Nations, at its twentieth special session, devoted to countering the world drug problem together, adopted a Political Declaration (resolution S-20/2, annex) calling for the elimination or significant reduction of the supply of and demand for illicit drugs by the year 2008. That was the first time that the international community had agreed on such specific drug control objectives. However, the systematic data needed to monitor and evaluate progress towards those goals are not yet available. For that reason, the General Assembly requested the United Nations Office on Drugs and Crime to provide Member States with the assistance needed to compile comparable data. The Office was asked to collect and analyse the data and to report thereon to the Commission on Narcotic Drugs. In response to those requests, the United Nations Office on Drugs and Crime launched the Global Assessment Programme on Drug Abuse (GAP). GAP has been designed:

- (a) To support Member States in building the systems needed to collect reliable data to inform policy and action;
- (b) To encourage regional partnerships for the sharing of experiences and technical developments; and
- (c) To facilitate a better understanding of global patterns and trends in drug abuse by encouraging the adoption of sound methods of collecting comparable data.

Those aims reflect the challenge posed in the Declaration on the Guiding Principles of Drug Demand Reduction adopted by the General Assembly at its twentieth special session (resolution S-20/3, annex), which states the following:

"Demand reduction programmes should be based on a regular assessment of the nature and magnitude of drug use and drug-related problems in the population ... Assessments should be undertaken in a comprehensive, systematic and periodic manner, drawing on results of relevant studies, allowing for geographical considerations and using similar definitions, indicators and procedures to assess the drug situation."



The main objective of GAP is to assist Member States in building the capacity to collect internationally comparable drug abuse data and to assess the magnitude and patterns of drug abuse at country, regional and global levels. The development of national and regional information systems should not only contribute to the building of capacity at the local level to collect data that can guide demand reduction activities, but also improve cross-national, regional and global reporting on drug trends.

Estimates of drug abuse among the youth population form an integral part of all drug information systems. Data collected through school surveys play an important role as an indicator of youth population exposure for the purposes of international comparisons and trend analysis. *GAP Toolkit Module 3: Conducting School Surveys on Drug Abuse* reflects the considerable progress that has been made through the development and implementation of comprehensive, long-term school surveys using standardized methodology. However, the majority of countries, in particular those in the developing regions, lack the expertise and resources necessary to monitor trends in drug abuse among student populations in order to support policy-relevant and efficient drug demand reduction responses. The United Nations Office on Drugs and Crime has produced the present *Toolkit Module 3* as a practical planning guide to assist States Members of the United Nations in collecting drug abuse data in school settings.

### Structure of *Toolkit Module 3*

- Chapter I:* General issues relating to different survey methods are addressed. In particular, rationales for conducting school surveys are explored through a discussion of the advantages and disadvantages of this type of epidemiological survey.
- Chapter II:* An overview is provided of three large-scale school surveys, together with their background, purpose, research design and practical examples of sampling, data collection and reporting.
- Chapter III:* The overall process of conducting a school survey, from budgeting and selecting survey personnel to reporting, is discussed. Streams of several simultaneous study activities are outlined and ethical considerations involved in the selected methods are addressed.
- Chapter IV:* Key methodological issues, in particular those related to the representativeness of the sample and the reliability and validity of the measures taken, are summarized and means of improving these crucial preconditions for data analysis to produce comparable and meaningful information are described.
- Chapter V:* Sampling is discussed in chapter V. The target population is defined, taking into account relevant differences between national school systems. The connections between the soundness of the sampling frame, the definition of the sample size and the choice of a suitable sampling method are illustrated and a selection of additional reference material is provided.

- Chapter VI:* Questionnaire development is described, using elements of the model student questionnaire provided in annex I as points of reference. Testing procedures for refinement of the final questionnaire are summarized.
- Chapter VII:* The data collection procedure is detailed, focusing on the timing of data collection, the handling of absentees, the selection of survey leaders, contact with schools and parents and survey administration in schools.
- Chapter VIII:* An overview of the main preliminary tasks and activities to prepare data for analysis and reporting is provided. The instructions, including visual scanning of questionnaires and creating a data codebook, are illustrated by practical examples and followed by a description of the final procedures, such as screening for missing values, skewed distributions and logical consistency in reporting before data are analysed and reported. Potential problems that a researcher may encounter in the final stages of school survey implementation are described.



# The use of school surveys

*Barbro Andersson*

## Chapter I

The prevalence rates of alcohol, tobacco and other drug use are matters of concern to policymakers in most countries, since they are important factors affecting the health and welfare of the population. Information on alcohol and drug use prevalence rates is usually gathered through epidemiological surveys. Such surveys of the general population are carried out in many countries and often include questions on alcohol and other drugs.

There are several methods that can be used to survey populations such as face-to-face or telephone interviews and self-administered questionnaires. In addition to the traditional methods, new technologies have made available computer-assisted interviewing, which replaces paper and pencil forms with electronic forms accessed via personal computer or a computer terminal. However, these technologies are, as yet, expensive and not commonly available.

In recent years, researchers have experimented with the use of the Internet for surveys. However, this methodology has several serious shortcomings that have not yet been adequately overcome, including variations in levels of ownership of personal computers, of access to the Internet and of frequency of Internet use. It has also proven difficult to establish a reliable sampling frame for Internet surveys, leading to doubts as to the representativeness of the results.

When household surveys are performed, a wide segment of the population is targeted, usually those between 16 and 75 years old. The topics covered are not only alcohol and drug use, but also health behaviour in general. As the youngest respondents comprise only a small part of the target population, the resulting samples usually contain too few young people for analysis to be meaningful.

For collecting data on alcohol, tobacco and drug use prevalence among young populations, the most efficient and frequently used method is to conduct school surveys; the advantage of school surveys is that they are cost-effective and relatively easy to conduct. Appropriate schools and classes are usually easily selected and students are available in the classroom during the school day. Instead of contacting

randomly selected individuals, it is possible to reach a large number of students in one session. Additionally, in many countries young people feel more comfortable admitting to illegal or socially disapproved behaviours such as drug use in the school rather than the home setting. There is evidence from several studies that youth are less likely to disclose drug use at home than at school, whether in a household face-to-face interview or over the telephone. Students appear to consider the data collection situation in school more confidential than answering a questionnaire or being interviewed at home, where, perhaps the parents are present or in the next room.

The mode of data collection is relatively easy to standardize and control in school surveys. If the students trust the school staff, which in many countries they do, teachers or other members of staff, such as the school nurses, can administer the questionnaires to the students and return them to the research institute (see chapter VII).

Another rationale for using school surveys to study alcohol and drug use is that students represent age groups in which the onset of different substance use is likely to occur. It is considered important to monitor the prevalence rates of such use over time.

The response rate in school surveys is usually high. In fact, the response rate in most studies is equal to the number of students present in class on the day of data collection; refusals are uncommon in most surveys. It is therefore not uncommon for school surveys to have a response rate of over 90 per cent, while other forms of epidemiological survey often have a response rate of 70 per cent or less.

There are, of course, some disadvantages associated with school surveys. One of the most obvious has to do with the target population. A school survey is, by definition, a study of young people enrolled in the educational system of a particular country. Countries differ in terms of the age span for which school is compulsory, but it usually ends at around 15-16 years of age.

The proportion of an age cohort outside the compulsory school system may therefore differ substantially between countries. There is also reason to suspect that dropouts from school engage in alcohol and drug use to a greater extent than those inside the school system.

There are also substantial differences among countries as to the extent to which young people continue their education after completing compulsory school. Groups outside the secondary school system can be expected to differ from students, not only in terms of prevalence rates of alcohol and drug use, but also in terms of social and economic status.

Thus, the youth that are not reached are those not attending school and those absent on the day of data collection. In both groups, a higher proportion of individuals taking drugs or drinking a lot of alcohol is likely to be found. However, these people are equally likely to be among those missing from household surveys.

When a series of surveys is planned (for example, annually) the response rate for each survey is of particular interest. However, in countries with an ongoing series of school surveys, the response rates tend to be of about the same magnitude year after year. This means that the trends that emerge from these series are relatively unaffected by dropout rates.

The results of school surveys are sometimes used for evaluation purposes. When prevention strategies and campaigns are planned, an evaluation of their effects is required. However, it is important to use some caution when using school surveys for such purposes.

The first task is to decide what are the possible effects of variables. It is generally thought that measures of prevention regarding alcohol and drug use are likely to affect usage rates. However, when an evaluation is needed, thought should be given to the kind of effect expected. For example, if the preventive efforts were made at a cognitive level, no effects might be found at the behavioural level, but some found at the attitudinal level. It is also important to consider whether the target population of a campaign is the same as the school classes surveyed. Ideally, an evaluation should include a control group, for example, classes in a similar city or region where no preventive intervention was made. In addition, surveys should only form one part of the evaluation process.

Another important factor that may lower the quality of data relates to the frequency with which school surveys are conducted. If students are exposed to too many questionnaires, their willingness to cooperate could decrease, which could lead to a higher degree of missing or invalid data.

When asked about their alcohol and drug use, adults tend to underestimate their consumption. There are many reasons for this, one of which is social desirability or the tendency of respondents to give answers that they think are either consistent with researchers' expectations or that will make them look better in the eyes of the researchers. By contrast, young people may overestimate their drinking habits, for example, if they feel that drinking is associated with adult behaviour or is expected by their friends. The risk of receiving inaccurate responses is probably higher if the data collection setting is less formal, that is, if the student thinks that classmates might be able to see their responses. There is strong evidence from many studies, however, that data collected through school surveys have a high level of reliability and validity (see chapter IV).

To sum up, school surveys constitute the most important method of collecting data on alcohol and drug use among young people. They are relatively inexpensive and easy to administer and many studies have shown that they yield good quality data. This is, of course, dependent upon the use of a sound methodological procedure. These matters are considered in detail in other parts of *Toolkit Module 3*.





# Examples of ongoing large-scale school surveys

## Chapter II

The use of tobacco, alcohol and other drugs by young people is a cause for great concern in most countries and a lot of studies have been carried out to learn more about consumption patterns. In the present chapter of *Toolkit Module 3*, three ongoing large-scale school surveys are presented. The European School Survey Project on Alcohol and Other Drugs (ESPAD) collects data every fourth year in a large number of European countries, the Monitoring the Future Study has collected data annually since 1975 among North American students and the Inter-American Drug Use Data System study collects data biennially, mainly in Central America and the Dominican Republic.

### **The European School Survey Project on Alcohol and Other Drugs**

*Björn Hibell and Barbro Andersson*

In order to discuss alcohol and drug consumption levels in a country, comparable data from other countries is needed. In spite of the large number of studies conducted in many countries, it is difficult to obtain a comprehensive picture and to compare the levels of alcohol and drug use prevalence in different countries. The main reason for this is that studies are carried out with different age groups, using different questionnaires and at different times.

In the mid-1980s, a school survey questionnaire was tested in eight European countries. For various methodological reasons such as sample size, the geographical areas included and the ages studied, the data were not directly comparable. However, the survey instrument was proved to be valid and reliable, which was the main purpose of this pilot project[1].

In 1993, the Swedish Council for Information on Alcohol and Other Drugs (CAN) initiated a collaborative European project by contacting the Pampidou Group of the Council of Europe, as well as researchers in most European countries, to explore the possibility of conducting



simultaneous school surveys on drug, alcohol and tobacco consumption. The result was ESPAD, the first survey of which was conducted in 1995, the second in 1999 and the third in 2003.

The key to obtaining data that are as comparable as possible is standardization. This includes the target population, national project plans, the sampling, the field procedure, the questionnaire and the reporting of major results. The ESPAD plan contains a lot of practical information on how to conduct a survey in each participating country[2].

### *Purpose, national project plans and regional seminars*

The main purpose of ESPAD is to collect comparable data on drug, alcohol and tobacco use among students in as many European countries as possible.

Another long-term goal is to monitor trends in alcohol and drug habits among students in Europe and to compare trends in different countries. Changes in one part of Europe can then be used to improve understanding of trend patterns and to enhance readiness for prevention strategies in other countries.

An additional goal is to provide data that can be used as a part of the evaluation of the European Union Action Plan to Combat Drugs (2002-2004) and the Declaration on Young People and Alcohol, adopted at the World Health Organization European Ministerial Conference on Young People and Alcohol, held in Stockholm, 19-21 February 2001.

It is planned to repeat the surveys every fourth year in order to provide data on where and when changes in alcohol and drug consumption occur. All European countries can participate.

Each country is responsible for writing a national project plan according to a standardized format. The project plans are then discussed in detail at regional seminars, where researchers from participating countries endeavour to solve any problems encountered and dispense advice. After the seminars, rewritten national project plans are sent to the project coordinators.

### *Target population and sampling*

The target population of ESPAD is students who are 15-16 years old at the time of data collection. In the three surveys of 1995, 1999 and 2003, that meant students born in 1979, 1983 and 1987 respectively. One reason for choosing this age group is that, in most European countries, young people at this age are likely to be found within the compulsory school system. The target population is limited to students who are present in class on the day of data collection. Consequently, data from possible follow-up studies on absent students are not included in the international

ESPAD reports. The target population does not include students who are unable to understand or for other reasons cannot answer the questionnaire without assistance, such as retarded, mentally disturbed or severely disabled students.

Students of 15-16 years of age are the compulsory target group in the ESPAD study. If a country wishes to add an additional age group, it is recommended that 17-18 year-old students are chosen, so that students born in 1977, 1981 and 1985 respectively could participate in the data collections of 1995, 1999 and 2003.

The nationally representative sample should be drawn as a cluster sample, in which the sample units are classes. The ESPAD researchers can choose from several sampling models, including total population sampling, simple cluster sampling, two-stage cluster sampling or stratified cluster sampling. Detailed information on sampling procedures is given in *Guidelines for Sampling Procedure in the School Survey Project on Alcohol and Other Drugs*[3].

It is recommended that the number of participating students be above 2,400. One reason for this is that it allows breakdowns to be made in tables by sex and another variable. The attainment of 2,400 participants in practice means a larger sample is required. It can be expected that some of the selected classes will not be able to participate and that about 10-15 per cent of the students will be absent when the data is collected. Thus, to obtain the recommended minimum number of answers, the sample should include not less than 2,800 students belonging to the target population. If a complementary goal of a country's participation in ESPAD is to compare subgroups, for example different regions, the sample will need to be larger than 2,800 students. If students in the target population are in two or more grades, classes from all the relevant grades should be sampled.

### *Data collection instrument and field procedures questions*

The ESPAD questionnaire contains core questions, as well as module and optional ones. The core questions should be used by all countries. They include some background variables, nearly all the alcohol-, tobacco- and drug-related questions, as well as some methodological questions. The questionnaire also contains module questions and three optional questions.

A module is a set of questions focusing on a specific theme. The ESPAD 2003 questionnaire contains four modules, entitled "Integration", "Mainstream", "Psychosocial measures" and "Deviance". Countries are encouraged to use one or two modules in their entirety, although some countries have even selected questions from all four modules.

A country may supplement the core, module and optional questions with questions of special interest, that is, country-specific questions. However, the special interest questions must not overload the questionnaire or in any other way jeopardize the students' willingness to answer honestly.

Field-testing of the questionnaire is highly recommended for countries joining the project. A field test is also recommended if a country adds questions that were not used in earlier studies.

The ESPAD standard questionnaire is written in English. In each country the final version of the questionnaire must be translated into each language and then translated back into English by another translator, in order to prevent any divergence from the original text.

The head teachers of selected schools should be contacted and informed of the planned study. He or she should be asked to inform the teacher(s) of the chosen class(es), but not to inform the students in order to avoid discussions among them that could lead to biased data. The class teacher should be asked to schedule the survey for one class period, following the same procedure as for a written test.

Even if the data collection is administered by someone from outside the school, it is important that teachers affected by the survey are informed about it. Data collection should take place during a week not preceded by any holiday, in order to ensure that the students refer to a "normal" week when answering the questions. Schools unable to conduct the survey during the assigned week may postpone it until the following week.

Whenever possible, it is preferable that the data collection in a school is carried out at the same time in all participating classes. The main reason for this is to avoid discussions in the breaks that might influence the answers of those students who have not yet taken part in the study.

It is of great importance to use a survey leader trusted by the students. It is therefore left to each ESPAD researcher to decide whether teachers or research assistants should be responsible for data collection in his or her country.

The questionnaires should be answered anonymously, that is, they should not contain any identification numbers and the students should not write their names on them. In order to enhance the perception of anonymity, each student should be provided with a blank envelope in which to seal his or her completed questionnaire.

ESPAD provides the survey leader with written instructions on the manner in which the questionnaire should be completed in the classroom. The survey leader should complete a standardized classroom report while the students answer the questionnaire.

### *Reporting and further information*

After each data collection, data from each country are presented in a standardized national report, called a "country report", which is sent to the coordinators to be used as a basis for the international ESPAD report. Besides standard tables, coun-

try reports contain a description of the sampling frame, the sampling procedure and how the data were collected, as well as the number of absent students, the reasons for their absence and so forth.

The objective of the international report is mainly descriptive, that is, to compare students' alcohol and drug use in participating countries and to study changes in habits. The common descriptive report is by no means supposed to be the only international report. On the contrary, the available data will be sufficient for many reports, including analysis of the four modules.

In 1995, data were collected in 26 countries. When the second ESPAD study was conducted, in 1999, 31 countries provided data[4]. At the time of writing, about 35 countries are expected to participate in the 2003 data collection.

The following countries and territories participated in the 1999 survey: Belarus, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, the Faroe Islands (Denmark), Finland, France, Greece, Greenland (Denmark), Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Sweden, the former Yugoslav Republic of Macedonia, Ukraine and the United Kingdom of Great Britain and Northern Ireland.

Further information about ESPAD project can be found in the ESPAD reports and on the ESPAD web site at [www.espad.org](http://www.espad.org). Additional information can also be obtained from the coordinators, Björn Hibell ([bjorn.hibell@can.se](mailto:bjorn.hibell@can.se)) and Barbro Andersson ([barbro.andersson@can.se](mailto:barbro.andersson@can.se)) at the Swedish Council for Information on Alcohol and Other Drugs (CAN) ([can@can.se](mailto:can@can.se)), P.O. Box 70412, S-107 25 Stockholm, Sweden; telephone +(46) (8) 412-4600; facsimile +(46) (8) 104-641; web site [www.can.se](http://www.can.se).

## The Monitoring the Future study

*Lloyd D. Johnston*

The Monitoring the Future study is an ongoing nationwide study of substance use among adolescents, college students and adult high-school graduates in the United States. Initiated by a team of social scientists at the University of Michigan in the mid-1970s, it has consisted of a series of annual in-school surveys of national samples of secondary school students. In addition, representative samples of secondary school graduates are followed up using self-administered mail surveys for many years after they finish secondary school, in what is called a cohort-sequential design. The earliest cohort is about to be re-surveyed at age 45.

Support for this long-term study has come from the National Institute on Drug Abuse, one of the National Institutes of Health. It comes in the form of a series of five-year, renewable, investigator-initiated, competing research grants.

