

Chapter

**ASSESSMENT OF INTEGRAL SAFETY IN
SCHOOLS: EDURISC SELF-ASSESSMENT
QUESTIONNAIRE (Q-EDURISC)**

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ABSTRACT

Schools are, in general, safe spaces for every student, teacher and other professional. However, some problems related to the maintenance of school building and installations, as well as other threats related to cases of vandalism and bullying, can occur during academic activity.

Safety must be part of the regular process of management, establishing tasks and roles and promoting the development of prevention plans, with the objective of guaranteeing protection for all people who regularly attend schools.

Success in safety management lies in knowing what takes place in a school, being conscious of the risks that can affect students, teachers and other professionals who study and work there. Assessments are the first step in identifying risks and analysing the physical and psychosocial environment as well as determining the resources that a school has

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available, to what degree it complies with regulations and the efficacy of the actions being taken.

This chapter presents a strategy for assessing the level of integral safety (*Nivel de Seguridad Integral*: NiSI) of schools: the EDURISC Self-Assessment Questionnaire (Q-EDURISC). This tool analyses thirty six areas of safety, including questions related to the physical environment (building, installations, playgrounds and surroundings), social environment (quality of relationships), preparation for emergency situations and other important areas to every educational institutions. Furthermore, the main results of the application of Q-EDURISC to a sample of more than 250 Spanish schools are presented, offering some advice for schools to apply in order to improve their level of safety.

INTRODUCTION

Ensuring school safety is an essential step when we want to establish positive environments for learning and working. Education, safety and health are inseparable concepts (Leger, Young, Blanchard, and Perry, 2010; SHE, 2009). Therefore, a state of insecurity, in terms of physical, emotional and social conditions, does not only compromise the intellectual development of the students but also the basic principles of education: learning to know, learning to do, learning to live together and learning to be (Ferrerira, Tschoepske, Tschoepske, and Albuquerque, 2005).

Schools are, in general, safe places for students, teachers and other education professionals although some problems related to the correct maintenance of the building and installations can arise, as well as other problems related, for example, to cases of vandalism and bullying. In general these problems are not serious and can be avoided by planning and adopting appropriate preventative measures.

Safety must be one of the regular tasks of management (Borrás, 2008; Leger et al., 2010) in order to guarantee the protection of every student and member of staff. School directors have the responsibility of guaranteeing the safety of the whole school, as maximum representatives of the school administration, establishing the most appropriate organisation of resources, organising management, establishing tasks and roles, promoting the development of emergency/safety plans and the design, development and implementation of specific plans (Díaz-Vicario, 2012). Furthermore, they must involve the education community in daily procedure, ensuring that the regulations are followed and being aware that we are all responsible for safety.

If the success of safety management lies in knowing what is happening and being conscious of the risks that can affect the education community, assessment becomes essential. It is the first step in identifying risks and analysing the physical and psychosocial environment and is also necessary for identifying available resources, the level of compliance with regulations and the utility of the actions being taken. Only from a complete analysis of the reality of a situation is it possible to take decisions and plan safety policies and prevention plans appropriate to each school.

In recent years schools have benefited from specific instruments for assessing the risks that affect them and dealing with the different areas of safety: building and installations (for example, National Clearinghouse for Educational Facilities [NCEF], 2008; Sanoff, AIA, Pasala, and Hashas, 2001), fire risk (for example, Department for Communities and Local Government, 2006), school climate, including questions of risky behaviour, threats, bullying, substance use or others (for example, American Institutes for Research, 2011; Brener, Kann, Kichen, Grunbaum, Whalen, Eaton, Hawkins, Ross, 2004; California Healthy Kids Survey, 2012; Cornell and Gregory, 2008; National Center for Education Statistics [NCES], 2010; National School Climate Center [NSCC], 2011), work-related risks of the teaching staff (for example, FETE-UGT, 2012; Romer, 2011) and others.

The diversity of assessment initiatives is evident and each of the instruments employed facilitates useful information for improving the safety and wellbeing of the entire education community in one or more of the considered areas. However, they are partial proposals that do not consider safety from an integral perspective which incorporates the physical school environment and the socio-emotional environment, as well as all measures for avoiding any hazard, personal or material damage, and risk. This includes safety policies, preventative procedures and preparation for potential crisis situations. The EDURISC research group (<http://edo.uab.cat/edurisc>)¹ of the Universitat Autònoma de Barcelona, Spain, has developed the EDURISC Self-Assessment Questionnaire (Q-EDURISC), based on an integral conception of safety in schools. This tool analyses thirty six areas of safety grouped in the static risk dimension (including questions of physical safety) and the dynamic risk dimension (including questions relating to preventative measures to improve psychosocial wellbeing).

¹ The EDURISC research group comprises members of EDO (<http://edo.uab.cat/>) and GRISC (<http://www.grisc.cat/>): Joaquín Gairín Sallán (Director), Ramón-Jordi Moles Plaza, Diego Castro Ceacero, Anna Díaz Vicario, Jordi Sans Pinyol, Manuel Martín Alegre, Manuel Rosales Acín, Xavier Sentinella Solé and Olga Vitolo Guzmán.

Q-EDURISC is an online self-assessment tool that school directors or other professionals can easily complete, as the application includes help sections for each of the questions as well as additional information links to be used in case of doubt.

The following sections introduce us to the concept of integral safety, highlighting the importance of assessment processes as a starting point for the improvement of safety levels. They also present the EDURISC Self-Assessment Questionnaire (Q-EDURISC) and the main results of its application to a sample of 273 Spanish schools. Finally, some measures that schools can apply to increase their safety level are presented, based on the experience of the research group.

1. Integral Safety Applied to Schools

Safety is a multifaceted concept that citizens conceive as singular, relating to the damage that its absence can cause, i.e. lack of safety (Sans, 2008). In general, we can define safety as the state of being free from and exempt of hazard, damage and risk.

Although we use the terms *safety* and *security* interchangeably it is important to note that they are often conceived as two different pursuits. The Oxford Dictionary of English (Pearsall and Hanks, 2001) states that *safety* refers to the protections of human life and health and *security* to protection against crime (Albrechtsen, 2003) (see Table 1).

Table 1. Definition of Safety and Security. Oxford Dictionary of English (Pearsall and Hanks, 2001)

<p>Safety</p> <p>1) [mass noun] the condition of being protected from or unlikely to cause danger, risk, or injury.</p> <p>■ [as modifier] denoting something designed to prevent injury or damage.</p> <p>Security</p> <p>1) [mass noun] the state of being free from danger or threat.</p> <p>■ the safety of a state or organization against criminal activity such as terrorism, theft, or espionage.</p> <p>■ procedures followed or measures taken to ensure the security of a state or organization.</p> <p>■ the state of feeling safe, stable, and free from fear or anxiety.</p>
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In the education field, Trump (1998) suggests that *safety* should be considered from the traditional perspective as the prevention of accidents in the playground, in physical education classes, workshops and other activities related to school activity, while *security* is focussed on criminal and fiscal responses and prevention and preparation for crisis, physical, personal and integral security and other related questions. The approach that underlies both conceptions and the conception of school safety is the prevention and reduction of risk factors and the promotion of actions that avoid consequences or states of unsafe running.