## *Purposes*

The Monitoring the Future study has quite a number of research purposes. Of most relevance to *Toolkit Module 3* is the purpose of quantifying and monitoring changes in the use of a host of licit and illicit drugs by adolescents, college students, young adults generally and adults up to middle age. Because of the cohort-sequential design, it has the additional purpose of trying to distinguish among three different types of change that may be occurring: period effects (changes across years common to all cohorts and ages), age effects (changes with age common to all cohorts) and cohort effects (differences among cohorts that last across much or all of the life cycle). A third purpose is to determine and monitor changes in many of the risk and protective factors for drug use. Among the most important of these have proven to be certain attitudes and beliefs about drugs; in particular, the perceived risk associated with using a particular drug and the level of personal disapproval of use of each drug.

Finally, the panel feature of the study allows the examination of potential causes and consequences of various types of substance use by examining relationships among variables across time on the same individuals. Among the most important determinants examined are transitions in major environments, such as college or military service, and roles, such as marriage, parenthood and divorce. A more detailed description of the full set of objectives and findings generated relevant to each of them may be found in Johnston and others (2001)[5].

Among the substances under study are tobacco, alcohol, inhalants, a large number of illicit drugs (for example, marijuana, cocaine, methylenedioxymethamphetamine (Ecstasy), hallucinogens and heroin), psychotherapeutic drugs used outside of medical direction (amphetamines, sedatives, tranquilizers and various narcotics), certain drugs that can be sold without prescriptions (diet and stay-awake drugs and sleep-aid pills), and anabolic steroids.

## *Target populations and sampling*

Large independent samples are surveyed each year at grades 8, 10 and 12. In recent years, approximately 45,000-50,000 students per year, in some 430 secondary schools have been surveyed. The eighth, tenth and twelfth grades correspond closely to ages 13-14, 15-16 and 17-18 respectively. The twelfth grade surveys started in 1975, while the lower two grades were added to the annual surveys in 1991.

Because school attendance is mandatory until the age of 16, loss rates at the eighth grade due to students dropping out of school are negligible, and at the tenth grade they are quite small, perhaps 5 per cent. Twelfth grade is the last year of universal public education in the United States, and some 85 per cent of each birth cohort finish twelfth grade, according to data from the United States Census Bureau.

A multi-stage, random sampling procedure is used to select the student sample at each of the three grade levels. Stage 1 is the selection of specific geographical areas (often counties) from around the country that, collectively, should contain a representative national sample of the entire general population. These areas are selected from census frames with stratification on such variables as region and population density in order to ensure proportional representation of these variables each time the study is conducted. The second stage is to select one or more schools from each of these areas, with their probability of selection set to be proportional to the size of the school, as measured by the estimated number of students in the grade in question. In this way, schools come into the sample in proportion to the number of students they serve, which prevents the sample from over-representing small schools. The third stage is the selection of students within the school in the grade level under study. In larger schools (with more than 350 eligible students), a random set of classrooms is selected. In smaller schools, all students are usually surveyed. The weighting of the resulting data corrects for unequal probabilities of being selected into the sample. Final weights are normalized to average 1.0 so that the weighted number of cases equals the actual number, making the presentation of results less complicated.

More information on the design of the Monitoring the Future study and its findings may be found in the three monographs published annually by the study team[6-8]. These and all other publications from the study cited here may be found on the Monitoring the Future web site at [www.monitoringthefuture.org](http://www.monitoringthefuture.org).

Once the students selected into the samples for each grade have been surveyed in school, a randomly selected sub-sample of 2,400 of the twelfth-grade participants from each year is chosen to constitute a panel that will be followed up in future years. They are surveyed biannually by mail until the age of 30 and then every five years until the age of 45 and perhaps beyond.

### *Data collection instruments and field procedures*

Self-administered questionnaires are used in all the Monitoring the Future surveys. Because of the large samples, it is possible to divide the instrumentation across multiple forms, making it feasible to cover much more substance. Four such forms are used in the eighth and tenth grades and six forms are used in the twelfth grade. All forms have two sections in common with all the other forms used in that grade: the family background and demographics section and the self-reported substance use section. In that way, the key dependent variables (regarding drug use) and the key control variables (background and demographic measures) are available in all forms.

While there have been revisions in the instrumentation over the years in response to changing realities (such as new drugs and new containment efforts), the investigators have made a particular effort to hold constant both the wording of the ques-

tions and answers, and the context in which the question is asked. The purpose of this constancy is to ensure that any changes in substance use that might be observed over the years reflect real changes in the underlying phenomenon and do not just result from changed methods. Because of this carefulness in the handling of changes in methods, the Monitoring the Future study is generally viewed as the most reliable source of information on drug trends among young people in the United States.

Considerable evidence has been gathered over the years about the reliability and validity of the drug measures used in the study, which have been adopted by others both inside the United States and in other countries. Perhaps the best information on reliability comes from an analysis of three waves of panel data[9]. The various other types of evidence are summarized in chapter 3 of Johnston, O'Malley and Bachman (2002b)[7] or in any prior volume in that series.

The questionnaires are administered by University of Michigan personnel, who travel to each school in the sample. Travel costs are minimal because the University has a national staff of interviewers scattered around the country available to conduct national surveys of various sorts. Staff at the central office approach the schools to secure their participation, select and contact replacement schools for those that decline to participate, arrange by post and telephone the timing and details of the administration, and assign the field interviewers to the relevant schools. Further details about these and the study's other procedures may be found in Bachman, Johnston and O'Malley (2001)[10].

The questionnaires currently given to eighth- and tenth-grade students are anonymous, while those given to twelfth-grade students are confidential, since the names and addresses of the students are needed for the follow-up surveys of the subset of them who will comprise the panel. A careful examination of the effects of changing the questionnaires in the lower grades from confidential to anonymous suggests that there was no difference at the tenth grade as a function of the mode of administration, and only a very small difference, if any, at the eighth grade[11]. That finding may not hold in all cultures, however. The completed questionnaires are optically scanned by contract with a company that specializes in such work.

### *Reporting and further information*

As might be expected, given the scale and duration of the Monitoring the Future study, it has given rise to a large literature. All its publications are cited on the study's web site; some can be viewed in their entirety and the abstracts of others can be viewed. The primary method for disseminating the major epidemiological findings from the study is the series of three monographs published annually[6-8]. Complete descriptive results from all of the twelfth-grade surveys are presented in a series of hard-bound volumes. There is a series of occasional papers that now number nearly 60 and many articles and chapters.



The study has been used extensively to guide government policy and the investigators have been asked to advise various administrations and to testify before the United States Congress more than a dozen times. The national trend results are released to the media each year in the form of two carefully prepared press releases, one dealing with cigarette use by young people and the other with their use of illicit drugs and alcohol. These press releases can be viewed on the study's web site, which also contains information on how to contact the study staff and provides links to a number of other sources.

### School Surveys in the Inter-American System of Uniform Drug-Use Data

*Julia Hasbun*

The use of legal and illegal drugs by young people has been an area of study for all the States members of the Organization of American States. In 2000, the PACARDO study, conducted in Central America and the Dominican Republic, directed attention to secondary school students in those countries. The results indicated that drug use was a common practice among secondary school students and that the age of first use was becoming younger than pre-studies had indicated. This raised awareness that drug use prevalence and patterns should be analysed and recognized as a priority research topic for all States members. The Inter-American System of Uniform Drug-Use Data (SIDUC) under the Inter-American Drug Abuse Control Commission (CICAD) offered a solution by including such measures in their school surveys.

The SIDUC cooperation has shown that, if countries jointly create a standard methodology, it is possible to make comparisons between countries and draw strategies for regions and groups of countries. In 1987, a school survey questionnaire was tested in Central America and the Dominican Republic. Based on that survey and the PACARDO study, researchers created a short questionnaire to measure the prevalence and patterns of drug use and abuse among secondary students.

#### *Purpose and planning procedures*

The main purposes of SIDUC school surveys are:

- To monitor trends on drug use and abuse through the years;
- To collect comparable data on drug use among secondary students in different countries;
- To develop and use comparable methodologies in order to overcome the difficulties of and obstacles to conducting drug surveys;
- To provide low-cost procedures and tools for research in participating countries.



SIDUC school surveys are conducted every two years, but States have the option of conducting surveys annually.

In order to standardize procedures, researchers held a large number of seminars to discuss the definition of the target populations to be studied, sampling procedures, field procedures and, most important of all, the questionnaire to be used. During this process, more countries joined SIDUC.

Each country is responsible for writing its national report in a standardized format. Meetings and workshops for national researchers from the various States are planned, for the purpose of identifying and improving common strategies.

### *Target population and sampling*

The target population of SIDUC school surveys is secondary students in private and public schools in the eighth, tenth and twelfth years of study leading to a diploma. That is a population of students attaining the age of 13, 15 or 17 during the year data is collected. Targeting these groups of ages provides an overview of the situation among adolescents and avoids the need to target all secondary school grades.

The sampling process takes place in two stages. First, schools are selected from lists of official, private and public schools; in some countries, the lists and numbers of students currently in the grades must be confirmed during this stage. Secondly, school grades and classrooms (sample units) are chosen. All students in a chosen classroom are included in the sample. Students absent from class on the day of data collection are considered non-respondents.

The minimum geographical area recommended for sampling schools is the metropolitan area; States may conduct national sampling if desired. Other grades may be included if it is deemed necessary, provided the pre-established grades are included.

The participating States are responsible for obtaining the sampling frame. Approximately 2,000 students are included in each national sample.

### *Data collection instrument and field procedures*

The SIDUC school questionnaire contains a minimum core set of variables that all participating States must include and must address in a standardized way. These sets of questions are already closed and pre-coded; that is, a fixed set of answer categories is provided for each one. States are welcome to include other variables.

The questionnaire is self-administered and respondents are not asked to give their names. States are required to test the questionnaire in a pilot study before beginning the data collection process. The questionnaire is available in both Spanish and English. Most participating States are Spanish-speaking.

Interviewers contact head and classroom teachers of the selected schools and agree on the day, time and schedule for the administering of the survey. While students complete the questionnaire, teachers are asked to be absent from the classrooms. The interviewers are responsible for discipline during the administration of the questionnaire. It is recommended that the interviewers be young, with a profile similar to the respondents. A written manual helps the participating States maintain standard procedures.

### *Reporting and further information*

CICAD analyses the collected data and presents the results for each country in regional reports. However, each country is also responsible for producing its own report addressing its particular issues and needs. In addition to descriptive statistics, the results of bivariate and multivariate analyses are presented. The results are presented in written reports and are also available on the web sites of all the participating institutions. Some of the indicators of the National Drug Observatory, the common drug reporting system developed for SIDUC countries, are obtained from this study. The standardized process started in 2002 in some of the States. It is expected that all States members of SIDUC will join and conduct the school survey in 2003. The States participating in SIDUC include Belize, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, United States, Uruguay and Venezuela. Further information may be obtained from the CICAD web site at [www.cicad.oas.org](http://www.cicad.oas.org).

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# Planning, administration and costs

Lloyd D. Johnston

## Chapter III

An overview of the entire process involved in conducting a school survey is useful in order to save time, avoid mistakes and control costs. A flow chart of the process is provided (see figure) to indicate some of the milestones and major categories of activity and to indicate which ones can move in parallel with others (saving time and costs) and which ones must await the completion of others.

The early planning process involves taking a decision on whether and how to proceed with a school survey. Many of the relevant considerations for making such a decision are presented in other chapters of this *Toolkit Module 3*. The initiative for undertaking such a survey may originate from any of a number of organizations or individuals, which makes the exact starting point for the planning process somewhat imprecise. However, once the decision to conduct a survey has been made, a source or multiple sources of funding must be found. Decisions must then be made about who will direct the research, what types of expert and staff support will be needed and what timetable will be realistic for the overall endeavour, as well as for the major components shown in the flow chart. While a rough preliminary budget estimate may be used in the initial decision of whether to proceed with such a survey, it is advisable to have the lead investigators prepare a more specific budget once they have had an opportunity to review carefully the various activities in the research plan and to estimate the cost of each of them.

In some countries, an advisory team may be established to oversee the undertaking and to select the lead investigators. In others, the initiating organization may simply recruit one or more individuals to run the project and allow them a fair amount of latitude as to how to proceed. Alternatively, individual researchers may take the initiative to conduct such a survey. There are advantages and disadvantages to each approach. For example, the advisory committee approach can help to engage people or organizations needed to fund, conduct or make use of the research. However, having such a committee may result in differences of opinion or the involvement of political considerations in the process. If it is decided to have an advisory

committee, it is generally best if it deals with the broad policy and financial issues of the work and leaves scientific decisions to the scientists.

The research design has multiple elements, some of which are discussed at length in the present *Toolkit Module 3*, including: deciding on the purposes of the research, defining the group of people to whom the results should be generalized, designing a sampling plan for representing that group with an acceptable degree of accuracy, developing a research protocol for gathering data from that sample of respondents and developing an analysis and reporting plan. Each of these elements has an impact on planning, staffing and costs. The following section deals with the issue of the type and number of personnel that are likely to be required to carry out a large-scale study of substance use among students in a country.

## Personnel

Various types of personnel are needed for the conduct of a school survey, for varying lengths of time. Selecting, training and supervising them are all critical elements in the conduct of a survey. In smaller countries, the same individuals may play multiple roles in such projects and it may be possible to involve experts in the project that do not require monetary compensation.

### *Lead investigators*

The lead investigator(s) ideally will participate in the activity from start to finish and will supply the elements of planning and integration needed to be sure that the end product matches the needs and objectives that gave rise to the research in the first place. Ideally, they would be trained social scientists with some experience in survey research techniques, including design, instrument development, sampling and analysis. However, sometimes it is not practical to find such individuals, in which case the person chosen to be lead investigator will be more dependent on the advice of experts and consultants to ensure that the scientific principles underlying this field of survey research are being followed.

### *Core staff*

It is also desirable that several key support personnel stay with the study for its duration, participating in several different activities and making sure that they are carried out according to plan. They should be well educated and preferably have some experience with research activities. They may supervise various components of the study, under the general direction of the lead investigator(s). If they are trained in running data analysis computer programs they can play an essential role in carrying out the data analyses towards the end of the process.



### *Data collection staff*

Whether or not to employ personnel from outside the school to collect the data is an important decision that affects the budget, staff size and possibly the validity of the data collected. If it is decided that the children will trust the teachers in their schools to protect their confidentiality, then the teachers can collect the data from the students. If it is decided that the students are not likely to answer honestly if their own teachers are supervising the collection of the sensitive data contained in surveys of drug use, then staff members must be hired, and usually compensated, for collecting the data in the field. In one country, trained psychologists were hired for this purpose for a national school survey, in another, trained field interviewers from a survey research organization, and in a third, school nurses. In some countries, university students may be willing to take part in such a survey for the sake of obtaining valuable training and perhaps a small monetary compensation. However, such high levels of skill are not necessary for this work. The ability to follow directions and to communicate effectively both orally and in writing are sufficient. (More information regarding data collection staff is provided in chapter VII.)

If a field staff member is to be hired, trained and supervised, then those steps must be built into the plan of activities and reflected in the budgetary planning. Such staff members are usually hired only for the period of time over which data are being collected (plus some prior interval for their training). Lengthening the data collection period may reduce the number of such people that need to be hired and trained, since each one can cover more schools, but it may also lengthen the period over which the core staff and the lead investigator(s) must be paid. An over-long data collection period can give rise to problems of seasonal fluctuations in substance use being confounded with other variables, such as region of the country.

Thus, a part of the planning process is to decide whether outside data collection personnel are needed, and if they are, to decide how many to hire and for what period of time. (More should be hired than are actually needed in the field, since some will leave and the contracts of others may have to be terminated on the grounds of poor performance.) If the country covers a very large geographical area, making travel costs a significant consideration, thought should be given to hiring people living in different regions of the country to collect data in their own areas.

Investigators in a number of countries have concluded that they can elicit accurate responses from students using teachers to collect the data, usually with some specific procedures for the teachers to follow that would reassure the students about their privacy. (See, for example, Bjarnason (1995) who compared the two methods in one country and found no differences in reported drug use[1].) There are obviously considerable monetary and logistic advantages to having teachers handle the administration of the questionnaire, but if, as a result, the data retrieved from the students is worthless, it is a very costly saving. Clearly, this is a judgement call that must be made in each cultural setting and that could be informed by a short pre-test using both methods.

### *Consultants*

While the present *Toolkit Module 3* provides practical help, a large, rigorous school survey would benefit from direct technical assistance at various stages, depending of course on the areas of expertise of the lead investigators. If the lead investigators are new to this area of research, they may want to consider a short-term consultation with an experienced expert at the initial planning stage, again at the analysis-planning stage and perhaps also at the interpretation stage. Such an expert may reside within the country or may be brought in from elsewhere, perhaps with the assistance and support of one of the international organizations that deal with the control of drug abuse.

Sampling is a technical area and the design for drawing adequate samples of clustered respondents (which is what schools represent) is a specialization within that area. Of course, the starting point is to read the chapter in the present volume on sampling (chapter V). However, consultation with a sampling statistician is likely to be helpful, again at an early point in the planning effort, since the sampling design affects so many other parts of the effort and, in particular, costs. (A more detailed discussion of the sampling resources needed, as well as other administrative considerations, may be found in Johnston (2000[2].)

If neither a general consultant from the substance abuse field nor a statistician is available to assist with data analyses, an alternative is to seek an expert on statistical analyses. Such an expert does not usually conduct the analyses; rather, he or she advises on the choice of analyses and appropriate computer programs for conducting them. A number of the most important analyses from a policy point of view can be done quite simply.

At an early stage of the planning process a budget must be developed in order to secure the commitment of sufficient funding to conduct the survey properly (see table). The issue of personnel was discussed above, before budgeting, because personnel costs are usually the single largest component of the costs of conducting a school survey and therefore greatly influence the overall budget. In fact, it is not possible to provide a cost estimate of a "typical school survey" because the budget is affected so dramatically by such factors as labour costs in the country, whether it is necessary to use data collection staff from outside the schools, the use of optical scanners versus manual data entry and the need for technical assistance. Also, the size of the sample needed and the size of the country across which that sample will be spread influence both staff and travel costs, particularly if outside data collectors are to be sent to the schools. Moreover, it is often the case that many of the personnel assigned to plan and conduct the school survey are already on the payroll of a participating agency. In that case, funding may not be needed to cover their time if the agency is willing to reassign them to the research effort. When this is the case, the additional funds that must be raised to conduct the research may be reduced sharply.