Safety in schools has been a constant concern in the education community (Gairín and Castro, 2011) and is a very relevant term with important practical consequences, as it is a factor that has a direct influence on the quality of teaching. Developing the teaching-learning process in an environment where there are optimal physical and material conditions and where respect for people and their needs is the basis of any activity benefits the daily work of students, teachers and other professionals (Bakioglu and Geyin, 2009; Hernández, Floden, and Bosworth, 2010).

Guaranteeing the safety of the education community involves ensuring the physical, psychological and social integrity of school staff and, principally, of students as passive subjects. It is not surprising therefore that the term safety applied to schools appears linked to health and wellbeing (Buijs, 2009; Burgos, 2010; Ferreira et al., 2005), as an appropriate state of health necessarily involves the establishment of conditions that facilitate the control of circumstances which can lead to hazards to people.

The concept of safety in schools has evolved over the years. Initially the central concern was the establishment of appropriate physical conditions understood as the:

Combination of measures and activities that avoid or decrease the hazards and losses resulting from the risks that affect the school building, and mainly its occupants, as a consequence of numerous aggressive agents that threaten them. (Tilló, 1992, p. 197)

However, with time the traditional concept of school safety has been redefined in order to encompass other aspects connected to emotional and social wellbeing which relate to the perspective of healthy organisations and schools (Artazcoz, 2007; Gimeno, Pinazo, García, and García, 2008; Hernández-Fernaud, Díaz-Cabrera, and Isla-Díaz, 2009; World Health Organization [WHO], 2010).

A safe school is a school in which the incidence of accidents and illnesses of all kinds is very low. Or put in another way, a school that enjoys a high level of wellbeing. If this occurs it is because the prevention of accidents and illnesses, the fundamental idea in the promotion of health, is worked on in depth. (Longás and Martorell, 2005, p. 3)

Schools today must not only ensure that students and teachers feel physically safe but also must ensure their emotional and social safety, given the implications that this has for learning. As Devine and Cohen (2007) express, we all need to feel safe in order to discover, learn and connect to each other in a health way.

In this way, other dimensions are connected to the traditional concept of physical safety, related to aspects of construction, structure, installations and services of the school building.

These dimensions relate to other types of risks and threats which did not used to be a source of worry or concern, such as, for example, bullying, the risks of misuse or abuse of new information and communication technology or the use of addictive substances. We must furthermore consider, as Ulrick Beck (1998) maintains, that risks are in constant evolution, that the risks of today may not be the risks of tomorrow. Consequently, schools must be aware of new problems that may arise.

Currently, safe and healthy schools are not only those that have large classrooms, are well illuminated, clean and well ventilated and where the playgrounds have no obstacles that present hazards of falling, and have the safest possible accesses (Gavidia, 2001). The current vision is far wider, including the climate of the school, 'attention to individual needs, management of conflicts and threatening situations and the development of positive personal relationships between all members of the education community (Chamarro, Longás, Longás, and Capell, 2009).

The concept of integral safety applied to schools arises from this comprehensive perspective of school safety, attempting to respond to the multitude of aspects that must be dealt with in order to guarantee the wellbeing of students and teachers. The school must function as a healthy 'ergosystem' in which interactions with the environment, machines and people are fruitful and, above all, comply with safety criteria (Herrador and Latorre, 2005).

From this perspective, we understand integral safety as that which takes into account the legal, human, social and technical aspects of all the risks that can affect the people who participate in an organisation (Gairín and Díaz-Vicario, 2012).

It is a value integrated in the institutional culture that manifests in organisational processes aimed at promoting the actions necessary to achieve safety and encourage a preventative culture in the education community (Gairín and Castro, 2011). This involves (García and Mariscal, 2002):

- The consideration of the role of safety in any action.
- The integration of the role of safety as another element that must be managed by education organisations.
- The application of safety as a logical consequence of risk analysis.

Although there is no exhaustive list of all the risks to which students, teachers and other users of schools are exposed (Woycikowska, 2008), as safety is a notion and practice in constant evolution (Beck, 1998) we can distinguish, in general terms, three areas of priority for schools (Gairín and Castro, 2011):

- Emergency safety and health.
- Safety and health in the workplace.
- Safety in situations that involve social risk.

CECC-UNICEF (2008) structures the combination of risk factors that can affect education organisations, differentiating between two typologies of factors that define the ability of a school to offer safety to its occupants: (a) structural factors, or education 'hardware', including the building where the school functions, its furniture and equipment and the quality and regularity of maintenance; (b) non-structural factors, or education 'software', which comprise all the aspects that concern the approach that the education institution has and applies to the world, to human beings, to the teaching-learning process, to relations between community and school and to itself.

In this line, the EDURISC research group distinguishes between the static risk dimension and dynamic risk dimension, in accordance with the analysis perspectives of the elements of school organisation (Gairín, 1996) (see Figure 1). The static risk dimension refers to situations that pose a hazard to safety and health and are related with the risks derived from the presence of natural agents (floods, snowfall, mudslides, earthquakes, etc.), chemical contaminants (combustion, explosion, intoxication), physical contaminants (noise, vibrations, radiation etc.) and biological contaminants (bacteria, viruses, fungus, etc.) as well as to the actions that guarantee the conservation and maintenance of the building and its installations. The dynamic risk dimension

groups those risks that are related to the processes of interaction with people, including the traffic of people and vehicles, the development of teaching activities, the physical risks to the student body and teaching staff and social and leisure activities (Gairín et al., 2011).

The approach taken is underlain by the idea that reality is a totality and that, as a consequence, safety must be studied from an ecological approach where the ordering of reality is as important as personal activities and behaviour. Strict commitment to and compliance with the regulations is not sufficient. Safety requires that the education organisation submits its processes of planning, co-ordination, institutional control and assessment, seeking the involvement of the student body, teaching staff and families. The achievement of a truly safe school will only be possible if the education community commits to it, integrating the new values to those that it defends, to the practices that it promotes and the competencies that it encourages, ultimately, in its institutional culture.

Some of the priority aspects that, in this sense, schools must deal with are (CECC-UNICEF, 2008; Gavidia, 2001):

- The building and installations, which must make the school a comfortable and pleasant space.
- Resources and materials, which must be in good condition and conform to the needs of those who must use them; ergonomic aspects must be taken into account.
- The learning environment, ensuring good conditions of illumination, ventilation, temperature, humidity, insulation and warmth.
- The school environment (accesses, traffic, etc.), ensuring there is no hazard to the education community.
- The necessary protections to respond to emergency situations.
- The quality of the services offered by external companies and organisms (catering services, school transport, extracurricular activities, etc.).

The strategies and actions to take in order to achieve it are:

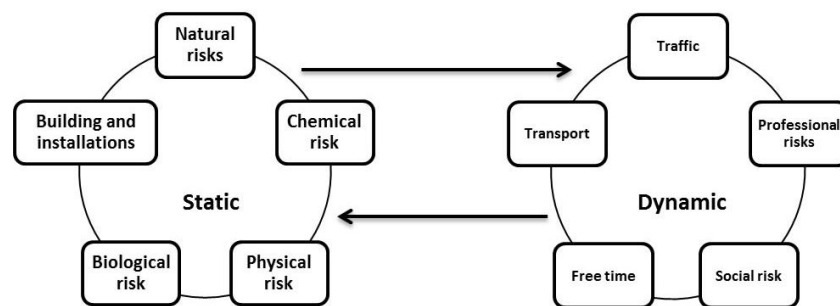
- Compliance with the current regulations on safety.
- Promotion of correct use of the school's installations, resources and materials among the student body and all the staff.
- Detection of factors that could jeopardise the safety conditions necessary for the normal development of academic activity.

- Planning of preventative strategies that are appropriate to the safety needs of the school.
- Creation of environments of participation and dialogue for the definition of procedures and strategies for the prevention of situations of risk, aggression, violence or others.
- Involvement of all the education community, ensuring a commitment to the safety of the school and all its members.
- Incorporation of the topics of safety and health, carrying out specific and punctual activities when necessary.

Working in favour of the safety of schools involves the establishment of a combination of actions aimed at avoiding exposure to situations that could entail a hazard, adopting appropriate measures when a risk cannot be eliminated and anticipating all actions to take when situations of hazards occur. Consequently, safety involves anticipating, protecting and acting, prevention and protection being two fundamental issues in the field of safety in schools (OCDE, 1998).

However, the establishment of protection and prevention measures depends on the development of a complete and precise assessment of the safety needs of the school.

Assessment is a necessary and indispensable step in improving the organisation and running of the activities of the school and implementing management processes in concurrence with preventative cultural values.



Gairín, Castro, Díaz-Vicario, Rosales, Sentinella, Vitolo, 2011, p. 198.

Figure 1. Integral safety model: static and dynamic risk dimensions.

3. Assessing to Improve Safety in Schools

Risk assessment is one of the central processes in any safety management cycle, as the European Agency for Health and Safety at Work states (OSHA, 2013). In order to guarantee appropriate levels of safety in schools, it is necessary to know what is taking place in the institution and its environment. Education administrators, headmasters and other responsible agents require assessment in order to: (a) determine the level of school safety; (b) evaluate the strategies implemented by school staff; and (c) plan the preventive actions and specific measures that must be adopted.

From a universal point of view, safety assessment should be understood as a process aimed at obtaining information on the real or potential hazards that could affect the safety and health of students, teachers and other staff of the school with the objective of identifying areas of potential improvement and implementing appropriate preventative measures.

Its objective is to account for the state of safety of the organisation, detecting dysfunctional areas, analysing and assessing the safety system and the actions taken, paying attention to the nature and conditions in which each organisation operates. It must be structured and applied in a way that facilitates (OSHA, 2013):

- The determination of the hazards arising from the actions of the organisation and the assessment of the risks associated with these hazards, in order to plan the measures necessary to protect the health and safety of individuals.
- The assessment of risks in order to carry out an informed selection of workplace equipment, work organisation, work teams and others.
- The verification of the appropriateness of the measures adopted.
- Giving priority to the adoption of additional measures, if it is deemed necessary in the assessment.
- Guaranteeing that the preventative measures and organisation and operation methods adopted improve the protection level of the users.

Leaving aside the fact that risk assessment is a legal obligation, it is a basic and essential element of any continuous improvement cycle that the organisation implements as part of its management cycle (Dirección General de Relaciones Laborales, 2006). Therefore, it must be integrated in the regular organisational and operational tasks of schools, seen as a mean and not an objective in itself. Assessment serves as support to processes of planning and

execution of intervention and safety and self-protection plans, being a relevant element of the safety and prevention policies established in the school, to design effective processes, detect dysfunctions and consolidate and institutionalise initiatives of demonstrated efficacy (Gairín, 2007).

An appropriate assessment process involves all relevant risks (not only immediate or evident risks), monitoring the efficacy of the safety measures adopted, documenting the results of the assessment and reviewing the assessment process periodically to ensure it remains up to date (OSHA, 2013). Thus, we can differentiate between three types of risk assessment (Venini and Vivas, 2007) according to the moment that the assessment is carried out:

- Initial risk assessment, when a risk assessment is first carried out. In this case all the safety areas must be assessed.
- Periodic risk assessment, when a risk assessment is carried out regularly (for example annually) with the objective of discovering new risks or monitoring those detected previously, evaluating the efficacy of the preventative measures adopted. It can focus on concrete aspects.
- Specific risk assessment, to be carried out after an accident with the objective of analysing the causes of this.

Safety assessment is not a static or punctual process (Dunlap, 2013), but rather a live and dynamic process implemented regularly and whenever necessary (Fernández Marcos, 2006). This perspective is also justified by the fact that the assessment results are not permanently valid, whether because the conditions of the school evolve or because the safety regulations that apply to them change. Education administration and headmasters require assessment in order to know whether the actions taken are effective or not, whether or not they serve their intended purposes and whether other types of responses are required (Gairín, 2009). The purpose is to provide leaders with information on current safety conditions with the objective of making recommendations, both short and long term, to improve them, whether through the application of corrective measures or by continuing with the application of measures of demonstrated efficacy (Trump, 1998).

Assessment can help to highlight problems or needs, illuminate appropriate responses and to clarify the way in which they should change the school or the direction that it should take (González, Nieto, and Portela, 2003, p. 267).

The processes of safety assessment can be developed from two perspectives that, although theoretically opposed, can be complementary:

- a External assessment processes carried out by education administrations, prevention services or other agencies to ensure that all schools comply with safety regulations and have the safety conditions considered indispensable. Through these processes general safety problems can be identified and universal decisions adopted. From the assessment results standardised safety protocols are derived that improve the safety of all the schools that use the assessment, ensuring the right to education without risks. The purpose of the assessment is linked in this case to accountability and the establishment of general policies.
- b The internal assessment processes that schools carry out to analyse their safety problems, verifying the efficacy of their management, organisational and operational processes based on the preventative values and principles adopted, being aware of the degree of fulfilment and difficulties that they present. Through this process, schools understand their situation and can reflect on what they can do to improve their safety and design plans, protocols, actions and specific strategies adapted to their situation. The objective of the assessment is comprehensive and formative; it seeks to know the reasons that explain certain processes and is carried out with the objective of taking decisions to improve unsatisfactory running.