## Budgeting

Table. Budget outline

<i>Item</i>	<i>Year 1</i>	<i>Year 2 (if applicable)</i>
Personnel costs		
Lead investigator(s)		
Core support staff		
Secretarial/clerical		
Field staff (if applicable) for ___ months		
Consultants		
Fringe benefits		
Non-salary costs		
Office-space rental (if applicable)		
Office furniture (if applicable)		
Office equipment (as needed)		
Telephones		
Facsimile machine		
Copy machine		
Computers		
Office supplies		
Telephone service		
Advertising/recruiting costs		
Printing		
Questionnaires		
Brochures, instruction sheets, and so forth		
Final report		
Shipping and postage		
Questionnaires to schools		
Questionnaires back from schools		
Other		
Travel costs		
For investigators		
For core staff		
For field staff (if applicable)		
Subcontractor costs		
For data entry (if applicable)		
For any other services being purchased		
Overhead charges (if any)		

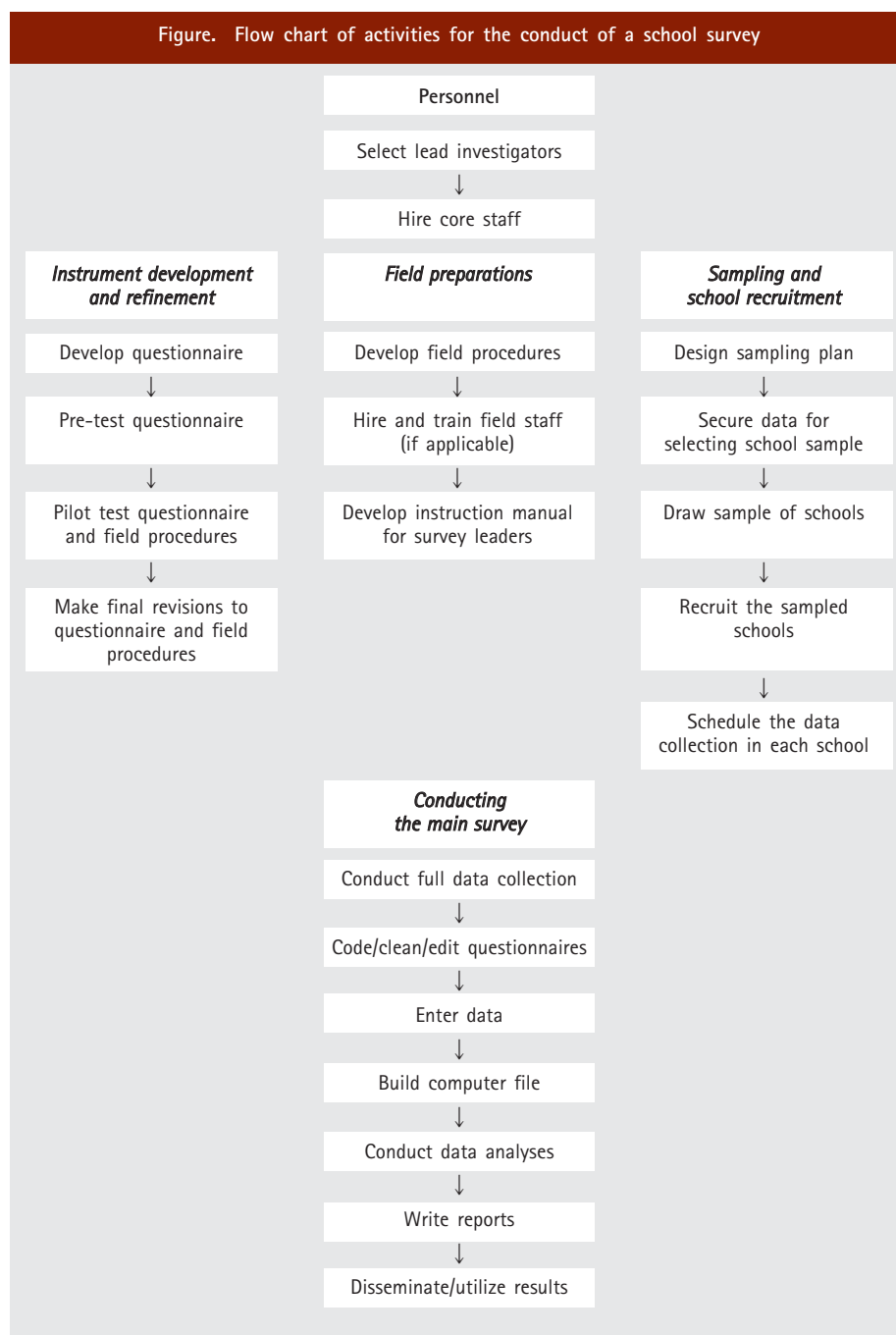
In addition to staff costs, there are usually costs associated with the layout, composition and printing of the questionnaire and the coding or editing, or both, of the completed questionnaires (unless the coding is to be done by study staff, which is desirable when possible). Other categories of cost to consider are rent (if applicable), telephone and postage costs, office supplies and furniture, travel costs, consultant costs (if not covered elsewhere), data entry costs (particularly if the questionnaires are to be optically scanned by a subcontractor) and printing and dissemination costs for the final report(s).

A careful examination of the elements in the flow chart given in the figure will show that considerable time and expense can be saved by undertaking several streams of activity simultaneously and by anticipating which tasks need to be completed before the next steps can proceed. The single most significant event in the flow of work is the initiation of the data collection in the field, but several streams of activity must have been completed before that can occur. The sample design and sample selection based on that design must have been completed and the resulting sample of schools recruited; the instruments must have been developed, pre-tested on a limit-



ed sample of students, revised and printed, and, if applicable, the field staff needed to collect the data must have been hired and trained. While it is easy for the lead investigator to become immersed in any one of these streams of activity, it is important for him or her to make arrangements to ensure that all three are proceeding simultaneously. The study can then progress to full-scale data collection as quickly as possible. A delay in any one of these streams will necessitate a delay in the main data collection.

### Scheduling



However, the schedule should not be too abbreviated, since unexpected developments are bound to arise and cause a delay in the completion of one or another of these streams of activity. For example, the sampling assistance may take longer than expected or the instrument may have to be heavily revised after the pre-test. If a field staff member is being hired, he or she should not be promised work too far in advance of the date at which the investigators expect to proceed with the data collection, since that will increase costs. Therefore, an effort should be made to make realistic estimates of the time necessary to complete each of the three streams of activity. One factor that could have a substantial influence on the preparatory time necessary is the nature of the school recruitment that must be undertaken.

### *School recruitment*

One item in the right-hand column, "Sampling and school recruitment", of the figure is the recruiting of the schools chosen to comprise the representative sample. If their participation is decided by central edict, by, for example, the ministry of education, then the process may be fairly rapid. In fact, in such cases it would be ideal if that central decision-making body were involved from an early stage in the planning for the survey, so that their willingness to cooperate could be assured. If the individual schools or school districts have the authority to decline cooperation, however, then the process of securing school cooperation can be complex and time-consuming. The investigator(s) may have to write to each school principal or head teacher inviting participation, conduct a follow-up call (or possibly a series of calls) to urge the school's participation and answer questions and may even have to communicate with higher authorities at the school district or state or province level if their approval is also required.

It is often a good idea to ask the principal to assign a contact person who will coordinate the data collection procedure with the research team. Once agreement to cooperate is obtained, arrangements for the administration of the questionnaires at the school can be made in a later call to the school. Because the school-recruiting process can take considerable time, it is advisable to give it due consideration in the planning of the study's calendar. In addition, time must be allowed for staff to make the necessary arrangements for the administration of the questionnaires at a mutually agreed date, and to organize the timely arrival of the questionnaires and, if necessary, the staff at the school.

### *Data collection*

Once the main data collection is proceeding, the investigators responsible should be carefully monitoring the quality of the data being collected to ensure that those collecting the data in the field are following instructions and to identify as early as possible any problems that might need to be rectified. Planning for the coding and editing of the data coming back can also be put in motion, to deal with any infor-

mation being gathered that is not already in numerical form and to ensure that problem data are cleaned up in advance of being entered in the computer. If time permits, the investigators can begin planning the analyses that they would like to conduct at the completion of data collection and data cleaning (see chapter VIII for further details).

### *Analysis and reporting*

Analysing the data that result from the survey and writing the report(s) based on those analyses are important elements in conducting a survey and they are often not accorded the attention they deserve because not enough time and resources were set aside for them at the outset of the study. Sufficient time should be allowed for the analysis, interpretation and reporting of results. For this stage of the survey, only the lead investigator(s) and an analyst or two are normally needed on the study staff, with perhaps the addition of a secretary. The costs of this stage of the survey are therefore considerably lower than those of the earlier stages.

### *Dissemination and utilization activities*

Once the report has been completed, arrangements should be made to bring it to the notice of people likely to be influenced by its results. In addition, the lead investigators may wish to arrange meetings with certain groups or make presentations to particular audiences to whom the work has relevance. Again, time should be allowed for this final stage of the survey process.

## **Ethical considerations**

In addition to the practical issues that have been discussed up to this point, there are several ethical considerations involved in this type of research that can have implications for some of the methods used. Nearly all school surveys of student substance use promise the respondents (and sometimes their parents and schools) that their student data will remain completely confidential or completely anonymous. Investigators have a responsibility to keep that promise and to do so requires a number of steps. If the data are completely anonymous, that is, there is no identifying information on a student's questionnaire, then the main effort to protect student confidentiality should be directed at the individuals collecting the data in the school. Teachers, for example, would be able to identify an individual in the class by looking at the pattern of answers to various factual questions, such as gender, age, ethnicity, parental characteristics, and so forth. That makes it imperative that a procedure be put in place to prevent teachers from being able to look through the questionnaires, even if they appear to be anonymous. In many countries, for example, the students are provided with an "anonymity envelope", inside which they can seal the questionnaire upon completion (see chapter VII for further details).

If information identifying the respondent is recorded on the questionnaire, such as the name, address and so forth, then arrangements to ensure confidentiality should be built in at all stages of the handling of the questionnaires. Whenever possible, at the earliest possible stage the identifying information should be stored separately from the answers to the rest of the questionnaire, with some type of link system used if there is a compelling reason to retain that information.

Schools may also be promised that their data will not be released publicly or to higher authorities. In that case, investigators also have a responsibility to keep that promise. Even if no such assurance has been given in advance, publicly identifying individual schools may attract criticism of the institutions that facilitated the completion of the research project. Investigators should therefore reflect carefully before proceeding with any such plan to release information. Creating difficulties for the participating schools may make it more difficult to obtain cooperation in the future for a similar survey.

Finally, in some cultures the school is given authority to act on behalf of the parents in relation to decisions affecting their children, such as their participating in a drug survey. In other cultures, the parents retain these rights, such that the question of parental notification and consent arises. Two means are commonly used to accomplish parental notification and obtain consent. Most common is the procedure called passive parental consent, although it could just as appropriately be called active parental dissent, in which the parents are notified of the research and given the opportunity to reply to the school only if they object. The other procedure is called active parental consent whereby a signed, written note conveying permission must be returned to the school or investigator by the parent (see chapter VII for further discussion of this issue).

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# Overview of methodological issues

*Björn Hibell*

## Chapter IV

Conducting a survey is a way of collecting data that would otherwise be difficult or impossible to collect. A critical question in all surveys is, of course, whether the answers obtained really reflect the true situation.

All surveys encounter methodological problems, which have to be considered when analysing the results. The methodological issues that will be discussed in the present chapter are representativeness, reliability and validity, issues that are of vital importance to the interpretation of the results. If a survey is not representative of the target population, its results cannot be used to draw conclusions about that population. Similarly, measures that are unreliable or invalid will not provide meaningful information.

### **Representativeness**

The representativeness of a sample refers to the extent to which a sample mirrors the population of interest. Several factors influence representativeness of the results. The way in which the samples are drawn, the size of the samples and the number of schools, classes and students that agree to participate in the survey are among the issues that determine the representativeness of a sample.

The target group in a school survey can either be defined as students born in a specific year or years (birth cohorts) or as students in one or more specific grade(s). The advantages and disadvantages of the various ways of defining the target population are discussed in chapter V. It should, however, be stressed that comparisons with data from other countries are usually easier to make if the target population is defined by year(s) of birth rather than school grade(s). When students in a birth cohort are distributed over more than one grade, it is important that all, or nearly all, relevant grades are represented in the sample.

The target population in a school survey is, by definition, young people who are still at school and does not include individuals of the same age who are no longer in school. It should therefore be kept in mind that student populations do not constitute the entire birth cohort(s). The fact that young people who drop out of school are likely to use substances at higher rates indicates that the lower the proportion of young people to be found within the school system, the larger the difference between the student population and the national population of that age.

Statements about drug use within a country can be useful as long as possible discrepancies in drug habits between students and non-students of the same age are kept in mind. However, big differences in school attendance between countries may make it difficult or impossible to make meaningful international comparisons. Substance-use habits of the student populations of two or more countries may be compared, even if the proportion of birth cohorts still in school is different in each country. However, such comparisons become less meaningful as the differences in school attendance become greater. Hence, if one of the goals of a national school survey is to make comparisons with data from other countries, it is important to define a target population where a large majority of the birth cohort(s) can still be found in school.

For international comparisons, it is important that the age groups compared are the same and that data are collected at the same time of year. In many international school surveys, data are collected in spring, often in March or April. If the same birth cohort is studied in October or November, the students will be about six months older, which might influence their experience with alcohol or drugs since the habits of young people can change significantly during a six-month period. If data in different school surveys are collected at different times of the year, this factor must be taken into consideration when the results are interpreted.

Random sampling is fundamental to obtaining a sample that is representative of the population (see chapter V). In most school surveys, the sampling unit is classes. Sampling students individually in a nationwide sample is usually complicated and asking only some students in a class to go to a special room to answer a questionnaire will probably have a negative effect on their willingness to answer honestly.

It should be noted that cluster samples of school classes demand special procedures when confidence intervals and statistical tests are calculated. Although cluster sampling should not affect estimates of how many adolescents have used different substances (point estimates), it will, in most cases, influence the precision of such estimates. Hence, it is of vital importance that calculations of confidence intervals and the measuring of significant differences are done correctly.

To be able to draw conclusions about the national level of substance use or make international comparisons, the number of sampled classes must be of sufficient size. The size of the sample is discussed in chapter V and includes considerations about possible analysis of drug habits in different subgroups. It is important that the num-



ber of students sampled is sufficiently high to permit data to be analysed separately for boys and girls.

Furthermore, the response rate must be sufficiently high to enable representative data to be obtained. In school surveys, there are two categories of response rate: one relates to school or class cooperation and the other to the proportion of participating students.

It is important that as many of the sampled schools and classes as possible take part in the survey. The risk of non-participation can be minimized in various ways, including giving the head teacher, via telephone calls and letters, clear information about the study and the sampling and the data collection procedures. (Further information on this topic can be found in chapter VII.)

Experiences from large-scale international school surveys such as ESPAD[1] and Monitoring the Future[2] indicate that the non-participation of schools and classes is not usually a major problem. However, the rise in the number of school surveys in some countries has made schools somewhat reluctant to take time off from school-work to participate in such surveys. Although this has mainly occurred in countries with a long tradition of school surveys, it highlights the necessity of approaching sampled schools in a way that makes them feel that they are part of an important study. If a significant number of schools or classes refuses to take part in the survey, the representativeness of the sample will suffer. One solution if schools decline to participate is to seek replacement schools that match them in terms of major demographic characteristics, preferably from the same general area. (If this is to be considered, the advice of an experienced survey researcher should be sought.)

Student participation in school surveys should always be voluntary and all questionnaires should be treated confidentially. In many countries, researchers are required by law to protect survey participants and for ethical reasons such protection should be guaranteed regardless of legal requirements. Such guarantees also increase students' willingness to participate in the survey and answer questions honestly. Means to achieve this include omitting from the questionnaires any requirement for names or other kinds of identification to be given, guaranteeing confidential treatment of questionnaires and data, promising not to report data on individual students or single classes and supplying each student with an envelope, without any identifying detail, in which the questionnaire may be sealed after completion (see chapter VII for further details).

In most school surveys, it is not common for students in school when the data are collected to refuse to answer the questionnaire. However, it may be expected that, on average, at least 10 per cent of students will be absent from class due to sickness or other reasons.

In order to be able to interpret the quality of the data collection, it is necessary to know the proportion of non-participating students. One way of measuring this is to use a classroom report such as that given in annex II.



Students with poor attendance records are more likely to be involved in substance use than students who attend school regularly. A follow-up study of students in Sweden has shown that students with poor attendance records were more involved in drugs. However, because of the relatively small proportion of such students, the figures for the population as a whole were unchanged or changed by only one percentage point if students absent at the time of the survey were included. In the Monitoring the Future study in the United States, the corresponding figure was estimated to be two percentage points or less.

If a large number of schools or classes refuses to participate or if the proportion of participating students is below 80-85 per cent, it is essential to analyse the reasons carefully. If the non-participating schools or classes seem to be randomly distributed over the target population, the loss may not have caused any major problems. If, however, systematic errors can be suspected, for example, that non-participating schools or classes can be expected to include students that are more likely to have used drugs or that students refusing to participate come from areas where drug consumption is known to be high, interpretation might be difficult and international comparisons may be jeopardized.

### Reliability

Reliability, which is a necessary condition for validity, is the extent to which repeated measurements used under the same conditions produce the same result. One way of measuring the reliability of surveys is to conduct repeated studies. It might also be possible to assess reliability by using data from different questions within a questionnaire.

In the ESPAD methodological study in seven countries in 1998, students were asked questions twice about their use of alcohol and drugs[3]. The interval between the data collection was 3-5 days. No significant differences in consumption patterns were found between the two data collections in any of the countries. This was true for alcohol consumption as well as for drug use prevalence, which indicated that the reliability was very high in all the participating countries. Similar results with no significant differences have also been reported from two repeated school surveys conducted in Hungary and Iceland[4], as well as in the United States[2] and in several countries in Europe and the United States and Canada[5].

Many school survey questionnaires contain more than one question on the same aspect of drug use, even though the questions are put there for other reasons. An example can be found in the student questionnaire in annex I. In question 15 the students indicate at what age (if ever) they smoked a cigarette, drank alcohol or used different kinds of drugs for the first time. Students who have ticked a box to indicate use of a substance must have used it at least once in their lifetime. The same kind of information is asked for in question 7 on cigarettes, question 9 on alcohol and question 13 on different kinds of drugs and solvents. A high rate of inconsistency between any

of these answers might indicate a lower level of reliability.

Possible reliability problems are obviously a complicating factor when the results are interpreted at the national level, as well as when they are compared with data from other countries.

## Validity

In all surveys, the question of the validity of the answers arises; of whether those answers are accurate representations of the underlying reality that they are intended to measure.

Validity is the extent to which a test correctly measures what it is designed to measure. In the context of a school survey, the validity could be said to be the degree to which the questionnaire (including how data are collected) measures the aspects of students' drug consumption that it was intended to measure. The issue of validity is of particular importance when sensitive behaviours like drug use are studied. As in most studies dealing with such behaviours, there is no direct, totally objective tool for validation.

The European Monitoring Centre for Drugs and Drug Addiction, in a review of drug use studies, concluded that there were indications that self-report methods for substance use were as reliable and valid as for most other forms of behaviour[6]. Harrison (1997) concluded that self-administered questionnaires (which is the kind of data collection method used in school surveys) tended to produce more valid data than interviews[7].

In a discussion on the validity of the Monitoring the Future school surveys in the United States, Johnston and O'Malley (1985) concluded that a considerable amount of inferential evidence from the study of twelfth-grade students suggested that self-report questions produced largely valid data[8].

In the ESPAD methodological study conducted in 1998, students in seven countries took part in two data collections, carried out at 3-5 day intervals[3]. The second questionnaire included questions on how truthfully the students had answered the first time and how truthfully they thought their classmates had answered. The study also included a short questionnaire to be answered by the survey leaders. The main conclusion was that the validity was very high in all seven countries. It can be concluded that, if standard methodological procedures are used, school surveys should yield valid data.

If there is reason to doubt the validity of a school survey, international comparisons should be made with considerable caution. However, if it is believed that any bias due to errors is stable across groups in the survey or across different years, it may still be possible to obtain useful information from the survey. For example, if there

is reason to assume that the validity problems within a single country are roughly of the same kind over time, it might be possible to study the trends across surveys, bearing in mind that the validity of the actual figures (point estimates) might be doubtful. The same argument can also be used to allow for comparisons between subgroups within a single study.

To ensure the validity of school surveys it is essential that the studies guarantee the anonymity and confidentiality of the respondents. There are various ways of making students feel comfortable in responding, one of which is to use a data collection leader trusted by the students. In the survey leader introduction, as well as on the front page of the questionnaire, the students' anonymity should be stressed. Another way of making the students feel comfortable is to provide an envelope in which each student can seal their completed questionnaire. Most importantly, no names or other identification marks should be on the questionnaire or the envelope (more details can be found in chapter VII and annex I).

The following validity aspects should be considered: the students' willingness to cooperate, student comprehension, missing data rates, logical consistency, reported willingness to answer honestly, exaggerated drug use, construct validity and the cultural context in which a survey is conducted. Many of these aspects can be measured; for example, a non-existent drug can be included to measure possible exaggeration of drug use.

A necessary condition for obtaining valid data, of course, is that the students in the selected classes receive the questionnaires and are willing to respond to them. They will not receive the questionnaires if the school or the teacher refuses to cooperate. The students must also have enough time to answer the questionnaire, they must understand the questions and must be willing to answer them honestly.

As stated earlier, participation in school surveys must be voluntary. However, experience from past school surveys indicates that very few students refuse to participate.

It is important to inspect the questionnaires before data are entered and to check for unrealistic answers (see chapter VIII). The number of eliminated questionnaires is important information that should be included in the survey report.

Information about student cooperation may also be collected in the classroom report. The example provided in annex II includes questions about disturbances and the survey leader's opinion of whether the students showed an interest in the study and whether their response was serious.

In order to encourage students to complete the questionnaire, it is important that it is not too long (see chapter VI). One means of checking whether a questionnaire is too long and time-consuming is to conduct a pre-test. In addition, the time taken to answer the final questionnaire should be recorded; this can be done in the classroom report (annex II).

A large proportion of unanswered questions may indicate validity problems. Hence, it is important to count and report the proportion of questions not answered by the students.

Logical consistency is closely related to the inconsistency measures discussed in the reliability section. In school surveys, this might be relevant for drug questions measuring the prevalence for the three time periods of "lifetime", "last 12 months" and "last 30 days". Logically, frequency or prevalence of the last 12 months cannot exceed the lifetime frequency or prevalence. The same is true for the last 30 days compared with the last 12 months and lifetime prevalence. Whenever relevant, logical consistency should be measured and reported.

In school surveys about drugs, the question of validity includes concern about the students' willingness to give true answers to the questions asked. Social desirability is an important methodological problem in all surveys, that is, the desire to give the kind of answers that the respondents think the researcher wants to hear or that gives a good impression, even if some of the answers are not correct. It seems reasonable to assume that the less socially acceptable a behaviour is, the higher is the motivation to deny it. Thus, the use of anonymous questionnaires and individual envelopes is mainly motivated by a desire to minimize the social desirability effect.

One way of measuring the students' willingness to report drug use that has been used in some surveys is asking the hypothetical question, "If you had ever used marijuana or hashish (a similar question for heroin or other drugs can be added), do you think that you would have said so in this questionnaire?" with the response categories "I have already said that I have used it", "Definitely yes", "Probably yes", "Probably not" and "Definitely not". Despite the difficulties of interpretation, such a question might be useful for the purpose of checking validity.

In surveys, there is always a risk of respondents not answering honestly. It is usually assumed that this might lead to underreporting ("faking good"). However, in school surveys one cannot rule out overreporting ("faking bad"), that is, that students report that they have used a drug even if they have not. To test for this, the name of a non-existent drug can be included in the list of drugs in the questionnaire. In the suggested questionnaire provided in annex I the non-existent drug Relevin is included in questions 11-16. If reported use of the non-existent drug is low, it indicates that students do not exaggerate their drug use.

Using existing theories, the results of earlier studies and common sense, the relation of variables to each other can be inferred (construct validity). In the six-country pilot study initiated by the Pompidou Group of the Council of Europe, construct validity was discussed extensively[5]. The report on the study concluded that there was considerable evidence of construct validity in the school surveys under study.

During the ESPAD study, conducted in 1995, construct validity was measured by comparing the proportion of students in a country who had used a drug with the

proportion reporting drug use among friends. For lysergic acid diethylamide (LSD), as well as for cannabis and alcohol, the relationship was very high[4].

To make the results of a national school survey as comparable as possible with data from other countries, it is important that the survey protocols, including the target population, the representativeness of the sample, the data collection procedure and the questionnaire are standardized as much as possible. However, it is not possible to standardize every detail. This holds true also for the cultural context in which the students have given their answers. One example is the way that questions are understood by students in different cultural settings. In conducting comparative research of populations using different languages, it is important to use one language for the standard questionnaire. For example, if English is used for the standard questionnaire, it should be translated into each of the other languages and then the translated questionnaire should be translated back into English by a different translator. The original English version and the "double-translated" English versions can then be compared to check for any translation problems. It is also important that the questions are culturally or locally appropriate: for example, the appropriate "street names" or "nicknames" used for different drugs should be employed.

Another aspect of the cultural context is the extent to which the willingness to give valid answers differs among countries. The willingness to admit to drug use may be influenced by the attitudes towards drugs in a given society. Data show that perceived risk of substance use and disapproval of different kinds of substance use differ among countries. The same is true of the availability of different drugs. Taken together, these results indicate that the social desirability may also vary between countries. Thus, in a country with low availability and negative attitudes towards drugs, a student might be less willing to admit drug use than a student in a country with high availability and positive attitudes towards drugs.

Similar aspects may also be relevant when considering that, in some countries, drugs and drug use are often mentioned in mass media and discussed at school, while the situation may be the opposite in other countries.

Finally, some countries have a long tradition of school surveys while others have no such tradition. Students in countries where such surveys are less common may feel less comfortable answering questions about sensitive behaviours. If that is the case, the willingness to answer honestly may differ among countries.

To conclude, experiences from ESPAD, from the ESPAD methodological study and from the six-country study initiated by the Pompidou Group all indicate that the influence of the cultural context should not be overestimated. However, possible differences in the cultural context and other methodological differences can make it difficult to draw firm conclusions about significant differences between countries if the differences in prevalence figures are small. If the importance of the cultural context and other methodological aspects is assessed to be large, even large differences in prevalence figures between countries must be treated very carefully.

### Checklist for survey methodology

- (a) *Representativeness:*
  - (i) Define target population;
  - (ii) Assess importance of non-students in same age groups as target population;
  - (iii) Decide proper time for data collection (if international comparisons planned);
  - (iv) Assess importance of non-participating schools or classes;
  - (v) Assess importance of non-participating students;
- (b) *Reliability:*
  - Assess reliability (whenever possible, by using data from different questions);
- (c) *Validity:*
  - (i) Ensure anonymous and confidential data collection;
  - (ii) Measure and report:
    - a. Number of eliminated questionnaires;
    - b. Information provided by the survey leader (in the classroom report);
    - c. Time taken to answer the questionnaire;
    - d. Proportion of unanswered questions;
    - e. Logical consistency;
    - f. Construct validity;
  - (iii) Consider use of:
    - a. A "willingness question";
    - b. A non-existent drug;
- (d) *Assess role of cultural context.*

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# Sampling issues in school surveys of adolescent substance use

## Chapter V

*Thoroddur Bjarnason*

A correctly drawn sample of students can provide a fairly accurate estimate of substance use and other behaviours in a given school population, although such estimates will rarely coincide exactly with the actual prevalence in the population. The difference between the responses obtained from any given sample and the responses that would have been obtained if the entire population had been surveyed is known as sampling error. Sampling error can be generated by random fluctuations in the sample drawn or by a systematic bias in the way the sample is drawn. Estimates based on smaller samples will, in general, fluctuate more from the population parameters and are therefore less precise than estimates based on larger samples. Increasing the sample size will therefore, to some extent, increase the precision of population estimates. However, increased sample size cannot compensate for the systematic bias of a sample that does not accurately reflect the population under study. In other words, an incorrectly drawn sample will produce biased estimates of behaviours in the population, regardless of the size of the sample or the quality of other aspects of the survey project.

Obtaining unbiased and precise estimates is a crucial aspect of any survey project and requires the careful planning and implementation of a sound sampling strategy. Different types of survey require specialized sampling strategies and expertise in one type of survey does not necessarily translate directly to other types of survey. A brief overview of school survey sampling is given below. This overview should not be considered sufficiently detailed to serve as a sampling manual for a first-time school survey researcher. A more comprehensive treatment of these issues can be obtained from various sources, including from the reference material listed at the end of the present chapter. Researchers who do not have prior experience of school survey sampling should therefore consult with colleagues with specialized expertise in the area when developing a sampling strategy for such surveys.

## Target population

The first step in sampling should be to generate a clear definition of the population of interest. In school surveys, it is particularly important to draw a distinction between the population of students in a given age group and the total population of individuals in that age group. School-age adolescents may, for a variety of reasons, not be attending compulsory school. They may be suffering from severe mental or physical illnesses or disabilities, or they may be compelled to leave school for various social or economic reasons. They may also have left school as a result of substance use problems or other problem behaviours. In the case of adolescents beyond the age of compulsory school, substantial numbers may have completed their studies and may therefore fall outside the target population of students.

The pattern of substance use in each of these groups may differ significantly from the school population and research among such groups should be encouraged. Non-students should, however, be excluded from the definition of the target population in school surveys. In other words, the population under study should be defined as the population of students in the target age group, not the national population of individuals in that age group. Furthermore, the definition of the target population must clearly indicate the school systems covered, the age group included and the time of year during which the population is defined.

Restricting the target population to students implies that the results obtained can only be representative of this group and considerable caution should be exercised in generalizing findings to the age group as a whole. However, if the majority of adolescents in a given age group are to be found in schools, tentative conclusions can, for policy purposes, be drawn about the age group as a whole. For example, consider a school system where 90 per cent of those born in a given year are enrolled in school, the level of daily smoking among students is 30 per cent and the level of daily smoking among non-students is 60 per cent. In this case, responses from students can clearly not be generalized to non-students. However, given the small size of the non-student group, smoking among students (30 per cent) will be close to the level of smoking in the age group as a whole (33 per cent).

## *School systems*

The target population must be defined in terms of the national school system in each country. On the national level, schools may be divided into several distinct school systems, such as public schools, secular or religious private schools, schools based on ethnicity or language, vocational or academic schools or schools for the disabled. In some countries, different categories of student may also attend school at different times of day. The bulk of students may, for example, attend classes during the day, while non-traditional students in the target age group may be enrolled in evening classes. In some cases, researchers may not have the resources or permission to include all school systems in their survey. In such cases, the target pop-

ulation must be redefined accordingly. Such restrictions reduce the generalizability of findings, but do not reduce the reliability or validity of estimates for the target population.

### *Age groups*

The definition of the target population for a school survey should clearly identify which groups within the school are included in this population. In some school systems, students are assigned to grades according to their year of birth; in other systems, they are assigned to grades according to their age on their last birthday. Furthermore, some school systems assign students to grades by performance rather than age, or allow students to choose classes irrespective of age group. The choice of groups to be included in the study dictates the conclusions that can be drawn from its results.

In some cases, researchers may want to define their target population on the basis of system-specific definitions of cohort or grade. However, using year of birth as a definition of the target population has several advantages. First, birth cohort is independent of school performance, which may be strongly related to substance use and other risk behaviours. Second, estimates of substance use in a given birth cohort may help future research identify the same target population at later stages of life. Finally, year of birth provides a clear definition that is independent of school systems and such a definition therefore greatly facilitates cross-national comparisons.

### *Time of year*

The target population should be defined at a specific time of the school year. The school population changes somewhat over the school year, as students move between school districts or drop out of school altogether. Furthermore, students in a specific grade or cohort are almost a year older at the end of the school year than they were at the beginning of the year and their substance use will, in general, increase with age. Results from a study conducted at the beginning of a school year are thus not strictly comparable over time or across countries to results from a study conducted at the end of a school year.

Within the school year, there may also be certain periods that are unsuitable for school surveys. Researchers should, in particular, avoid conducting surveys on substance use immediately following major holidays or at other times that may be characterized by increased substance use among adolescents in any particular country. For instance, school surveys should not be conducted in the first two weeks of the calendar year if substance use associated with New Year celebrations is expected to inflate students' estimates of their overall patterns of substance use. It is also advisable to avoid conducting school surveys immediately before national examination periods. In such periods, school administrators, teachers and students may be less

cooperative than during regular periods and substance use may be temporarily lower than during regular periods.

The best time of year to conduct school surveys may therefore differ among countries. However, several large-scale international school survey projects take place in March or April. Defining the target population at this time will therefore facilitate international comparisons with national survey projects.

### Sampling frame

The sampling frame of school surveys refers to all students who have a known (non-zero) probability of being included in the sample. It should correspond as closely as possible to the conceptual definition of the target population. The level of detail available to generate a sampling frame can vary significantly between countries and the methods of sampling will depend in part on the sampling frame that can be generated. A comprehensive sampling frame would include a roster of students within each class in each school in each school district within each school system of a given country, as well as relevant information about each of these units. In reality, such a comprehensive sampling frame is rarely available and generating such a frame may be prohibitively difficult and expensive. Representative samples can nevertheless be drawn from less complete sampling frames.

The information available to construct a sampling frame will, in part, depend upon the centralization of school systems, the level of detailed information they collect on schools and the availability of such information to researchers. In some cases, all the information necessary for a national sampling frame will be available from a single source. In other cases, this information must be gathered from different independent school systems or regional offices. In extreme cases, the information needed can only be obtained directly from each school. The feasibility of gathering information on each level will depend upon the size and complexity of the school systems, as well as the resources available to researchers. In some cases, the sampling frames available for different school systems within a single country may be different and may require different sampling methods within each system. This will complicate the sampling frame considerably, but will not necessarily diminish the quality of the sample.

Available sampling frames will frequently include students who do not fall within the targeted age groups. If instructional groups are not strictly based on age, it will be necessary to sample from a list of all classes where the target age group can be found. In systems where students are grouped by year of birth, there may also be some students who are older or younger than the definition of the target population. It is therefore sometimes necessary to sample a considerable number of individuals who do not belong to the target population. In such cases, the sample size must be increased by the proportion of students outside of the target age group that



the research team expects to encounter in the sample. Once the data has been collected, individuals who do not belong to the target population should be dropped from the sample or treated as a separate population.

The target population should be defined as students at the time of the survey. However, the information available to construct the sampling frame is frequently generated at the beginning of the semester or the beginning of the school year. In most cases such figures are sufficient to generate a robust sampling frame. However, in order to calculate correct rates of non-response, updated information should be collected at the school level in the process of sampling or during data collection (see chapter VIII).

### Sample size

The sample size needed in school surveys depends upon the precision of estimates desired. It should be emphasized that the precision of estimates is, in general, not related to the size of the target population. Regardless of population size, a correctly drawn sample of 2,000-3,000 students will yield rather precise estimates of substance use in a target population. A larger sample will increase the precision of these estimates for the population as a whole, but such precision grows successively slower as the sample size increases. For example, consider a simple random sample from a target population where 15 per cent of the students have used cannabis. Regardless of the size of the target population, a correctly drawn sample of 100 students could be expected (with 95 per cent probability) to yield a population estimate of the prevalence of cannabis use between 8.0 per cent and 22.0 per cent. Increasing the sample size would increase the precision of the estimate as follows: 1,000 students, by between 12.8 and 17.2 per cent; 2,000 students, by between 13.4 and 16.6 per cent; 4,000 students, by between 14.9 and 16.1 per cent; 10,000 students, by between 14.3 and 15.7 per cent. Cluster samples will almost always be less precise than simple random samples of the same size. The difference in precision can, however, only be determined empirically and may differ between samples and between different measures of substance use. Increasing the sample size can, however, allow more precise estimates for subgroups of gender, region, ethnicity or other distinctions of interest. As discussed below, such increased precision for specific groups can, in some cases, be obtained at a lower cost by the use of disproportionate stratified sampling.

Researchers may consider increasing the size of their sample to counteract the loss of precision caused by the sampling method. Each of the methods discussed below will, in general, yield less precise estimates than a simple random sample of individuals. A proportionate stratified sample of classes may prove to be more precise than a simple random sample of classes, but sample size should not be reduced for the sake of such expected benefits. This loss of precision will become greater as individuals are more homogeneous within sampling units than across sampling units. Increasing sample size can compensate for this problem, but the extent of the prob-

lem cannot be predicted, although earlier school surveys in the country may give some indication. Research teams should, in particular, consider increasing their sample size if they will be employing two-stage cluster sampling.

## Sampling method

A robust sample can be drawn from a wide variety of sampling frames, and, if correctly implemented, different sampling methods will yield equally unbiased estimates. Each sampling method must, however, involve a known probability of selection for each unit in the sampling frame and the sampling units must be randomly chosen. The choice of sampling method will depend, in part, on the nature of the sampling frame that can be generated, and in part on the resources available for the project. Each sampling method will produce a different data structure, which will influence the ways in which the data can be analysed.

### *The school class as a sampling unit*

From a statistical standpoint, the smaller the unit of sampling (the closer to directly sampling individual students), the more precise will be the estimate generated. Randomly selecting entire classes for participation in a school survey is known as cluster sampling. This procedure will yield statistically less precise estimates than randomly selecting individuals. This loss of precision can be calculated by the extent to which students within each class tend to have similar patterns of substance use.

However, there are important practical and methodological advantages to sampling classes rather than students. In school surveys, it is easier to obtain a list of classes than a list of students. Similarly, approaching an entire class of students, sitting at their desks, pencil in hand, is much easier than tracking down individuals and administering the questionnaire to each one of them. From the perspective of the school, sampling classes also involves far less disruption of the normal operations of the school than individual-level sampling of students. Furthermore, selecting an entire class rather than individuals from the class contributes to a greater sense of anonymity. Finally, sampling entire classes allows researchers to estimate the extent to which the substance use of individuals is affected by their classmates as a group.