The adoption of one perspective or the other has its advantages and disadvantages. The processes of external assessment, aimed at the classification and normalisation of institutional behaviour, are limited with regards to their efficacy for internal improvement, if we consider that the standardised indicators do not always take the priorities of schools into account. By contrast, internal assessment processes have a more direct repercussion on organisational development, the professional development of teachers and a greater social utility for what schools are and what they do (Gairín, 2009) but require the existence of a context inclined towards reflection, exchange of ideas and permanent improvement.

To integrate the benefits of both assessment perspectives we can promote self-assessment processes that, based on specialised external proposals, support internal and contextualised processes of review, analysis and

reflection. It is a complex process that “involves reflexive and evaluative action on a series of organisational, curricular, contextual, management and other aspects that interact to achieve the school's quality” (Landi and Palacios, 2010, p.159).

Self-assessment, driven and carried out by the professionals who work at the school, without excluding the possibility of external aid, improves the school's comprehension of its own operation, generating changes assumed by the group involved and diminishing the resistance to the changes that eventually must be introduced to the organisation and running of the institution. Furthermore, the professionals who run and work at schools are the most interested in knowing if the actions that they take produce the desired results (Díaz-Vicario, 2010; Gairín, 2007, 2009).

Specifically, the development of self-assessment processes allows (Gairín, 2000; Murillo, 2008):

- Clarification of the comprehension of what is being attempted.
- Maintenance and increase of the ethics and cohesion of the organisation's members.
- Provision of information on aspects of the organisation.
- Generation of a deeper understanding of the organisation's situation.
- Instigation of a reflexive analysis of what is done in the organisation.
- Facilitation of co-ordination levels.
- Instigation of dialogue and participation.
- Promotion of exchange of experiences.
- Promotion of institutional development.
- Facilitation of professional development.

In short, the advantage of this perspective lies in the fact that it facilitates adaptation to the particularities of each education context, allowing assessment to occur in a decision taking context and in the establishment of adapted corrective and preventative measures.

However, as in any process of change, the safety self-assessment of a school requires the predisposition of the headmasters and professionals who work there, as well as a combination of previous conditions that influence the ability of an institution to generate the necessary changes (Gairín, 2007, 2009; Landi and Palacios, 2010):

- Self-assessment is reasonable in a framework of institutional autonomy. If the assessment is to lead to change, the main actors must be able to intervene on the situation.
- The education community must have a high sense of responsibility towards the education process, developing participatory review processes.
- The acceptance of the different conceptions, points of view, interests, etc. that may exist in the school.
- The adoption of a positive attitude towards reflection, the analysis of the actions taken and flexibility regarding changes.
- The existence of an appropriate institutional climate that does not compromise the results of the assessment or corrupt the process, the self confidence of those involved and the desire to improve.
- The predisposition to change and innovation on the part of the professionals of the school, including the authorities.
- The presence of a participatory and committed directive style.
- The existence of an organisational structure that leads and assumes the role of directing the entire process, guaranteeing its clarity and transparency.

The creation of an environment favourable to the development of processes of self-assessment is, consequently, an aspect of great relevance. Without professionals committed to the task it is difficult to conduct truly useful assessment processes. The members of the institution should demonstrate, analyse and reflect on daily practices, being aware of the safety problems faced by the school. The approach carried out does not mean that at any moment of the process external experts cannot be brought in to assess them, whether during the assessment process itself or in the planning, design and implementation of corrective and/or preventative measures.

Every school can benefit from the process of understanding and evaluating its physical, social and emotional safety dimensions, to see whether they are sufficiently safe to achieve an optimal learning and working environment. As Sprague and Walker (2005) suggest, the importance of carrying out assessment processes lies in the fact that even schools that seem safe at first sight can present a great number of risks that will only be demonstrated by a systematic inspection process.

Therefore, through the development of systematic, objective and procedural self-assessment processes (Laorden, 2004), the school will be able to (Borrell and Garrido, 1995):

- Improve its running.
- Assume the responsibility of creating safe and healthy environments for the entire education community.

A proactive focus on safety requires the assessment of a continuity of areas in which the school must focus its prevention and intervention strategies (Trump, 1998). In this line of utility, we recommend:

- Analysing the safety regulations applicable to schools, as well as identifying the human, material and functional resources intended for attention to safety.
- Carrying out a complete assessment of the spaces and conditions that could represent a risk to the physical, emotional or social integrity of the education community.
- Reviewing the limitations that the school has which could diminish its ability to function and deal with safety questions appropriately, thinking of possible solutions to mitigate the negative consequences that these limitations could have.
- Identifying the areas of greatest risk, as well as the safest areas.
- Evaluating the risk, ensuring that all relevant risks are taken into account and not only those that are immediate or evident.
- Reflecting on the level of skill and training of the staff to respond to potential emergency or crisis situations that require rapid and effective action.
- Reviewing the fire fighting safety measures.
- Analysing the local territorial and social context, to enhance the safety vision and involve the local community.
- Identifying and analysing the problems of safety and accidents that can occur during the academic year, with the objective of characterising the most common types of incidents, understanding the nature and magnitude of the problem and producing corrective and/or preventative actions.
- Evaluating the efficacy of the adopted safety measures.

Every school can benefit from a safety assessment process, using a great variety of instruments: from structured interviews to surveys, rating scales or check lists, analysing the data on accidents and incidents that have taken place

in the institution in recent years and/or examining the physical structure of the installations (Trump, 1998). However, there are also standardised instruments for assessing different areas of priority attention: building and installations (for example, NCEF, 2008; Sanoff et al., 2001), fire risk (for example, Department for Communities and Local Government, 2006), school climate, including questions related to risky behaviour, threats, bullying, substance use and others (for example, American Institutes for Research, 2011; Brener et al., 2004; California Healthy Kids Survey, 2012; Cornell and Gregory, 2008; NCES, 2010; NSCC, 2011), work-related risks of the teaching staff (for example, FETE-UGT, 2012; Romer, 2011), and others. Nevertheless, we must remember that even when using standardised assessment instruments the process must be unique to each school. Adapting generic, uncontextualised recommendations in not of any use (Sprague and Walker, 2005).

4. A Proposal for Assessing Integral Safety in Schools: The EDURISC Self-Assessment Questionnaire

Based on an integral concept of safety and the will to design a useful tool of easy application for use in safety self-assessment processes in schools, the EDURISC research group of the Autonomous University of Barcelona has developed the EDURISC Self-Assessment Questionnaire (Q-EDURISC). Q-EDURISC allows schools to assess and reflect on their level of integral safety (*Nivel de Seguridad Integral*, NiSI), also facilitating decision taking and the establishment of actions for improvement based on the personal and individual report that schools can download at the end of the assessment process.