Using classes as the final sampling unit is therefore the preferred sampling method in most school surveys. Such sampling of classes can be done in a variety of ways, including random sampling, two-stage random sampling, stratified random sampling and total population sampling. In addition, these different methods can be combined in a variety of ways within a single sampling strategy. Regardless of the type of sampling employed, it is crucial that the classes be randomly selected within each school. In particular, researchers should be alert to the risk of school administrators wanting to choose a "good" class to represent their school in the sample.



The number of classes to be sampled depends upon the desired sample size and the average number of students in each class. For example, a sample of 125 classes would be required to sample approximately 3,000 students in a school system where the average class size is 24 students.

### *Random sampling of classes*

If an exhaustive list of all classes in the sampling frame is available, classes can be randomly sampled from this list. In the more complex sampling designs discussed below, the final step involves such a random sampling of classes. It is important to ensure that the same students are not sampled multiple times in different classes. This can be particularly problematic in schools where students are congregated in different instructional groups for different study subjects. In such cases, it may be necessary to sample classes within a single class period.

Cluster sampling of classes can be achieved either by simple random sampling or systematic random sampling. A simple random sample can be drawn from a complete list of classes by the use of random number tables or the pseudo-random number generator available in most statistical software packages. A systematic random sample only requires the first class in the list to be randomly selected, while subsequent classes are chosen at fixed intervals after the first class. The interval between classes sampled in a systematic random sample is determined by the total number of classes and the desired number of classes to be sampled. For example, to sample 125 classes from a list of 1,000 classes, the researcher would randomly choose one of the first eight classes on the list and then systematically sample every eighth class on the remaining list. Simple random samples and systematic random samples can, for all practical purposes, be treated as having the same sampling properties. The systematic random sample is somewhat simpler to draw, but researchers should be alert to cyclical patterns in the list of classes that would lead one type of class to be systematically more frequently drawn than other types of classes.

Random class samples can also be drawn in cases where only the approximate number of classes in each school is known. In such a case, the sampling list would contain proxy names for each class. On site, an alphabetically ordered class list would then be obtained and the class corresponding to the proxy number would be chosen.

It should be noted that a random sampling of classes will lead to an overrepresentation of students in small classes, as they individually have a larger probability of selection than students in large classes. In most cases, this will only cause a very minor bias in results. If classes vary substantially in size within schools, researchers should consider sampling proportional to class size, or weighing the responses by class size in the statistical analysis. This will depend upon the distribution of class sizes within the sampling frame. However, researchers should consider taking class size into account if the standard deviation is more than one half of the mean class size (see chapter VIII).

### *Two-stage random sampling of classes*

In some cases, the research team may be forced to reduce the number of schools included in the sample because of wide geographical dispersion or limited resources. Although it would be possible to use schools as the final sampling unit (sampling all the students in a chosen school), this is not advisable given the substantial loss of precision involved. In these cases, it is preferable to draw a random sample of schools and then randomly sample classes within the schools chosen. This will yield less precise estimates than randomly sampling classes, but the estimates will be more precise than if entire schools were sampled. The greater the number of schools sampled at the first stage, the greater the precision of the estimates will become. The loss of precision in two-stage sampling will depend upon the distribution in the sample. However, as a tentative rule of thumb, researchers should aim to sample no more than two classes per school.

If a simple random sample of schools is drawn at the first stage, the probability of any given student being included in such a sample will vary inversely with the size of the school. In other words, each student in a large school will have a smaller chance of being included in the sample than a student in a small school. If schools vary substantially in size, this must be taken into account in sampling. Similar to class size, this will depend upon the distribution of school sizes within the sampling frame. Again, researchers employing two-stage random sampling of classes should consider taking school size into account if the standard deviation is more than one half of the mean school size. This can, for example, be achieved by sampling schools proportionate to school size or by stratifying schools by size and then sampling schools within each stratum (see section on stratified random sampling below).

### *Stratified random sampling of classes*

In some cases, researchers may wish to draw several samples of schools or classes within clearly defined categories of shared characteristics. Such shared characteristics could involve belonging to distinct school systems, belonging to a specific geographical region, being situated in urban or rural areas, school size or other clearly defined characteristics. Such stratification, in effect, involves drawing separate samples from a sampling frame of each category of school or class. In proportionate stratified samples, the proportion of schools or classes drawn within certain categories is equal to their proportion in the target population. In disproportionate stratified samples, the proportion of schools or classes drawn within certain categories is greater than their proportion in the target population.

In the case of proportionate stratified sampling, the final sample will accurately reflect the target population. Such a stratified sampling of classes will not yield less precise estimates than randomly sampling from a list of classes. On the contrary, such a stratified random sample can be shown to yield more precise results than a simple random sample, to the extent that there is less variation in substance use

or other behaviours of interest within each category than in the population as a whole.

Disproportionate stratified sampling allows researchers to generate more precise estimates for a specific subpopulation of interest by drawing a larger sample from this category. For instance, a minority group that only constitutes 5 per cent of the population would, on average, only yield 100 individuals in a random sample of 2,000 students. In order to generate precise estimates of such a minority group, researchers may choose to draw a disproportionately large sample from schools where this group is concentrated. In such a case, it is essential to weight the results so that they reflect the actual composition of the population (see chapter VIII).

Disproportionate stratified random sampling may lead to more precise or less precise estimates for the population as a whole than a sample of classes, depending upon the distribution within and across categories. As the calculation of weights can also be quite complicated, there should be compelling substantive reasons for considering disproportionate stratified random sampling and the research team must have the means to correctly calculate the sampling weights.

### *Total population sampling*

Total population sampling refers to a special situation that arises in school surveys in small nations or small geographical areas. When the target population of students is small, the organizational complexities and cost of sampling may become greater than surveying the entire target population. Researchers may thus choose to survey the entire population. This will eliminate sampling errors entirely, but does not affect response errors or errors due to systematic attrition. Such sampling should be seriously considered when the target population is small (for example, 10,000 students or less) or when the intended sample constitutes 20 per cent or more of the target population.

#### **Checklist for sampling**

- (a) *Defining the target population:*
  - (i) School systems, types of schools and types of class to be included;
  - (ii) Age groups or grades to be included;
  - (iii) Time of year to be chosen for the survey to be conducted;
- (b) *Generating a sampling frame:*
  - (i) School system information:
    - a. Types of school system (for example, public, private, religious);

- b. Geographical divisions within each system (districts or other divisions);
  - c. Types of school within each system (for example, academic, vocational, special education);
- (ii) School information:
- a. Contact information (school name, name of principal or other contact, address, phone number);
  - b. Type of school (for example, academic, vocational, special education);
  - c. Number and types of class within school (for example, academic, vocational, special education);
- (iii) Class information:
- a. Class identifier;
  - b. Type of class (for example, academic, vocational, special education);
  - c. Number of students in class;
- (c) *Some sampling strategies:*
- (i) Random sampling of classes (sampling classes from a list of all classes in country):
- a. Consider whether class-level information is available;
  - b. Consider whether geographical dispersion of classes is not problematic;
- (ii) Two-stage sampling of classes (sampling schools, then classes within those schools):
- a. Consider whether class-level information is not available;
  - b. Consider whether geographical dispersion of classes is problematic;
- (iii) Proportionate stratified sampling of classes (sampling classes within groups of similar schools or classes):
- a. Consider whether class-level information is available;
  - b. Consider whether schools can be clearly divided into substantively different categories;
- (iv) Disproportionate stratified sampling of classes (oversampling certain types of schools or classes):
- a. Consider whether precise estimates are needed for minority groups within the population;
  - b. Consider whether expertise in calculating weights is present;
- (v) Total population sampling (sampling every student in a given age group):
- a. Consider whether total population in target age group is 10,000 or fewer students;
  - b. Consider whether the proposed sample is one fifth or more of the total population in the target age group.

### Further reading

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# Questionnaire development

*Lloyd D. Johnston*

## Chapter VI

One of the three major lines of activity involved in conducting a school survey of substance use among students is the development and refinement of the questionnaire (see the flow chart of activities in the figure, chapter III). The data collection instrument, in this case a questionnaire, is a key tool in any survey study. It reflects the concepts that have been chosen as important to measure for answering the research questions that gave rise to the study in the first place and it will determine how accurately and unambiguously those concepts are measured. A great deal of effort can go into developing the measurement instrument, whether it is an interview or a self-administered questionnaire, but much effort can be saved by the use of a carefully tested model instrument, since others will already have completed the work of developing and validating it.

While there are various methods available for gathering data on substance use by adolescents, such as telephone interviews, household interviews, reports of informants and self-administered questionnaires given in schools, the one that has proven most successful at eliciting honest responses about these socially sanctioned behaviours is the self-administered questionnaire used in a classroom setting[1]. The self-administered questionnaire is therefore recommended in the present volume and a model questionnaire is provided in annex I. This model questionnaire has been used successfully in many countries and has provided data that are sufficiently comparable across countries to enable many international comparisons to be made[2-5]. The questionnaire that served as the source of the model questionnaire provided in annex I was tested and refined at length and the validity of the resulting information within a wide range of cultures has been demonstrated[3-4].

### **Priorities given to questions**

Rather than provide a single, one-size-fits-all questionnaire, the present *Toolkit Module 3* chooses to offer various elements from which



individual research teams may wish to select, in order to be able to adapt the questionnaire to suit their purposes, the abilities of their student respondents and the questionnaire space available for the survey content. The model questionnaire presented in annex I is comprised of questions that have been assigned one of three levels of priority for inclusion: highly recommended, recommended and optional.

The highly recommended questions measure variables that are likely to be important to almost any epidemiological study of substance use and measures of the underlying concepts, such as gender of the respondent or his or her use of alcohol, have been included in most such studies. The recommended questions should also be given very serious consideration and are suggested for inclusion in most studies by the expert committee, if space permits. The optional questions are so listed either because they may not measure a concept of vital interest in every study, or because they may not be relevant to or measured the same way in all cultures or because they are not considered quite as vital as the other questions. All the questions, however, are recommended for inclusion by the expert committee, if space and time permit. One of the purposes of assigning these priorities was to enable international comparability in the measurement of key variables, such as drug use. The ability to compare results, either within a country or among countries, has proven valuable.

The length of the questionnaire is the primary constraint on measurement content and is limited by the willingness of respondents to stay with the task of completing a questionnaire and by the amount of time the school can afford to make available. Often, a single class period is the optimal length of time for in-school surveys, since it causes the least disruption to the normal school schedule. In addition, the investigators may have other subjects that they wish to include in the questionnaire because agencies with interests other than substance abuse are helping to fund the survey or because they are interested in other factors or issues within the substance abuse area. Given the constraints on length, investigators usually have to make trade-offs in deciding which of the variables they would like to measure can be fitted into the space and time available. Also, the complexity of the questionnaire should not exceed the capabilities of the respondent population. In this way, having flexibility in choosing the extent to which the questionnaire parallels the model questionnaire provides the opportunity to find the best combination of length and topics to meet the research objectives.

### Elements in the questionnaire

The sequence of elements in the questionnaire is as follows: introduction, background and demographic characteristics, use of cigarettes and alcohol, familiarity with the various controlled substances, use of the various controlled substances, age at first use of all of the substances, personal disapproval of use of all of the substances, perceived risk of using all of the substances and perceived availability of all of the substances. Because there are so many abusable substances about which to

ask, or at least consider asking, many of these sections are comprised of a long list of parallel questions asked individually for each of the substances.

The sequence of these elements has not been the same in all studies. For example, in the Monitoring the Future study conducted in the United States, the segments on personal disapproval and perceived risk are presented before the segment on use of the substances, based on the assumption that stating attitudes first is less likely to affect the answers to factual questions like frequency of use of a drug than is stating usage levels first likely to influence the reported attitudes. In the ESPAD study in various European countries, this was not deemed to be a significant issue, so the usage questions were placed first because they were believed to be more straightforward and because they were judged to be the single most important set of measures.

Similarly, the demographic and background characteristics are placed after the drug use segment in the Monitoring the Future studies, on the assumption that students might be more likely to report illicit behaviours if they felt less "identified", and that they would feel less identified if they had not yet provided a great deal of factual information about themselves. In the ESPAD study, questions about sex and age were asked at the beginning of the questionnaire to increase response rates on those crucial demographic questions. Questions on such issues as family structure, parental education and how well off the family was perceived to be were placed at the end of the questionnaire. As systematic research to establish whether one sequencing is better than another has not been undertaken, the sequencing of segments has remained a choice to be made locally. It could be that the effect of the sequence, if any, would vary among cultures.

Certain elements should appear in a particular sequence, however. It is useful to ask about familiarity with the various drugs before asking specific questions about them, such as use, disapproval, perceived risk or age at first use. And within the segment asking about use of the various drugs, it is widely accepted that working from the least illicit behaviours (which in most Western cultures would include smoking and drinking, followed by marijuana use) to the most illicit ones facilitates truthful reporting of the latter.

### Selecting drugs to include

Not all of the drug classes listed in the model questionnaire will be relevant in all cultural settings, so the investigators should remove ones that they are sure are not present in their society. If in doubt, however, they probably should include them, so as to be able to determine empirically if their assumptions are correct. In some cases, it may even be useful to demonstrate the non-existence of certain drugs to provide a baseline for possible future changes. The investigators should also consider adding some that are not on the list, if there are additional psychoactive substances that are known to be a problem in the country (khat, for example).

## Defining drugs for the respondents

In addition, one needs to review the names and descriptions of the drugs as stated in the questionnaire to see if they, or a literal translation of them, are appropriate in the cultural setting in which the questionnaire will be administered. The formal names, brand names, where applicable, and street names may be quite different in different countries, in which case the questions throughout the questionnaire dealing with those drugs should be amended to be appropriate and understandable in the cultural setting. The underlying principle is to use names that accurately communicate to respondents which substance(s) should be included in what they report, as well as which substances should not.

To take an oversimplified example of a bad definition, a question that asked about "coke" use (coke is a street word for cocaine in some places) might cause some respondents to confuse the definition with Coca-Cola, leading to a serious overreporting of cocaine use. To determine a list of appropriate slang or street names for various drugs, the investigators may want to speak with treatment professionals and known drug users in the age group under study. If the survey is to be taken in a large geographical area such as a country, it is important to have common street names, not just ones that have only localized meanings. It may be necessary to have a longer question stem to clarify the definition for the respondents.

Since some of the drug classes are legally prescribed by doctors or other health workers to treat various conditions, the respondents may well have used them under a legitimate medical regimen. It is important that the respondents understand what occasions of use they should and should not report in answering the questions about their own non-medically supervised use of them. The intention usually is to quantify use that is occurring without the instructions of a health professional. Exactly how that is stated may vary with cultural conditions, but the phrase included in the model questionnaire, "... without a doctor or medical worker telling you to do so", provides a good starting point. This issue may arise with drugs such as tranquilizers, amphetamines (particularly Ritalin), sedatives and some of the opiate-type drugs other than heroin.

One of the drugs referred to in the questionnaire, Relevin, is a non-existent drug. The purpose of including it is to check for overreporting of drug use. It is possible that the word Relevin may be too similar to a real word or drug used in a specific culture, in which case another plausible but non-existent drug name might be chosen to replace it. Usually the prevalence of reported use of this "drug" is low, which gives some assurance that exaggeration of drug use is not a serious problem.

## Format of the drug use questions

Without doubt, the most important segment of the questionnaire is that which deals with the drug-using behaviours of the students. In addition to listing accurately the

drugs likely to be used by the students and giving clear definitions of each one in the questionnaire, there is the question of how much information to seek about the prevalence and frequency of use of each of them. (Prevalence refers to the proportion of respondents who have used a drug at least once during a particular period, while frequency refers to how many times he or she used the drug during that period.) If frequency of use is asked about, the prevalence rate can be inferred from the answers; but if prevalence is asked about, frequency of use cannot be inferred. It is therefore more useful to ascertain frequency of use, provided that obtaining that information does not cause the questionnaire to become too long and too burdensome to the respondents.

There are three standard time intervals about which prevalence or frequency, or both, are usually asked: lifetime, 12 months and past 30 days. These generate the lifetime, annual and monthly (or "current") prevalence or frequency rates, or both. The model questionnaire uses these three intervals and offers a version of the questions that secure frequency of use in each. However, if completing that much information is judged to be undesirable for whatever reason, the Expert Group recommends at least asking about the frequency of use in the past 30 days, so that, among current users, those who are currently lighter users can be distinguished from those who are more involved. There is also a strong case to be made for asking about lifetime frequency because very often a large proportion of the "users" have used a drug only once or twice. Clearly they are of less importance from a public health point of view than those who go on to become more involved users at some point in their life. Also, if the prevalence rates for a drug are quite low, one may only be able to distinguish different levels of users on the lifetime measure.

Even those questions listed as "optional" have a good case to be made for them. It has been found that attitudes and beliefs, such as perceived risk and disapproval, influence drug-using behaviour. In fact, perceived risk has even been shown to be a leading indicator of changes in use[5]; and, in the aggregate, disapproval is indicative of peer norms about use. Also, if one or more repeat surveys occur at later times, then having these factors measured may help to identify possible changes in these correlates of drug use.

Whether or not youngsters have even heard of many of these drugs is also a valuable thing to ascertain. It allows them at the outset to tell you that they do not know anything about some of them, making it easier for them to answer later questions.

Perhaps the most difficult of the optional question sets is the one on problems related to drug use. It is difficult because it contains a long list of possible problems and two classes of drug (alcohol and other drugs) about which to ask that list of questions. While the question set could be formatted as shown in the model questionnaire, it takes some sophistication on the part of respondents to use it, although it has been used successfully in the ESPAD study of 15-16-year old students in over 30 European countries[3]. However, in another cultural setting or in a survey involv-

ing younger age groups, or both, one might consider using other strategies. One would be to ask about each drug separately as a list of yes/no questions, for example, asking first about alcohol and then about "drugs". Another would be to choose only one class of drug about which to ask these questions. Either of these approaches would present respondents with an easier task. If the investigators are unsure about students' ability to handle a given format, then pre-testing or pilot testing the question may answer the question empirically.

### Use of "skip questions"

The model questionnaire is intentionally designed to minimize the use of "skip" patterns, in which the respondent would skip one or more subsequent questions if he or she gave a particular answer to a prior question. (For example, if a student said he or she was unfamiliar with a drug, they could be routed around any further questions about that drug.) Such skip patterns are more difficult for respondents to follow correctly than a simple, uninterrupted series of questions; there is, therefore, a risk of losing vital information from respondents who skip incorrectly. Therefore, while there may be a few occasions on which you wish to use skip patterns, it is recommended that they be kept to a minimum.

### Other references

There are several books in the literature on survey research that contain more detailed discussions of the various methodological issues involved in the design of survey instruments than it is possible to provide. If time and resources permit, two that might be considered are Dillman (2000)[6] and Salant and Dillman (1994)[7]. A number of the variables that might be considered for inclusion in a drug survey, many of which have been included in the model student questionnaire provided in annex I, are discussed at greater length in Johnston (2000)[8].

### Pre-testing the questionnaire

Once the first draft of the questionnaire has been completed, the investigators may want to have several colleagues read through it in order to see if they can identify problems of any sort. This may lead to some obvious revisions. At that point, the questionnaire would be ready for some empirical refinement in the form of pre-testing and pilot testing. Because the model questionnaire has been carefully developed and refined in a number of surveys, it seems likely that any revisions resulting from these steps would be limited. Nevertheless, they are well worth pursuing.

The investigators should start with a limited number of respondents of the age of the intended sample, perhaps 10 or fewer. These respondents do not have to be systematically sampled in any way, but it might help to get some variability in their general academic ability, include both genders and include some members of any major minority groups that may exist in the society. They can be asked to complete a questionnaire, perhaps individually, but with privacy assured.

They should then be asked individually whether they had found the instructions clear and whether they had had difficulty in understanding or using any of the questions or answers. While it might be best to avoid looking at their answers, they could be asked, question by question, what they had understood the question to mean and what they had understood the answer sets to mean. It might also be useful to attempt to ascertain if they had understood each class of drug covered in the questionnaire by asking them to say what they thought it was. It might also be a good idea to keep track of how much time it had taken them to complete the questionnaire initially. This informal pre-test may reveal problems that need resolving and questions or definitions that need amending.

### Pilot testing the questionnaire

The next step involves the selection of classrooms in which to administer the revised questionnaire. This is, in a sense, a dress rehearsal for the full-scale data collection. The pilot test provides an opportunity (*a*) to test the administration procedures in the classroom, (*b*) to test how long the students take to finish the questionnaire and (*c*) to identify remaining problems in the content and clarity of the questionnaire. The revised questionnaire could be administered as planned for the main study, during a single class period, to students in three or four classrooms in two different schools. The schools selected as pilot schools should be those which are unlikely to number among the final sample, but if that proves difficult, they could simply be deleted from the final sampling list.

The students can be told that the questionnaire represents the final pilot test for a national survey and that their input will be important. They should be encouraged to write comments against any question that they have difficulty in answering and should be told that, once all the questionnaires have been completed, they will be interviewed individually about the questionnaire. Their written comments may help to identify any problems with questions that they are reluctant to mention in the post-questionnaire interview.

In order to estimate the length of time needed for the completion of the questionnaire, a space can be provided at the end of it for the students to record their finishing time. This information enables an assessment to be made of the appropriateness of the length of the questionnaire and whether additional questions could be added. The students can subsequently be asked in the debriefing discus-

sion whether there were questions or answers that they did not understand and be invited to suggest ways in which the questionnaire could be improved. The resulting data can be kept and examined to check for any problems encountered in students' following directions or answering questions correctly.

### Finalizing and printing the questionnaire

Once the process of pre-testing and pilot testing the questionnaire is finished, the final version of the questionnaire can be drafted. The layout should be clean and clear. If optical scanning of the questionnaires is planned (see chapter VIII), the formatting should be arranged accordingly. If the data is to be entered in the computer by hand, it is useful to work with the people responsible for data entry, in order to ensure that the questionnaire is annotated in a way that facilitates accurate data entry at that later stage in the process.

Once finalized, checked and re-checked, the questionnaires should be printed in sufficient quantities to cover the intended sample size, plus extra copies (perhaps 20 per cent). Extra copies should be printed because it may not be known in advance exactly how many students will be surveyed in a particular school, so extra questionnaires should be sent to each school. Another reason is that copies of the questionnaire are likely to be shared with other interested parties over the life of the study.

Finally, a system should be established for documenting from which schools and classes questionnaires are returned. This is discussed in chapter VII.

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# Data collection procedure

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## Chapter VII

Data collection is a long process, necessitating much planning if it is to run smoothly. It is important to plan all steps well in advance in order to avoid problems that may jeopardize the whole study.

Many decisions have to be made about the data collection procedure, including when to collect data, how to treat absentees, how to select survey leaders, how to contact the schools chosen for the sample, whether to contact parents, what information should be given to teachers, how to distribute material to the schools and how to conduct the survey administration.

### General remarks

The questionnaires should be answered anonymously, that is, they should not bear any identification numbers and the students should not be required to write their names. To stress this and to convince the students that their responses are anonymous, it is recommended to provide an envelope, in which each student can seal his or her completed questionnaire. The envelope should be of a type that cannot be opened and resealed.

The data collection leader should be asked to stress that the anonymity of the respondents will be protected and to refrain from walking around the classroom while the forms are being completed. If teachers are present in the room as a complement to the survey leader, they should also be instructed not to walk around during the administration of the questionnaire.

It is very important for the processing of the data that, when the envelopes are returned to the research institutes, the researcher knows from which class the envelopes come. Therefore, each class in the sample should be given a unique number identifying the class and school and all the contents of the classroom packages (questionnaires, envelopes, survey leader instructions and classroom reports) should be marked with this number. If, in order to assure the students of

confidentiality, identifying information has not been printed on the questionnaires, the people gathering the questionnaires in the school may record the source of the answers before returning the questionnaires to the research site. They might place the school and classroom names on the envelopes or boxes in which the questionnaires are to be shipped back to the research centre (or code numbers might be assigned to represent schools and classrooms). Another option would be to label large envelopes or boxes in advance with a code identifying the school and class and have the data collectors take them into the classes. Once returned to the research centre, by whatever means, this information should be transferred in some form onto each of the questionnaires to prevent them becoming lost among the piles of unidentified questionnaires.

Since classes should be sampled randomly (see chapter V), a selected class in a school cannot be substituted by another class in that school. It is essential to ensure that school officials do not replace a sampled class with a class they may think is "better" (that is, one that they believe gives a more favourable impression of their school).

### Timing of the data collection

When deciding the timing of the data collection, it is important to choose a period not preceded by a holiday, in order to ensure that the students refer to a "normal" week or month when answering the questionnaire. A survey conducted in the week following a school holiday may find significantly higher rates of alcohol and other drug use, deriving in particular from answers to questions asking about such use in the previous week or 30 days. Schools that cannot conduct the survey during an assigned week may do so during the week immediately following.

If more than one class in a school is included in the sample, it is preferable to administer the data collection during the same period in all classes. When this is not possible, the time between the first and the last class should be as short as possible. The main reason for this is to minimize the opportunities for discussion of the contents of the questionnaire among students who have already completed the survey and those who have not yet done so.

When the results of a school survey are to be compared with results from other countries, the timing of the data collection must be as similar as possible. Since the use of alcohol and other drugs increases rapidly during adolescence, a difference in the timing of the data collection of, for example, six months, could lead to significant differences in exposure to different drugs. In many international school surveys, data are collected in March and April (see chapter V).

### Survey leader

Data should be collected by using group-administered questionnaires, answered under the supervision of a survey leader. This person could either be a teacher (or

other member of the school staff, such as a school nurse) or a research assistant. The cheapest option is, of course, to have the teachers undertake this task, since they are already in the school, they know the school and are familiar with school routines. Another advantage of this option is that it is usually the least expensive way of conducting a school survey. However, in some countries, the students may not feel comfortable with the presence of teachers and it may therefore be necessary to choose another person to be responsible for the data collection.

In a methodological study conducted in Iceland, Bjarnason (1995) found that there were no significant differences between teachers and researchers conducting the administration[1]. These findings suggest that, at least in some countries, the effect of the mode of administration is negligible.

This decision should be made on a country-by-country basis, taking into account the specific conditions of each country. However, it is important to use a survey leader who can be trusted by the students. Although less expensive, teacher administration should not be used if there are reasons to doubt the confidence students have in their teachers. If the students do not trust the data collection leader, the whole study may be jeopardized.

If it is decided that the survey leader is to be a research assistant, the researchers must decide whether the teacher should be present in the classroom during the administration. If there are doubts concerning the ability of outside researchers to maintain discipline in the classroom, it may be preferable to have the teacher present during the data collection, in which case the teacher should stay at the front of the class and should not help with the actual administration. Under no circumstances should the teacher be allowed to see any of the questionnaires during the administration.

If a teacher is present as a complement to the regular survey leader, the teacher should be asked to fill in the classroom report (see the section on survey administration below and the section on data collection staff in chapter III).

### **Students not belonging to the target population**

The target population can be defined in two ways: the research may target students in one or more school grades or students belonging to a specific age cohort, that is, students born in one or more specific years. In the latter case, participating classes may include students born in years that are not targeted (see chapter V). The researchers must decide if these students should participate in the data collection.

There are several reasons why all students in the classroom might be asked to fill in the questionnaire, regardless of their birth cohort. It could be argued that all students in a selected class should be treated equally. Thus, excluding some students might be perceived as unfair. Furthermore, it might also be of interest to analyse data on "grade level", even if the target population is a specific age cohort. Finally, excluding some students from participation may reduce the students' perception of anonymity and give rise to disturbances in the classroom.

However, there are also some disadvantages to surveying individuals who are not included in the target population. First, it involves the cost of producing and processing questionnaires that will not be used. Second, such a process demands that the researchers screen out useless questionnaires and if these questionnaires cannot be reliably identified, the resulting data will be biased. Finally, there are some ethical considerations involved in asking students to take the time to answer a questionnaire when their responses will be discarded.

In many cases, it is nevertheless preferable to ask all students in the classroom to fill out a questionnaire. When students who do not belong to the target cohort are not asked to participate, they should be asked to stay in the classroom and work on something else during the administration of the questionnaire. If this is not possible for some reason, these students should be asked to leave the room so that they do not become bored and start disturbing the data collection.

### Absent students

In most school surveys, students who are absent on the day of administration are defined as non-responding. However, in some cases researchers may follow up on the survey at a later date, asking absent students to fill out a questionnaire when they return to school.

Follow-up studies of absent students are complicated to administer. Hence, such studies are usually performed as special methodological projects to compare present and absent students. Such follow-up studies are typically not part of a regular school survey data collection.

It is important for absent students to be treated in the same way in all participating schools. Furthermore, if the survey is part of an international project, it is important that all countries treat absent students in the same way.

Experience from many school surveys suggests that the proportion of absent students usually does not vary much over time. Hence, if the main goal is to study time trends in substance use, absent students are not usually a major problem. It can generally be assumed that, from one year to the next, absent students are similar, that is, influencing the results in the same way every year. (A further discussion about absent students can be found in chapter IV.)

### Contact with selected schools

The selected schools should be contacted well in advance of the survey date and informed of the planned study. A first step could be an introductory letter to the head teacher, informing him or her of the study and its purposes. When appropri-

ate, such a letter, or a separate letter, could be signed by a minister, a representative from a teacher's organization, a physician or some other person who might encourage the school to participate.

The head teacher should be asked to inform the teacher(s) of the chosen class(es), but not to inform the students in order to avoid discussions among them, which could lead to biased data. It is important to stress that a selected class cannot be replaced by another. The survey should be scheduled for one class period. The survey leader should be asked to follow similar procedures as in written tests, with the important exception of not looking at the questionnaires being filled out.

It is also advisable to contact the head teacher by telephone to confirm that everything is in order. If the school is taking primary responsibility for the administration of the survey, it is advisable to confirm that the head teacher or some specific member of the school staff will be responsible for the procedure. When all the envelopes are collected, the person responsible must ensure that they are returned to the research centre. Experience from some studies has shown that ensuring a safe mode of transportation is important (see the section below on transportation of material).

If the survey leader is to be a person from outside the school, it might also be an advantage for him or her to visit the school in advance in order to become familiar with the layout of the school and to inform the teachers about the study.

When calling or visiting the school, the researcher should confirm that the selected class is or are unchanged. It is also advisable to confirm that no other conflicting events have been scheduled for the same day. (Some more aspects about contacts with selected schools are discussed in chapter III.)

### **Informing the teachers**

Even if the data collection is administered by someone from outside the school, it is important for teachers affected by the survey to be informed about it. One way of doing this is to include information addressed to the teachers in the letter sent to the head teacher. If the school is visited by a research assistant before the data collection, he or she can inform the teachers. However, it is probably advantageous also to ask the head teacher to contact the teachers who will be affected by the data collection and to provide them with the relevant information.

### **Parental permission**

In some countries, regions or schools, parental consent is required before it is possible to ask the students to participate in a school survey. In other countries, the school may serve as the decision maker in lieu of the parents. There are two kinds of parental permission: passive consent and active consent. Passive consent means that parents or guardians receive a letter signed by the head teacher notifying them



of the upcoming survey, perhaps accompanied by a pamphlet about the study. If the parents or guardians do not wish their child to participate, they are asked to sign a form and return it to the school's contact person.

Active consent requires the school to obtain a signed permission card or slip before any given student can be allowed to participate. Obtaining active consent can be complicated and may require a considerable investment of time and money. Students may fail to bring the matter to the attention of their parents and parents may be slow to respond. This may be particularly problematic in the case of parents who are not actively involved in their children's lives, which in turn may be related to the student's use of alcohol and other drugs. From an ethical point of view, it is recommended that these letters are mailed to the parents, since students often forget to give them information from school. However, the forms indicating that the parents do not give consent may be carried back to school by the students.

In most cases, surveys that require active parental consent will suffer from lower response rates than surveys that require no parental consent or passive parental consent. Therefore, when parental consent is required, researchers should stress the importance of requesting passive rather than active consent.

### Transportation of material

It is extremely important that the questionnaires and other kinds of material are transported safely from the research institute to the schools and back. If a research assistant administers the data collection, he or she should transport this material to and from the school.

This might be a little more complicated if the data collection leader is a teacher or other member of the school staff. It is important, however, to make sure that the postal service is reliable and that packages do not get lost in transit. If this is uncertain, it is essential to find some other way to transport the material. In some cases, the researchers may ask the schools to use a particular delivery company, which will then bill the research institute. In other cases, the research team may ask for the cooperation of the school district office in collecting the material. If the study is limited to a manageable geographical area, the research team may also consider collecting the material from the schools themselves in the days following the administration of the survey. Lost survey material will not only affect the response rate of the survey, but may seriously undermine the credibility of the researchers in future surveys.

### Survey administration

Whenever possible, the data collection should be conducted in the same class period in all participating classes. The main reason for this is to avoid discussions in

the breaks that might influence the answers of those students who have not yet taken part in the study.

It is essential that anonymity and confidentiality are assured when the questionnaires are answered. Hence, the data collection should take place under the same conditions as a written test.

The instructions to the students should be easily understood and should emphasize the importance of participation. They can be written on the front page of the questionnaire and should include information on the purpose of the study, the random selection of classes and the anonymity and confidentiality of the study, as well as instructions on how to fill out the questionnaire. An example of a questionnaire front page is given in annex I.

In addition, the data collection leader should address the class as a whole, providing brief instructions and stressing the most important elements, in particular the issues of anonymity and confidentiality. Some basic aspects to include in the verbal presentation are included in the instructions for survey leaders given in annex III.

To prevent the students from feeling uncomfortable, the survey leader should not walk around the classroom. Therefore, students who have questions should go to the survey leader. Answers to student questions should be as neutral as possible. To facilitate this, it might be advantageous for the teacher to have an unanswered questionnaire.

In order to collect information about absent students, a classroom report should be completed by the survey leader while the students answer the questionnaire. This form includes information on how many boys and girls are absent and the reasons for their absence (see annex II). In some countries, it may be difficult to obtain information about the reasons for the absence in the class. In such cases, the section dealing with this issue may be excluded from the classroom report.

If the study focuses on a particular age cohort, but data are collected from all students in a class, the survey leader should, if possible, answer two forms, one for students belonging to the target group and one for students not belonging to the group. In cases where the information necessary for this distinction to be made is not readily available, one form should be filled out for the entire class.

To make the students feel comfortable and to stress the confidentiality of the survey, it is highly recommended that each student receives an individual envelope into which he or she can place the completed questionnaire before sealing it. If this is not possible, it is important to find another way to collect the questionnaires and still make the students feel secure in the anonymity of their responses. For example, the researchers might provide a sealed box into which each student can put his or her questionnaire. Alternatively, a large class envelope might be provided, into which each student can put the questionnaire. In that case it is important that the class envelope

is sealed in front of the students before it is taken out of the classroom.

It is important that all students are able to complete the questionnaire within a single class period. If students run out of time, they may answer the final questions carelessly or leave them unanswered. This can, in part, be prevented by limiting the number of questions in the questionnaire and estimating the maximum time needed for its completion during the pilot test of the questionnaire (see chapter VI). However, there may be cases where some students have not finished by the end of the class period. If possible, these students should be given some extra minutes to complete the questionnaire. The questionnaires of students who were unable to finish in time should be collected and sent back to the research institute.

The questionnaires and the classroom reports should be returned to the research institute immediately after data collection is completed (see the section on transportation of material above). It is also important that the classroom reports and questionnaires are packaged or bound together so that questionnaires from different classes are not mixed during shipping.

### Checklist for data collection

- (a) Choose a survey leader trusted by the students;
- (b) Provide instructions for the survey leader;
- (c) Describe how the survey leader should treat students not belonging to the target population;
- (d) Describe how the survey leader should treat absent students;
- (e) Plan contacts with selected schools carefully;
- (f) Provide information for the teacher;
- (g) Obtain parental permission, if necessary;
- (h) Ensure the safe transportation of material;
- (i) Ensure detailed planning of the survey administration, including:
  - (i) Information for the students, stressing anonymity and confidentiality;
  - (ii) Instructions for the survey leader;
  - (iii) Instructions for the students;
  - (iv) Individual envelopes;
  - (v) A classroom report.

### Reference

1. T. Bjarnason, "Administration mode bias in a school survey on alcohol, tobacco, and illicit drug use", *Addiction*, vol. 90, No. 4 (April 1995), pp. 555-560.

# Preparing, analysing and reporting the data

*Edward M. Adlaf*

## Chapter VIII

The present chapter briefly describes the tasks and activities necessary to prepare data for analysis and reporting. These preliminary steps are important and the more time spent assessing and preparing data for analysis, the fewer the problems that will occur later.

### Preparing the data

#### *Pre-entry screening and editing*

The first stage of data preparation begins prior to data entry. At this stage, the questionnaires should be gone through, and, if necessary, coding should be added. The questionnaires should be examined for response patterns that suggest poor data quality, such as the questionnaire not being taken seriously by the respondent (that is, lack of responses or childish comments written on the questionnaire) or a majority of the questions not being answered (for example, over half the questions are unanswered), "in-line" responding (in which the respondent appears to be giving the same answer to all questions) or other patterned responses (for example, zig-zag responses, which follow a particular pattern, such as "always", "sometimes"; "always", "sometimes", throughout the questionnaire), or that no valid response has been given for sex and age. The questionnaires should also be scanned for extreme responses (for example, reporting the use of all drugs frequently). Some researchers visually scan all pages, and in particular the last few pages to ensure that students completed the questionnaire. It is recommended that problematic questionnaires be removed prior to data entry; however, excluding questionnaires from data entry should be done minimally and cautiously to ensure a quality sample. The key imperative here is to clearly document the number and reasons for any exclusions. In general, it is expected that no more than 1 per cent and preferably less than one half of 1 per cent of questionnaires would be excluded.