Q-EDURISC was designed with the objective of being easy to apply by the staff of schools without the need for the support or guidance of an expert in safety and prevention. Furthermore, given that directors and teachers, in general, have little experience in the performance of assessments on integral safety and a wide lack of knowledge on the subject, it was necessary to come up with strategies to allow (Gairín et al., 2011):

- a The staff of the school to have the opportunity to carry out their own safety assessments, without needing to wait for the visit of an expert.
- b Contribution to the training of the staff on safety and prevention.
- c An increase in staff awareness on the topics of safety, encouraging the establishment of a preventative culture in schools.

However, the last objective, but by no means the least, is to facilitate assessment processes on safety as a source for the detection, evaluation and analysis of a situation; in short, to support safety management, a role that the directors of schools must take with the support of the corresponding administrations.

Currently, the Q-EDURISC application (<http://edo.uab.cat/edurisc>) is available in Spanish and Catalan, responding to the reality of the Spanish education context and including all normative aspects that are applicable to Spanish schools and schools of other countries, with the previous adaptation to the regulations of the country in question. It is the result of more than five years of research in the field of safety and of the experience of its instigators in the field of school organisation and management.

Of the wide range of instruments that exist for risk assessment, Q-EDURISC is one of the few that has been designed especially for schools. Its specific design is the result of a long process of research and reflection started in 2008 with the design of a first hard copy version (Gairín, Moles, Sans, Rosales, Castro, Sentinella, Martín, 2009), which has been improved and extended with the current online version. Q-EDURISC is not a closed and definitive tool; it is open to modifications according to the evolution of regulations and hazards and risks that could affect students, teachers and non-teaching staff at schools in the future.

4.1. Description of Q-EDURISC

Q-EDURISC is an easy-to-apply computer tool that serves as a guide to assessing the level of integral safety (NiSI) of a school, based on the analysis of diverse fields of safety. Through an online response process, schools identify the current state of their safety, having sufficient available information to decide how to reduce the presence of existing hazards and how to prevent the generation of new ones. In this line, the instrument enables:

- a A NiSI diagnosis, based on the consideration of thirty six fields of safety, which facilitates determining the strengths and weaknesses of an institution with regards to safety.
- b Processes of reflection on integral safety, specifically, on the risks and hazards present in the school, as well as on the preventative measures and actions that can be established to avoid or prevent them. The process must facilitate the exchange of ideas and organisational development.

- c The improvement of preventative actions based on a selection of the proposals received.
- d The promotion of a preventative culture among the entire education community, as well as a commitment to the improvement of safety and the promotion of reflection and debate on the situation and existing alternatives.

The instrument is divided into two dimensions that match the consideration of the static risk dimension and dynamic risk dimension (see Table 2). Each of the fields includes the maximum amount of relevant identified aspects related to safety, highlighting those that the school should consider and monitor in order to diminish or eliminate the presence of a hazard or risk. Aspects of obligatory compliance related to regulation occupy a preferential place. The number of questions that comprise each field is variable, though each field is exhaustive in its analysis.

The questions posed in each of the fields are closed and two-choice (yes/no) to speed up the response process and the description and analysis of the results. Furthermore, it should be noted that schools can choose the safety fields that they want to assess and can complete the questionnaire as many times as they want, offering them the possibility of carrying out safety assessments suited to their needs. The flexible character of the proposal enables this contextualisation, the adaptation of the assessment process to the reality of each institution – not all have the same installations or challenges and issues – and the realisation of successive assessments to compare and observe the advances made.

4.2. The Process of Completing Q-EDURISC

The process of completing Q-EDURISC is divided into three phases: (a) selection of the assessment fields; (b) response process; (c) generation of the results report.

a. Selection of the Assessment Fields

The schools access the online platform, enter their data and choose the safety fields that they want to assess. The general information data facilitates the collection of information on the school and the profile of the person responding. This information enables monitoring of the schools that access the application and generation of the personalised results reports.

Table 2. Structure and assessment fields of the Q-EDURISC Questionnaire

Static dimension	Number of Items	Dynamic dimension	Number of Items
1. Physical risks – pathology of the buildings	14	1. Interior and exterior transit and traffic	15
2. Hot water tanks	2	2. Occasional and permanent school transport	25
3. Boilers for medical water use or heating	4	3. Collection of students	5
4. Storage of flammable and combustible liquids	4	4. Protection measures applicable to physical security	41
5. Storage of liquid gases: petroleum	5	5. Anti-intrusion protection	13
6. Natural gas installations	2	6. Protection against violent acts	14
7. Gas consuming apparatus	2	7. Information and communication technology	16
8. Low-voltage electrical installations	5	8. Protection against the traffic and consumption of drugs	13
9. Lifts and service lifts	3	9. Prevention of social insecurity	12
10. Fire extinguishers	4	10. Prevention of physical risk to the student body	16
11. Fixed installations (Fire hose reels, detectors, etc.)	4	11. Prevention of other risks to the student body	51
12. Petroleum facilities for own use	4	12. Prevention of physical risk to the teaching staff	6
13. Midsize refrigeration installations	4	13. Prevention of psychological risk to the teaching staff	8
14. Heating and air-conditioning installations	4	14. Prevention of ergonomic risk to the teaching staff	6
15. Installations of hot sanitary water and cold water for human consumption	14	15. Managerial staff and staff responsible for free time activities	3
16. Self-protection plan	9	16. School first aid kit	15
17. Municipal authorisation	3	17. Dispensing of medicines	14
18. Radioactive sources	4		
19. Accessibility	5		

The schools can choose, from an index that contains the list of all the fields, the aspects to assess. They can assess as many fields as they want,

according to the needs, interests and concerns of each moment, considering also that the situation of each institution is subject to the different conditions of the building, the installations, resources, context, relationships with the environment, etc. The application allows, in this way, both partial processes (selection of some fields) and comprehensive processes (selection of all the fields) of assessment, although we recommend selecting all the assessment fields to learn the level of integral safety (NiSI).

b. Response Process

Once the assessment fields are selected, the schools initiate the process of responding to the questions posed. Each question is accompanied by a supporting explanation (see Figure 2), which defines key concepts and qualifies the significance and importance of its approach. This structure is intended to facilitate the easy response to the questions of staff inexperienced in issues of safety and prevention but who know the dynamics of organisation and running of the school.