The next activity, which could occur simultaneously, is to complete any necessary editing of the questionnaire prior to data entry.

However, before this, a data codebook should be created: for each question, the process by which the questionnaire item is encoded into the data file should be described in the codebook. First, important design factors that need to be attached to the questionnaire but were not asked directly of students must be identified. Examples of these might include school identification number or name, region code, school type, classroom identification number and date of survey administration. These variables will be necessary during the data analysis stage. It is also important to attach a unique identification number for each student. After design variables are attached to the questionnaire, for each question a coding scheme should be created to describe how the questionnaire item responses will be entered (encoded) into the data file. Student responses should be examined to ensure that all appropriate responses are unambiguously answered. If multiple response items (for example, with the instruction "check all that apply") were included in the questionnaire, it is recommended that each category is entered as a yes/no question, as this will make analysis easier. If open-ended questions (although these are not generally recommended) were included in the questionnaire, they would need to be coded prior to data entry. Most self-administered questionnaires do not have an explicit code for refusal, so a code to use to represent those who failed to answer a question would need to be decided upon. One common practice is to assign a value of "9" for categories less than 9, "99" for two-digit items such as age, and so forth.

Depending on the method of data entry, at some point a decision should be made on how to define the variable list. Two practices are common: one labels the variables in the data files according to their question number (for example, Q1, Q2), the other uses character labels according to the meaning of the question (for example, age, sex, region, alc1, alc2, and so forth). The researcher may choose the one to be used depending on the size and complexity of the questionnaire. If the survey is to be conducted in multiple sites or countries, it is important that the same variable names and coding schemes are used. Finally, it should be remembered that most statistical software can analyse only numerical variables, so it is preferable to code most variables as numerical and not as "string" variables, that is, variables saved as characters rather than as numbers (for example, "male" should be coded as "1", not as "m").

To sum up, the more careful the attention paid to pre-entry screening and variable coding of the questionnaire, the less time data entry will take. These records should also be regularly updated and stored in a safe and secure place.

### *Data entry*

Once the questionnaires have been screened and edited, they are ready for data entry. It is assumed that data analysis will be done by computer and thus the data must be entered in a machine-readable format. The two major choices here are opti-



cal scanning methods and direct manual entry methods. The choice of optical scanning may depend on availability and cost. If it is decided to use this approach, it is crucial to begin to work early to identify skilled professionals with scanning experience. It will also be necessary to develop a precisely formatted questionnaire in order for the scanning process to proceed smoothly.

The most widely used method is still the manual entry of data. This can occur through computer-assisted data entry, dedicated data entry software and manual computer data entry, that is, direct entry from the questionnaire into a spreadsheet (for example, Excel) format. Thus, data entry can be as straightforward as manually entering questionnaire responses into a spreadsheet, with columns represented by questionnaire items and rows represented by students or more complicated data entry screens with programmed checks. There are several decisions and tasks in this regard.

First, computer software must be chosen. A package that allows data to be entered, cleaned and verified, statistical analysis to be performed and graphs for the report to be prepared should be considered. Some of the widely used commercially available programs include SPSS (details available at [www.spss.com](http://www.spss.com)) and SAS (details available at [www.sas.com](http://www.sas.com)). In addition, the Centers for Disease and Prevention Control in the United States makes available free of charge software called Epi Info, which includes data entry, statistical analysis and graphics capabilities. Information on downloading the software can be found at [www.cdc.gov/epiinfo](http://www.cdc.gov/epiinfo). Important considerations include cost, the availability of skilled users and the need to share data with others. Another consideration is the need for statistical methods for complex survey designs (see the section on complex analysis below). Whichever statistical software is chosen, the data file should also be kept in a format such as American Standard Code for Information Interchange (ASCII) or Excel because these file formats make it easier to transfer data files to other software packages.

It is important to ensure that the data are verified for accuracy. Ideally, it is best to verify 100 per cent of all entered questionnaires by entering the data twice, preferably by a different person each time. This increases the time needed and the cost. If funds are limited, a minimum of 10 to 20 per cent of entered questionnaires should be verified in order to check that the error rate is acceptably low. Verification is usually not necessary after optical scanning.

### *Post-entry screening*

After the data have been entered, the data will need to be screened again, but this time using the computer. First, the frequencies of all the entered data should be printed and the following items should be assessed: that all the questionnaire items are present; that the variable labels and category value labels are correct; and that the value ranges match the questionnaire.

Once it has been determined that the data are complete, aspects of data quality should be assessed and issues that may pose difficulties at the stage of analysis should be identified. This would include such things as assessing the rates of missing values, the presence of highly skewed distributions and consistency in reporting. Fortunately, many drug use school surveys have item-missing values under 5 per cent, so this problem may not be substantial. If rates of missing values exceed 30 per cent, the use of this variable should be reconsidered or advice should be sought from a professional survey researcher.

Highly skewed distributions can also be problematic when almost all students give the same response (for example, all students report no heroin use). For some types of analysis, these variables may be of limited use, but for descriptive analyses, such as describing how widespread heroin use is, they are fine. Finally, it is recommended that researchers conduct contingency checking on their data. A primary example in drug use surveys is to assess the consistency in logical reporting between drug use periods, for example, lifetime versus past year use or past year versus past 30-day use. For example, all those who report using a drug within the past 30 days should also report using it in the past year. Indicators of reporting consistency will give the researcher a sense of the data quality and may be important in interpreting the results (see chapter IV).

After the screening process has been completed, it should be decided which cases will comprise the final sample for analysis. Each of these cases is referred to as a "minimally complete case" because it defines the minimal requirements for a valid analysis case. Some or all of the following criteria may be considered in determining which cases are chosen as final analysis cases: (a) did not report the use of a fictitious drug (see chapters IV and VI); (b) completed majority of questionnaire; (c) no evidence of exaggerated reporting (for example, reporting frequent use of all drugs); (d) did not have multiple questions answered inconsistently; and (e) provided valid data for key variables (for example, sex and age). There is no consensus among researchers on which or how many of these criteria are appropriate to use. Thus, each investigator should determine which criteria are the most appropriate in his or her situation.

Multiple inconsistencies can be checked by examining the answers to pairs of questions that should be answered in a certain way to be logically consistent: for example, frequency of 30-day use of a drug cannot logically exceed frequency of use in the past 12 months or frequency of use of that same drug in the respondent's lifetime. Logical tests can be conducted for each drug and if the answers given by a respondent show more than a couple of inconsistencies, consideration should be given to eliminating the case. These decisions, however, may depend on the character and nature of the criteria items, such as, whether the researchers judge that the students have mistaken the non-existent drug for a real one.



### *Analysis preparation*

One of the final steps in preparing the data file is to prepare "derived" variables that are variables that are created or computed and are not original to the questionnaire. Examples would include calculating age (if the year of birth was asked about in the questionnaire) and the number of drugs used (based on several drug use questions). Another category of derived variables is those that will be frequently employed in a different form, such as deriving age categories based on age of respondents. Frequency of alcohol use may also be asked about in the questionnaire, but deriving a new variable to allow prevalence analysis is often necessary. In cases like this, work may be saved later by recording these key variables and saving them as derived variables (in addition to the original question).

When new variables are being created, the original data should never be changed and new names should be created for new variables. Any computations should be double-checked for accuracy. It should always be assumed that there is potential for error.

### *Data weighting*

A detailed discussion of survey analysis weighting is well beyond the scope of the present chapter. Whether data needs to be "weighted" in the analysis depends upon the sample design. For example, a census survey (that is, a survey of all individuals in the target population) would not require weighting and neither would "self-weighted" designs (those in which the probability of a student being selected is equal to the overall sampling fraction). However, if the probability of a student being selected in the sample differs from his or her population representation, weighting is necessary to ensure representativeness in estimates. One common example is a design that is stratified by region. It is not unusual for sample designs to use equal allocation within each geographical area to ensure equal precision in each region. But if regions differ significantly in their population, as is frequently the case, percentages based on unweighted data would not reflect the true population representation. Thus, the need for weighting should be obvious.

Another possible reason for weighting would be to correct for the sample to population distribution, often referred to as "post-stratification" weights. For example, if the male to female ratio were 50:50 and the sample were 40:60, an adjustment could be made to make the sample more representative of the population. Again, this is an issue that should be discussed with a survey statistician. It is important to note that such adjustments do not completely resolve the problem of a "bad" sample.

As the creation of weights can be highly technical a survey researcher should be consulted. Fortunately, once weights are calculated, applying them in analysis is quite straightforward in statistical packages.

## Sample evaluation

Once the data has been prepared for analysis, the sample should be compared to population information, if possible. For example, the gender and grade level distribution could be compared to school enrolment statistics in order to evaluate how well the sample matches the population and thus address some issues of non-response bias.

The objective of this preliminary work is to ensure that researchers know their data well, its strengths, and its weaknesses, before they embark upon analysis. Indeed, many researchers are carried away by their enthusiasm upon receiving a data file and proceed prematurely to data analysis, only to find that problems later result in redoing weeks or months of work.

## Analysing the data

Once the data has been thoroughly prepared statistical analysis can begin. Before statistical analysis is begun, it is useful to create a detailed outline of the report, including "mock" or empty tables. This often provides a clear direction as to what material is needed.

It should be decided, and later reported, how the missing values in the estimates were handled. The most common practice is that percentages (and other estimates such as means) are calculated from those who provided a valid response, that is, excluding those who did not provide an answer. It should be recognized, however, that excluding those who failed to respond means that the potential bias is implicitly ignored.

In practice, most epidemiological reports are descriptive in nature. The focus is on providing population estimates for the total sample and subgroups, such as those defined by gender, region, population density or age. Thus, most descriptive reports do not go beyond relating two variables at a time. For each estimate, the percentage (or other estimate) should be requested. If possible, it is also advisable to report the 95 per cent confidence interval from the output. However, since nearly all school surveys use cluster sampling (that is, the sampling unit is classes and not students) this requires special software packages (as described in the following section on complex analysis).

The 95 per cent confidence interval is important in evaluating the estimate because it reflects the degree of uncertainty. It is also important to recognize that each percentage estimate may have a different confidence interval. For group variables, such as sex, age group and region, a chi-square test should also be requested to determine whether rates of drug use differ significantly. Again, if researchers are unfamiliar with such statistical methods, the advice of a local researcher should be sought.

### *Complex analysis*

If the sample is based on a complete census of all students, a simple random sample of students, or a self-weighted sample, the analysis should be straightforward because it may not require weighting. However, many school surveys include design features such as weighting (due to unequal probabilities of selection) and, in particular, clustering, that cause estimates of variance such as standard errors and confidence intervals to be underestimated, sometimes significantly.

There are two general issues in this regard. First, many weights that are calculated for surveys are expansion weights; that is, the resulting size of the sample would be the projected population size, not the number of students surveyed. The difficulty here is that when tests of significance, such as chi-square, are calculated, they are based on an inflated sample size because most programs cannot distinguish between unweighted and weighted data. Consequently, most analyses based on expansion weights would greatly overestimate significance levels due to the inflated sample size. Some attempt to resolve the problem of the software believing that the sample size is much larger than the actual number of students surveyed by "downweighting" the weights by a constant to ensure that the weighted sample size is equal to the unweighted sample size. For percentage estimates, these "relative" weights are used in the analysis. However, this method would still not resolve the other estimation issues concerning complex samples, such as clustering.

The second issue regards the problem of clustering. Schools are a natural unit of selection because the creation of sampling frames is relatively easy and surveying many students per school is cost-efficient. However, a statistical problem is caused by this clustering because the statistical assumption of independence is violated in that, typically, students in the same school share many similar characteristics. In a sense then, because of overlap in characteristics, there is less information per student compared to a simple random sample. Because standard statistical software ignores this clustering effect, such results tend to underestimate variances.

The consequence of this is that tests of significance would be overstated, generally it would falsely be concluded that a significant difference or association existed when it did not. Most standard statistical packages would not properly estimate variance from such designs. Fortunately, there are software packages that can correctly estimate variances in such designs (such as Stata, SUDAAN and WesVar). However, the use of such software generally requires a person with an advanced statistical background, so it would be important to consult a statistician for advice. If the sample design is clustered and it is not possible to calculate the proper variance, readers should be informed and warned that the estimates of sampling error are understated (see chapter V).

Regarding the process of statistical computing, it is recommended that "syntax" files, files that retain the computer commands given, are used for computing, rather than "click-and-point" methods. Using syntax files ensures that results can be replicated

at any time. It is important (a) to document syntax files with comments as to what tasks are being performed, (b) to keep a research log and (c) to archive all work.

### *Reporting the data*

It is recommended that two reports are produced from each survey: a technical document and an epidemiological report. The technical document should contain all the details of the sample design, its execution and questionnaire and data file information. This document is important for archive purposes, for use later and for others who may need to use the data or to replicate the survey at some time in the future to see if drug use has changed.

The second report describes the epidemiological findings. This report of the data is a most critical task; it is the report that will largely determine how the survey is received by the intended audience. In practice, most drug use survey reports have multiple audiences, including the general public, journalists, government officials, health professionals and researchers. Consequently, many such reports are directed towards the general public and thus require a clear writing style with minimal jargon. The methodological details should be minimized to only the key points and more methodological information should be given in a technical annex.

For most reports, the first stage, even before writing, is usually the preparation of tables and figures. Fortunately, computers have made the task of preparing survey reports relatively easy, especially those with dedicated table functions. It is recommended that, at a minimum, estimates are provided for the total sample and for males and females separately. If the sample size allows, consideration might also be given to including subgroup percentages for grade or age as well. This not only provides more useful information for prevention programming, but also enhances the ability to make comparisons with other, similar surveys.

After tabulating the data, all percentages (or other estimates) should be reviewed for "statistical appropriateness". For example, some survey organizations suppress estimates that are considered to be unreliable because the sample on which the estimate is based is too small (for descriptive purposes the smaller the p value, the greater the accuracy of estimation). Suppression rules will depend on the characteristics of the sample. The rationale here is that not all estimates are of equal reliability and a means is needed to warn readers about unstable estimates.

### **Other points to consider**

Ideally, it is useful to provide the 95 per cent confidence interval for each estimate, but this may depend on the complexity of the tables and report, and perhaps on the audience. If possible, this material should be provided in an annex. Graphs can

be a powerful presentation tool, but careful thought should be given to their construction and three-dimensional graphics should not be overused. Drafts of the report should be reviewed by both research colleagues and other audience stakeholders (such as school officials). It is often useful to provide comparisons between the data and those from other surveys, but careful attention should be paid to any differences in methodology that could account for different results.

A summary of the report should be prepared after completion of the report. The more time and thought put into the summary, the more will be gained, since it will contain information on the most important findings and implications, can be used to prepare media releases and can serve as a useful summary for government and school officials. A recent useful development is the ability to create electronic reports (that is, Adobe pdf files) for more efficient and less costly dissemination. When the report is complete, consideration should be given to making available both hard-copy and electronic versions of the report.

Reports from the following studies may serve as useful models: the Monitoring the Future study ([www.monitoringthefuture.com](http://www.monitoringthefuture.com)); the Ontario Student Drug Use Survey (Canada) ([www.camh.net/research/population\\_life\\_course.html](http://www.camh.net/research/population_life_course.html)); ESPAD ([www.espad.org](http://www.espad.org)) (forthcoming); and PACARDO ([www.cicad.oas.org](http://www.cicad.oas.org)).

### Checklist for preparing, analysing and reporting the data

(a) *Preparing the data:*

(i) Pre-entry screening:

- a. Visually scan questionnaires for completeness and validity and remove problematic questionnaires;
- b. Attach necessary design information to questionnaire;
- c. Scan and edit questionnaire responses; recode multiple response items into separate variables and code open-ended items (if any);
- d. Create code book, including codes for missing values; decide on standard method of naming variables;

(ii) Data entry:

- a. Decide on optical scanning or computerized data entry;
- b. Choose statistical software;
- c. Enter and verify data from questionnaires;

(iii) Post-entry scanning:

- a. Review computer frequency output for all questions for completeness;
- b. Access missing values, highly skewed distributions;
- c. Determine minimally complete cases and omit incomplete cases, save as new data file, but retain copy of original file;

(iv) Analysis preparation:

- a. Create derived variables and double check all computations (do not overwrite original variables);
- b. Contact a consultant for assistance in weighting data (if necessary);
- c. If possible, compare sample characteristics to population characteristics;

(b) *Analysing and reporting on the data:*

- a. Create technical document describing all survey information (sample design, participation details, code book, questionnaire, and so forth);
- b. Outline epidemiological report prior to analysis;
- c. Decide on key subgroup estimates;
- d. Determine if sample requires weighting;
- e. Determine if sample has complex design features such as clustering and, if possible, correct estimations using appropriate statistical software; if not possible, inform readers in report;
- f. Prepare and complete tables before writing analysis;
  - i. Present weighted percentages and unweighted sample sizes;
  - ii. Do not report more than one decimal place in percentages (some surveys such as ESPAD use no decimals in their percentages);
  - iii. Present total and subgroup estimates;
  - iv. Provide the reader with information regarding sampling error or confidence intervals, even if they are appended to the end to the report;
- g. Assess percentages for stability and suppression;
- h. Write summary after completion of report.

### Further reading

- L. A. Aday, *Designing and Conducting Health Surveys: A Comprehensive Guide* (San Francisco, Jossey-Bass, 1996).
- D. A. Dillman, *Mail and Internet Surveys: The Tailored Design Method*, 2nd ed. (New York, John Wiley, 2000).
- F. J. Fowler, *Improving Survey Questions: Design and Evaluation* (Thousand Oaks, California, Sage, 1995).



# Model student questionnaire

## Annex I

### General information

This is a suggested student questionnaire. It is discussed in detail in chapter VII.

It is recommended that all questions are used. However, for cases where that is not possible, the questions have been divided into the following three categories:

Highly recommended: indicated in the questionnaire with three stars (\*\*\*)

Recommended: indicated in the questionnaire with two stars (\*\*)

Optional: indicated in the questionnaire with one star (\*)

Please note that if one or more questions are taken out of the questionnaire, the suggested introductions may need to be rewritten accordingly.

If questions are added to the questionnaire, it is recommended that they are inserted after the suggested alcohol and drug questions. The main reason for this is to retain the order of appearance of the questions in order to make the results as comparable as possible with other studies using the suggested questionnaire.

If questions are added, it is important that the number is restricted to avoid overloading the questionnaire.

It is suggested that the logo of the research institute or project under the auspices of which the survey is being conducted is printed at the top of the front page of the questionnaire.

The questionnaire should be translated into the desired language and then translated back again into English. Departures from the original may then be discovered and corrected.

Throughout the questionnaire, drugs are exemplified with street names and/or pharmaceutical names. It is important that all these names are amended to ensure that they are appropriate and understandable in the cultural setting. Use terms that young people will understand.

Some drug-related questions include the non-existent drug "Relevin". It is included as a "validity check" to ensure that students do not overestimate their drug use.



Some comments about individual questions:

- Questions 4 and 5 The questions are intended to describe the educational levels of most countries. However, the examples of schooling should be adjusted to the cultural context.
- Question 10 The examples within brackets should correspond to the amounts referred to in the question for each beverage, for example, if the most common locally used beer bottle contains 100 cl rather than 50 cl, then the question should be amended to read "half a bottle of beer".
- Question 19 The translation of this question might cause difficulty in some languages. "To get" means "to be able to obtain" or "to come to have or hold".

[Insert appropriate logo(s)  
here]

**Before you start, please read this**

This questionnaire is part of an [international/national] study on alcohol, drug and tobacco use among students. The survey is conducted by [.....]. Your school and class have been randomly selected to take part in this study. You are one of about [.....] students in [.....] participating in the study. The information you give will contribute to a better understanding of young people like yourself.

DO NOT write your name on this questionnaire. The answers you give will be kept private. No one will know what you write. The questions that are asked about your background will only be used to describe the types of students completing the survey. The information will not be used to find out your name. No names will ever be reported.

Answer the questions based on what you really do and know. Please answer as truthfully as you can. Completing the survey is voluntary. Whether or not you answer the questions will not affect your grade in this class. If you are not comfortable answering a question, just leave it blank.

This is not a test. There are no right and wrong answers. If you do not find an answer that fits exactly, mark the one that comes closest. Please read every question and mark your best answer for each question by putting a cross (X) in the box.

We hope you find the questionnaire interesting. If you have a question, please raise your hand and your [teacher/survey administrator] will assist you.

When you have finished, please put the questionnaire into the enclosed envelope and seal it yourself. Your [teacher/survey administrator] will collect the envelopes.

Thank you very much for your help.

**Please begin**

*BEFORE BEGINNING BE SURE TO READ THE INSTRUCTIONS ON THE COVER.*

*Please mark your answer to each question by putting a cross (X) in the appropriate box.*

***The first questions ask for some BACKGROUND INFORMATION about yourself.***

- \*\*\* 1. What is your sex?
- Male  
 Female
- \*\*\* 2 (a) In what year were you born?
- Year 19 .....
- \* 2 (b) In what month were you born?
- |                                   |                                |                                    |                                   |
|-----------------------------------|--------------------------------|------------------------------------|-----------------------------------|
| <input type="checkbox"/> January  | <input type="checkbox"/> April | <input type="checkbox"/> July      | <input type="checkbox"/> October  |
| <input type="checkbox"/> February | <input type="checkbox"/> May   | <input type="checkbox"/> August    | <input type="checkbox"/> November |
| <input type="checkbox"/> March    | <input type="checkbox"/> June  | <input type="checkbox"/> September | <input type="checkbox"/> December |
- \*\*\* 3. Which grade are you in?
- Grade x  
 Grade y  
.  
.  
 Grade z

***The next questions ask about your PARENTS. If you were raised mostly by foster parents, step-parents or others, answer for them. For example, if you have both a stepfather and a natural father, answer for the one who was the most important in raising you.***

- \* 4. What is the highest level of schooling your father attained?
- Completed primary school or less  
 Some secondary school  
 Completed secondary school  
 Some college or university  
 Completed college or university  
 Don't know or does not apply
- \* 5. What is the highest level of schooling your mother attained?
- Completed primary school or less  
 Some secondary school  
 Completed secondary school  
 Some college or university  
 Completed college or university  
 Don't know or does not apply
- \* 6. Which of the following people live in the same household with you?
- Mark all the boxes that apply.
- I live alone  
 Father  
 Stepfather  
 Mother  
 Stepmother  
 Brother(s) and/or sister(s)  
 Grandparent(s)  
 Other relative(s)  
 Non-relative(s)

**The following questions are about CIGARETTE SMOKING.**

**\*\* 7. On how many occasions (if any) have you smoked cigarettes?**

Mark one box in each row.

	Number of occasions						40 or more
	0	1-2	3-5	6-9	10-19	20-39	
(a) In your lifetime	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) During the last 12 months	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) During the last 30 days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**\*\* 8. How frequently have you smoked cigarettes during the LAST 30 DAYS?**

- Not at all
- Less than 1 cigarette per week
- Less than 1 cigarette per day
- 1-5 cigarettes per day
- 6-10 cigarettes per day
- 11-20 cigarettes per day
- More than 20 cigarettes per day

**The next questions are about ALCOHOLIC BEVERAGES, including beer, wine and spirits.**

**\*\*\* 9. On how many occasions (if any) have you had any alcoholic beverage to drink (more than just a few sips)?**

Mark one box in each row.

	Number of occasions						40 or more
	0	1-2	3-5	6-9	10-19	20-39	
(a) In your lifetime	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) During the last 12 months	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) During the last 30 days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**\*\*\* 10. Think back over the LAST 30 DAYS. How many times (if any) have you had five or more drinks in a row? (A "drink" is a glass of wine (about 15 cl), a bottle or can of beer (about 50 cl), a shot of spirits (about 5 cl) or a mixed drink.)**

- None
- 1
- 2
- 3-5
- 6-9
- 10 or more times

**The next questions ask about some OTHER DRUGS.**

**\* 11. Have you ever heard of any of the following drugs?**

Mark one box in each row.

	Yes	No
(a) Tranquillizers or sedatives [give names that apply]	<input type="checkbox"/>	<input type="checkbox"/>
(b) Marijuana (grass, pot) or hashish (hash, hash oil)	<input type="checkbox"/>	<input type="checkbox"/>
(c) Amphetamines (uppers, pep pills, bennies, speed)	<input type="checkbox"/>	<input type="checkbox"/>
(d) Ecstasy	<input type="checkbox"/>	<input type="checkbox"/>
(e) LSD	<input type="checkbox"/>	<input type="checkbox"/>
(f) Relevin	<input type="checkbox"/>	<input type="checkbox"/>
(g) Crack	<input type="checkbox"/>	<input type="checkbox"/>
(h) Cocaine	<input type="checkbox"/>	<input type="checkbox"/>
(i) Heroin	<input type="checkbox"/>	<input type="checkbox"/>

\*\*\* 12. How many times IN YOUR LIFE (if any) have you used any of the following drugs?

Mark one box in each row.

	Number of occasions						
	0	1-2	3-5	6-9	10-19	20-39	40 or more
(a) Marijuana (grass, pot) or hashish (hash, hash oil)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Tranquillizers or sedatives [give names that apply] (without a doctor or medical worker telling you to do so)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Amphetamines (uppers, pep pills, bennies, speed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*(d) Methamphetamine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Ecstasy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) LSD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) Other hallucinogens (for example "magic mushrooms")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h) Relevin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) Cocaine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(j) Crack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(k) Heroin (smack, horse)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(l) Other opiates (for example, [give names that apply]) (without a doctor or medical worker telling you to do so)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(m) Drugs by injection with a needle (for example, heroin, cocaine, amphetamine)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(n) Solvents or inhalants (glue, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*\*\* 13. How many times in THE LAST 12 MONTHS (if any) have you used any of the following drugs?

Mark one box in each row.

	Number of occasions						
	0	1-2	3-5	6-9	10-19	20-39	40 or more
(a) Marijuana (grass, pot) or hashish (hash, hash oil)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Tranquillizers or sedatives [give names that apply] (without a doctor or medical worker telling you to do so)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Amphetamines (uppers, pep pills, bennies, speed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*(d) Methamphetamine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Ecstasy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) LSD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) Other hallucinogens (for example, "magic mushrooms")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h) Relevin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) Cocaine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(j) Crack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(k) Heroin (smack, horse)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(l) Other opiates (for example, [give names that apply]) (without a doctor or medical worker telling you to do so)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- (m) Drugs by injection with a needle  
(for example, heroin, cocaine, amphetamine)
- (n) Solvents or inhalants (glue, etc.)

\*\*\* 14. How many times in THE LAST 30 DAYS (if any) have you used any of the following drugs?

Mark one box in each row.

	Number of occasions						
	0	1-2	3-5	6-9	10-19	20-39	40 or more
(a) Marijuana (grass, pot) or hashish (hash, hash oil)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Tranquillizers or sedatives [give names that apply] (without a doctor or medical worker telling you to do so)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Amphetamines (uppers, pep pills, bennies, speed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*(d) Methamphetamine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Ecstasy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) LSD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) Other hallucinogens (for example, "magic mushrooms")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h) Relevin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) Cocaine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(j) Crack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(k) Heroin (smack, horse)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(l) Other opiates (for example, [give names that apply]) (without a doctor or medical worker telling you to do so)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(m) Drugs by injection with a needle (for example, heroin, cocaine, amphetamine)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(n) Solvents or inhalants (glue, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*\* 15. How old were you when (if ever) you FIRST did each of the following things?

Mark one box in each row.

	Never	11 years old or less	12 years old	13 years old	14 years old	15 years old	16 years old	X years old
*(a) Drank beer (at least one glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*(b) Drank wine (at least one glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*(c) Drank spirits (at least one glass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*(d) Got drunk on alcohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*(e) Smoked your first cigarette	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*(f) Smoked cigarettes on a daily basis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) Tried amphetamines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h) Tried tranquillizers or sedatives (without a doctor or medical worker telling you to do so)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) Tried marijuana or hashish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(j) Tried LSD or other hallucinogen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(k) Tried crack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(l) Tried cocaine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- |   |                          |                          |                          |                          |                          |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| (m) Tried Relevin   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (n) Tried Ecstasy   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (o) Tried heroin  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (p) Tried solvents or inhalants<br>(glue, etc.) to get high | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

\* 16. Of the drugs listed below, which (if any) was the FIRST one you tried?

- I've never tried any of the substances listed below
- Tranquillizers or sedatives (without a doctor or medical worker telling you to do so)
- Marijuana or hashish
- LSD
- Amphetamines
- Crack
- Cocaine
- Relevin
- Heroin
- Ecstasy
- I don't know what it was

\* 17. Individuals differ in whether or not they disapprove of people doing certain things.

DO YOU DISAPPROVE of people doing any of the following?

Mark one box in each row.

- |   | Don't<br>disapprove      | Dis-<br>approve          | Strongly<br>disapprove   | Don't<br>know            |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| (a) Smoking 10 or more cigarettes a day   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (b) Having five or more drinks* in a row<br>each weekend  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (c) Trying marijuana or hashish (cannabis,<br>pot, grass) once or twice   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (d) Smoking marijuana or hashish occasionally   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (e) Smoking marijuana or hashish regularly  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (f) Trying LSD or some other hallucinogen<br>once or twice  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (g) Trying heroin (smack, horse) once or twice  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (h) Trying tranquillizers or sedatives (without<br>a doctor or medical worker telling them to<br>do so) once or twice | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (i) Trying an amphetamine (uppers, pep pills,<br>bennies, speed) once or twice  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (j) Trying crack once or twice  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (k) Trying cocaine once or twice  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (l) Trying Ecstasy once or twice  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (m) Trying solvents or inhalants (glue, etc.)<br>once or twice  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

\*A "drink" is a glass of wine (about 15 cl), a bottle or can of beer (about 50 cl) or a shot of spirits (about 5 cl) or a mixed drink.

\* 18. How much do you think people risk harming themselves (physically or in other ways), if they do the following?

Mark one box in each row.

- |   | No<br>risk               | Slight<br>risk           | Moderate<br>risk         | Great<br>risk            | Don't<br>know            |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| (a) Smoke cigarettes occasionally                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (b) Smoke one or more packs of cigarettes per day | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (c) Have one or two drinks* nearly every day      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- (d) Have four or five drinks\* in a row nearly every day
- (e) Have five or more drinks\* in a row each weekend
- (f) Try marijuana or hashish (cannabis, pot, grass) once or twice
- (g) Smoke marijuana or hashish occasionally
- (h) Smoke marijuana or hashish regularly
- (i) Try LSD once or twice
- (j) Take LSD regularly
- (k) Try an amphetamine (uppers, pep pills, bennies, speed) once or twice
- (l) Take amphetamines regularly
- (m) Try cocaine or crack once or twice
- (n) Take cocaine or crack regularly
- (o) Try Ecstasy once or twice
- (p) Take Ecstasy regularly
- (q) Try solvents or inhalants (glue, etc.) once or twice
- (r) Take solvents or inhalants regularly

\*A "drink" is a glass of wine (about 15 cl), a bottle or can of beer (about 50 cl), a shot of spirits (about 5 cl) or a mixed drink.

**\*\* 19. How difficult do you think it would be for you to get each of the following, if you wanted?**

Mark one box in each row.

- |  | Im-possible              | Very difficult           | Fairly difficult         | Fairly easy              | Very easy                | Don't know               |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| (a) Cigarettes                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (b) A small bottle of spirits (about 35 cl)          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (c) Marijuana or hashish (cannabis, pot, grass)      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (d) LSD or some other hallucinogen                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (e) Amphetamines (uppers, pep pills, bennies, speed) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (f) Tranquillizers or sedatives                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (g) Crack  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (h) Cocaine  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (i) Ecstasy  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (j) Heroin (smack, horse)                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (k) Solvents or inhalants (glue, etc.)               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**\* 20. Have you ever had any of the following problems?**

Mark all the boxes that apply in each row.

- |   | Never                    | Yes, because of my alcohol use | Yes, because of my drug use | Yes, for reasons other than alcohol or drug use |
|---|--------------------------|--------------------------------|-----------------------------|---|
| (a) Quarrel or argument                             | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/>    | <input type="checkbox"/>                        |
| (b) Scuffle or fight                                | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/>    | <input type="checkbox"/>                        |
| (c) Accident or injury                              | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/>    | <input type="checkbox"/>                        |
| (d) Loss of money or other valuable items           | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/>    | <input type="checkbox"/>                        |
| (e) Damage to objects or clothing                   | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/>    | <input type="checkbox"/>                        |
| (f) Problems in your relationship with your parents | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/>    | <input type="checkbox"/>                        |



- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| (g) Problems in your relationship with your friends  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (h) Problems in your relationship with your teachers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (i) Performed poorly at school or work               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (j) Victimized by robbery or theft                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (k) Trouble with police                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (l) Hospitalized or admitted to an emergency room    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (m) Engaged in sex you regretted the next day        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (n) Engaged in unprotected sex                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

*Thank you for taking the time to answer these questions. We hope you found them interesting and hope that you did not forget to answer any of them that you intended to answer.*



# CLASSROOM REPORT

(Please return with the completed questionnaires)

## Annex II

[Name of project]

Name of school: \_\_\_\_\_

Name of class: \_\_\_\_\_ Date of survey: \_\_\_\_\_

City/municipality: \_\_\_\_\_ County: \_\_\_\_\_

	Boys (Number)	Girls (Number)
Willing to participate in the survey	_____	_____
Refusing to participate in the survey	_____	_____
Absent	_____	_____
Total	_____	_____

Reason for absence	Boys (Number)	Girls (Number)
Illness	_____	_____
Absent with permission	_____	_____
Absent without permission	_____	_____
Other reason	_____	_____
Not known	_____	_____
Total	_____	_____

Please answer the following questions:

1. Did you notice any disturbances during completion of the questionnaires?  
 No.  
 Yes, among a few students.  
 Yes, among less than half of the students.  
 Yes, among about half of the students.  
 Yes, among more than half of the students.

If you answered "yes" to the above question, please describe the disturbance(s):

- Giggles or eye contact with classmates.
- Loud comments. Please provide an example: \_\_\_\_\_
- Other kind of disturbance. Please describe: \_\_\_\_\_

2. Do you think the students were interested in the survey?

- Yes, all of them.
- Almost all of them.
- Most of them.
- About half of them.
- Less than half of them.
- Almost none of them.
- None of them.

3. Do you think the students worked seriously?

- Yes, all of them.
- Almost all of them.
- Most of them.
- About half of them.
- Less than half of them.
- Almost none of them.
- None of them.

4. How long do you think it took each student to complete the questionnaire, on average?

About \_\_\_\_\_ minutes.

5. Are there any other comments you would like to make?

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Name of teacher/survey leader: \_\_\_\_\_  
(please write in block letters)

# Instructions for survey leaders

## Annex III

### Background

In many countries, alcohol, tobacco and drug use surveys are performed in schools. Such studies are important not only because they provide knowledge about the extent to which students are exposed to and have experienced various drugs, but also because they provide an opportunity to monitor changes over time in alcohol and other drug habits among young people.

### Sample

All school classes participating in this survey have been randomly selected and constitute a representative sample of all grade [xx] students in this country. It is therefore very important that all students in a selected class have the opportunity to participate. A selected class may not be substituted by another.

### Anonymity

Anonymity must be guaranteed for all students. Each completed form should be put in an envelope and sealed by the student himself or herself. No names should be written on the forms or on the envelopes. Results will be presented only in tables and no results from any single class will be revealed.

### The entire class is selected

It is important that all students in a class complete the questionnaire at the same time in the classroom. If any student is engaged in other school activities at this time, it is recommended that he or she is asked to join the selected class. However, the students must understand that their participation is voluntary. If any student refuses to participate, he or she is entitled to do so.

## The survey shall be conducted during the week of [. . . . .]

Those who are absent at the time that the survey is conducted shall not answer the questionnaire afterwards. They are considered "drop-outs" from the study. However, the number of absent students should be indicated on the enclosed classroom report.

If you have any questions regarding the survey, please feel free to telephone [name] on [telephone number].

## Suggested procedure

### 1. *Please give the following information to the class:*

[The information about this survey to be given to students may contain the following:

- (a) This year a survey on alcohol and other drug use is being conducted among [add number] students like yourselves in [add number] schools. The information you give will contribute to a better understanding of young people like yourself.
- (b) Your class has been randomly selected to take part in this study.
- (c) This is not a test. There are no right and wrong answers. Please answer as truthfully as you can.
- (d) Please look through the questionnaire before you finish and make sure that you have not left out any questions.
- (e) When you have finished, please put the questionnaire into the enclosed envelope and seal it yourself before handing it to [me].
- (f) Please do not write your name on the questionnaire or the envelope. The answers you give will be kept private and no one will know what you write. No results from any single class will be reported.

### 2. *Administration*

Please distribute one questionnaire and one envelope to each student. Avoid discussions on how to interpret the questions.

It is very important that the students answer the questions without communicating with their classmates. Thus, forms should be answered under the same conditions as a written test. It is recommended that the survey leader remain seated during the completion of the forms or at least does not walk around in the classroom. If a student has a question, please do not walk to his or her seat. Ask the student to come up to you and only give neutral answers to their questions.

### 3. *Classroom report*

The classroom report may be completed while the students are answering the questionnaire. Please return the classroom report together with all the questionnaires from the class.

#### *4. Collection*

Please wait until all the students have finished their questionnaires before collecting the envelopes. If a student has difficulty in answering the questions or has rather advanced drug habits to declare, which may take some time to do, he or she may feel uncomfortable being the last to finish.

Please remind the students once more not to write their name on the questionnaire or the envelope before handing it in.

#### *5. Returning the envelopes*

The envelopes should be returned, together with the classroom report, in the large envelope provided to the research institution responsible for the survey. If more than one class in a school participates, the questionnaires from each class should be separated before being returned.

*Thank you for your cooperation.*



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