Q-EDURISC also provides constant feedback during the process. When the response given to a question presupposes the existence of a hazard in the school or an increase in the probability that a hazard will appear in the short/mid term, the application provides proposals for improvement, as well as sources of additional information to access in case of doubt (see Figure 2). The process of responding to the questionnaire therefore constitutes a reflection and learning process in itself.

c. Generation of the Results Report

Once the questionnaire is completed schools have the option to automatically generate a pdf report that synthetically presents references to the integral safety and results of the assessment of those fields to which the school has responded.

The document provides consultation, analysis and subsequent evaluation, with a double objective:

- To synthesise the results of the integral safety assessment in relation to each of the assessed safety fields.
- To present guidance measures that enable schools to improve in the safety fields in which they have obtained low results, helping them at the same time to prioritise corrective measures and actions.

The screenshot shows the EDURISC self-assessment questionnaire interface. At the top, there are logos for 'gl' (Gobierno de Aragón), 'UAB' (Universitat Autònoma de Barcelona), and 'EDO'. The title of the dimension being assessed is '1.1. PREVENCIÓN DE OTROS RIESGOS DE LOS ALUMNOS - ORDEN Y LIMPIEZA'. The question is '¿En todos los espacios del centro educativo se garantizan unas buenas condiciones de orden y limpieza?'. The response options are 'No' and 'Si'. The additional help section contains text about the importance of cleanliness and references to Real Decreto 486/1997 and NTP 481. The improvement proposals section lists actions like implementing a cleaning policy and establishing shifts.

Figure 2. Example of the presentation screen of the questions where there is information on: (a) Title of the dimension that we are assessing (e.g. Prevention of other risks to the student body: cleanliness and tidiness); (b) Question (e.g. Are good conditions of cleanliness and tidiness guaranteed in all spaces of the school?); (c) Response options (no/yes); (d) Additional help/information section (e.g. It is very important to pay attention to the cleanliness and tidiness of any workspace, especially those occupied by children and adolescents. An untidy environment increases the risk to students, as well as staff, of blows and/or falls); (e) Improvement proposals (e.g. Implement a policy of creation, promotion and consolidation of cleaning and tidying practices; establish cleaning shifts for the spaces; etc.).

In this way, schools can observe and analyse their strengths and weaknesses regarding safety, through the consideration of the total score in each field presented in graphic form (this allows quick identification of the fields in which high, medium or low scores have been obtained) and table form (this allows consultation of the exact score obtained in each of the fields (see Figure 3). The report also presents measures to improve integral safety in fields where the school has obtained scores that place it below or at the limit of what is considered advisable (see Table 3). These measures are a synthesis of the response messages issued by the platform in each of the questions and are divided into:

- Low-cost measures: measures that require little time to be implemented.

- Measures with human resource costs: measures that require the involvement of the staff of the school or external personnel to be implemented.
- High-cost measures: measures that require time and resources to be implemented.

Both the response process and report of Q-EDURISC are conceived as starting points for reflection and evaluation of the integral safety of the school, with the objective of improving and achieving optimal physical conditions of the installations and psychosocial wellbeing of the students and teachers. Based on the results obtained and the improvement proposals, the education community should plan corrective and preventative measures adapted to the context and particular situation of the school. Only then is it possible to improve the general safety and health conditions of the school.

For the process to be truly useful, it is necessary that schools study the causes of their strengths and weaknesses in depth, considering both the relations that they maintain with their environment and the actions of external agents that condition their own actions regarding safety. A possible model for sensible intervention would take into account five moments of intervention and would be based on the development strategy of school improvement (see Table 4) known as ‘School Based Review’ [SBR].

Table 3. Example of presentation of measures for the improvement of integral safety in the field of “Prevention of other physical risks to the student body. Cleanliness and tidiness”

Prevention of other physical risks to the student body. Cleanliness and tidiness	
Low-cost measures	<ul style="list-style-type: none"> ■ Design and implement a policy of creation, promotion and consolidation of cleaning and tidying practices. ■ Design and implement a procedure for ordering and storing the materials, objects and equipment of the school. ■ Carry out an annual review of the materials, objects and equipment of the school, disposing of the unnecessary.
Measures with human resource costs	<ul style="list-style-type: none"> ■ Designate a person/people responsible for the maintenance of cleanliness and tidiness in all the spaces of the school. ■ Establish cleaning shifts for the spaces. ■ Educate the students in cleaning and tidying practices.
High-cost measures	<ul style="list-style-type: none"> ■ Equip the school with furnishings (shelves, bookcases, special materials rooms, etc.) and elements (boxes, storage containers, etc.) sufficient to appropriately store all the school's materials, objects and equipment (perishable and non-perishable).

Gráfico 1. Dimensión estática del riesgo. Resultados por ámbitos.

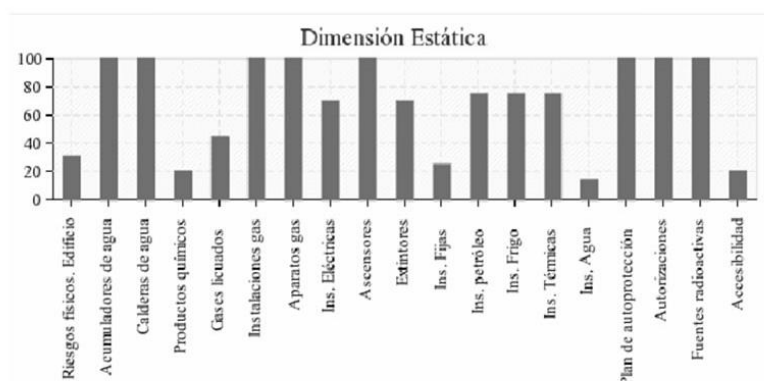


Tabla 3. Resultados del centro en cada ámbito de seguridad.

DIMENSIONES	ÁMBITOS DE SEGURIDAD	RESULTADOS DEL CENTRO
ESTÁTICA	Riesgo físico. Patología de las edificaciones	31
	Acumuladores de agua caliente	100
	Calderas de agua caliente sanitaria o calefacción	100
	Almacenaje de productos químicos	20
	Almacenaje de gases licuados del petróleo	45
	Instalaciones de gas natural	100
	Aparatos consumidores de gas	100
	Instalaciones eléctricas de baja tensión	70
	Ascensores y montacargas	100
	Extintores	70
	Instalaciones fijas (BIES, detectores, etc.)	25
	Instalaciones petrolíferas de uso propio	75
	Instalaciones frigoríficas medianas	75
	Instalaciones térmicas (calefacción y aire acondicionado)	75
	Instalaciones de agua caliente sanitaria y agua fría de consumo humano	14
	Plan de autoprotección	100
	Autorización municipal	100
	Fuentes radioactivas	100
	Accesibilidad	20

Figure 3. Example of presentation of the results of the static risk dimension, gathering the total score that the school has obtained in each of the nineteen assessment dimensions that configure it.

Table 4. Phases of School Based Review

Preparation or initiation phase	<ul style="list-style-type: none"> ■ Identify the general problem. ■ Raise awareness of the need to solve the general problem. ■ Involve in the problem: participation, negotiation and commitment. ■ Prepare for the intervention: training.
Initial review phase	<ul style="list-style-type: none"> ■ Identify the specific problem. ■ Plan how and when to carry out the collection of information. ■ Decide on the informants. ■ Prepare the instruments of information collection. ■ Analyse the information. ■ Draft the report and reflect on and discuss the results together. ■ Decide whether or not to continue the review process.
Specific review phase	<ul style="list-style-type: none"> ■ Focus: decide on action priorities. ■ Plan the process: what for, who, how, when, who will be involved, external support, etc. ■ Mobilise the necessary resources. ■ Train to act. ■ Decide whether or not to continue the review process.
Development and implementation phase	<ul style="list-style-type: none"> ■ Develop the plan. ■ Establish monitoring and assessment mechanisms. ■ Intervene if dysfunctions are detected. ■ Measure the impact. ■ Decide whether or not to continue the process.
Institutionalisation phase	<ul style="list-style-type: none"> ■ Analyse the effects of the assumption of the changes in the school. ■ Assume the options adopted as options of the school itself.

Based on Gairín et al., 2009.

The process described is not spontaneous and requires people to propel it. In this regard, and considering that every assessment process must be contextualised, comprehensive, formative and involve the education community, possible personnel actions are (Gairín et al, 2009):

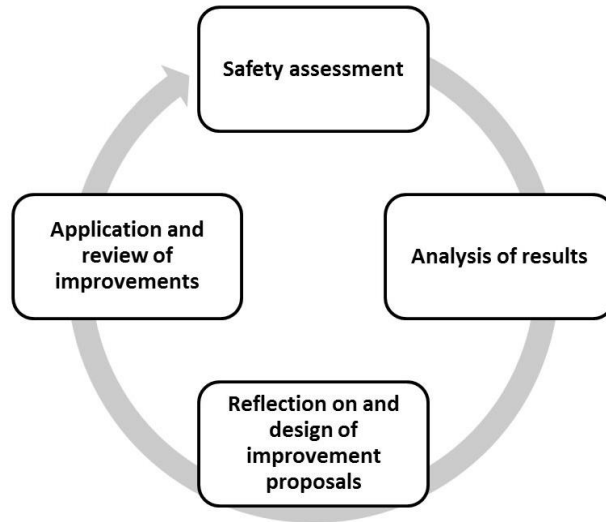
- 1 The managerial staff or the person responsible for the prevention of risks take the decision to use Q-EDURISC, accessing the application, carrying out the diagnosis and reviewing the results report.

- 2 The managerial staff or the personal responsible for the prevention of risks enter the observations that they consider pertinent into the report, on the basis of the organisational and operational situation of the school itself.
- 3 The managerial staff determine the degree to which it should circulate the results of the report and establish mechanisms for the improvement of safety based on the improvement measure proposed in the report generated by the application. In any case it is necessary to consider that the results should be informed to all the staff and members of the education community involved in the established improvement mechanisms.
- 4 The managerial staff, together with other staff who choose to be involved, create the plan for the improvement of integral safety, contemplation the various actions to take and prioritising them based on criteria (for example, instances that should be involved, costs or time necessary for its execution).
- 5 Implementation of the improvement plan. The managerial staff delegate responsibilities and establishes the monitoring mechanisms, intervening when dysfunctions are detected.
- 6 The managerial staff analyse the effects of the implementation of the improvement plan for integral safety in the school and evaluates the possibility, suitability and benefit of institutionalising the actions so that they become part of the daily running of the school.

Beyond having an institutional action blueprint and delimiting the role of the staff involved, the process demands constant assessment and reassessment. Q-EDURISC should be used in the framework of a systematic and permanent process of reflection aimed at verifying the efficacy of the corrective and preventative plans adopted and identifying new and potential hazards (see Figure 4).

4.3. Applicability of Q-EDURISC

It is difficult for a school to be safe and tackle emergency situations satisfactorily if it does not apply improvement plans to resolve situations that could constitute a risk to students, teachers, administration staff, families, etc. Q-EDURISC has provided the more than 250 schools that have used it with their own NiSI diagnosis and enabled them to plan and develop concrete actions aimed at improvement.



Based on Díaz-Vicario, 2010.

Figure 4. Phases of the permanent assessment and improvement process.

The development of the proposals, like the one presented here, promotes the internal improvement of education institutions. It is furthermore consistent with the movements that support and defend school autonomy and also with the most recent research that deals with school change and its effectiveness. It is difficult for schools to effectively implement systematic processes of change and improvement to their safety if they do not have the effective and real involvement and participation of the teaching staff in the diagnostic process and generation of improvement plans. Q-EDURISC pursues this goal, enabling the involvement of the staff of schools in the processes of diagnosis and change, respecting and promoting a personal and contextualised culture of prevention. It is true that safety and risk prevention are still an unknown field for many education professionals. Q-EDURISC provides specific knowledge, being a useful source for the training of the staff of schools as well as for the generation of individual reflexive processes (what can I do to make my daily actions safer?; how can I contribute to improving the conditions of safety and health in my school?) and collective reflexive processes (what are the most suitable preventative measures and actions to make the school and safe and healthy environment for the entire education community?). These reflections, when carried out, contribute to increasing sensitivity and concern by creating safe and healthy conditions in education institutions and at the same time, contribute to strengthening the preventative culture of the teaching staff.

Furthermore, if the teaching staff adopt the values, beliefs and practices of the preventative culture, their actions will always be guided by them, promoting the transfer of safe and healthy behaviour and practices among the student body that go beyond those established in institutional documents.

Q-EDURISC has been and wants to continue being an instrument of and for the schools and has contributed, contributes and wants to continue contributing to the prevention of risks and the promotion of the preventative culture in schools.

The institutions that have used Q-EDURISC agree that it is a useful instrument for the school, the managerial staff and the teaching staff, as it offers the opportunity to access a great quantity of information on integral safety that enables them to reflect on the dynamics of organisation and internal running.

5. Integral Safety Analysis in Spanish Schools²

Beside the particular benefits that the Q-EDURISC application has provided and continues to provide to schools, the systematic collection of data on the safety of Spanish schools provides a rich source of information. Based on it, it is possible to learn the strong and weak points of the network of schools (school system) with regards to integral safety, creating a map of the system that enables the planning of collective actions in the areas with general deficiencies.

This study also facilitates the knowledge of the strengths and weaknesses of a state education system on the issue that we are dealing with and which Q-EDURISC has served as a diagnostic instrument (Gairín, Castro, Díaz-Vicario, Martín, Mañes, Moles, Rosales, Sans, Sentinella, Vitolo, 2012a).

In the following section we present the main results of the application of Q-EDURISC in a sample of 273 Spanish primary and secondary schools, of state and private administration, during the approximate period of May-December 2011 (see Table 5).

The data collected was analysed with the SPSS 15.0 Inc statistics package, seeking a comprehensive descriptive analysis by stage and administration.

² This section is a revision of the article of Gairín, J., Castro, D., Díaz-Vicario, A., Martín, M., Rosales, M., Sans, J., Sentinella, X., Vitolo, O. (2012b). Análisis de la Seguridad Integral en los centros educativos de enseñanza obligatoria de España. *Seguridad y Medio Ambiente* (Analysis of integral safety in compulsory education schools in Spain. *Safety and Environment*), 126, 12-24.

Table 5. Characterisation of the sample of participating schools according to the variables of school stage and administration

Stage	Administration		Total N (%)
	State n (%)	Private n (%)	
Primary	115 (99.1%)	1 (0.9%)	116 (42.49%)
Secondary	114 (97.4%)	3 (2.6%)	117 (42.86%)
Primary and secondary	6 (15%)	34 (85%)	40 (14.7%)
Total	235 (86.1%)	38 (13.9%)	273 (100%)

The analysis took into account that not all schools have responded to every safety field, not having the analysed installation or considering that in their school and situation it was not necessary to assess a certain field. The fields that provoked most interest in the NiSI assessment were:

- Of the static risk dimension: fire extinguishers, low-voltage electrical installations, heating/air-conditioning installations, storage of flammable and combustible liquids and boilers for medical water use or heating.
- Of the dynamic risk dimension: school first aid kit, information and communication technology, transit and traffic and prevention of physical risk to the student body.

Static Risk Dimension

The state of conservation and maintenance of the buildings is correct, although in some schools there are cracks, deterioration and damp (see Figure 5). In general, these imperfections are of minor importance and are not of high risk to occupants.

By stage and administration, it is state primary and secondary schools that exhibit most deficiencies. In relation to the installations and apparatus of schools, we have observed that almost 100% comply with regulations, with adequate review and maintenance. Furthermore, 75.4% of the schools analysed state that they have maintenance contracts for all their apparatus and installations (see Figure 6).

It is necessary to highlight the results obtained by the schools in the fields of: natural gas installations, gas consuming apparatus, lifts and service lifts, boilers for medical water use or heating, and fire extinguishers (see Figure 7).

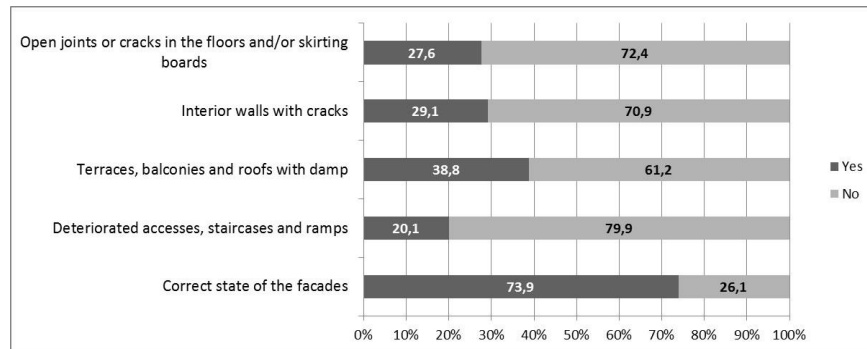


Figure 5. State of conservation of the facade and other elements of the building/s.

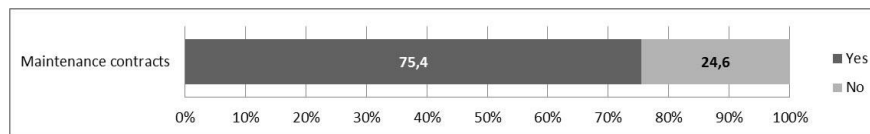


Figure 6. Maintenance contracts.

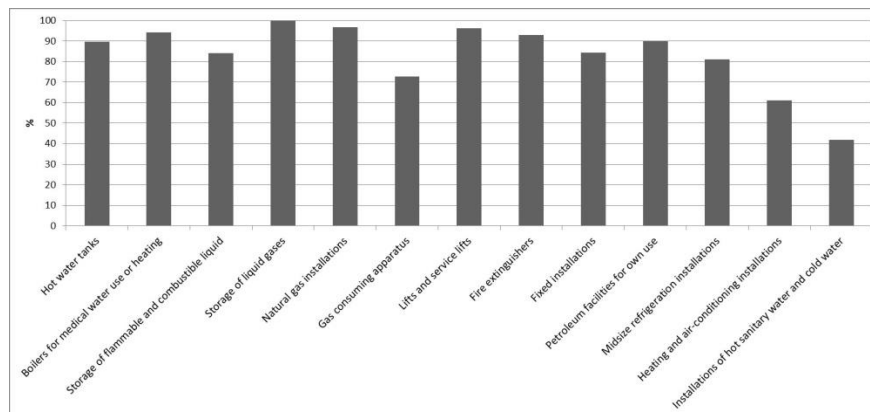


Figure 7. Installations and apparatus. Medium score.

By contrast, we have detected that in some installations the schools do not carry out the routine preventative actions that should be undertaken by staff of the school itself, mainly with regards to the installations of water for medical use and cold water for human consumption.

This situation occurs, in most schools, due to lack of knowledge of its importance and lack of staff that can assume responsibility for it.

The documentation generated by the installation, maintenance and review of the installations and building, is not monitored in 14% of the schools analysed, which do not have the corresponding maintenance manuals or other pertinent systems. This situation occurs in most of the state schools analysed because the town council or department/office of education is responsible for the building and installations, the school itself not having a copy of the maintenance actions carried out. It is evident that not all schools have a Self-protection Plan (2.4%), an obligatory document in Spanish schools that addresses the identification and assessment of risks, actions and measures for the protection, prevention and control of risks, as well as actions to be taken in case of emergency (see Figure 8). Furthermore, some do not have the necessary means to deal with possible contingencies – notably fire extinguishers, fixed installations and safety signs – and 10% do not carry out annual drills. There is, therefore, an increased risk, if we consider that schools do not have necessary means nor are their staff prepared for situations that require evacuation or confinement.

With regards to accessibility, the schools recognise their deficiencies due to the existence of physical barriers (many flights of stairs, insufficient ramps to link the different spaces of the school and lack of lifts or service lifts) but also barriers of other types (for example, communicative barriers). 80% of schools indicate this deficiency. It is also relevant to indicate that 20% of the schools analysed do not have school insurance to cover curricular and extracurricular contingencies (see Figure 9). 30.8% of state primary schools do not have this insurance. Furthermore, state schools with insurance that covers the civil responsibility of the staff in case of accidents are scarce (only 6.5%).

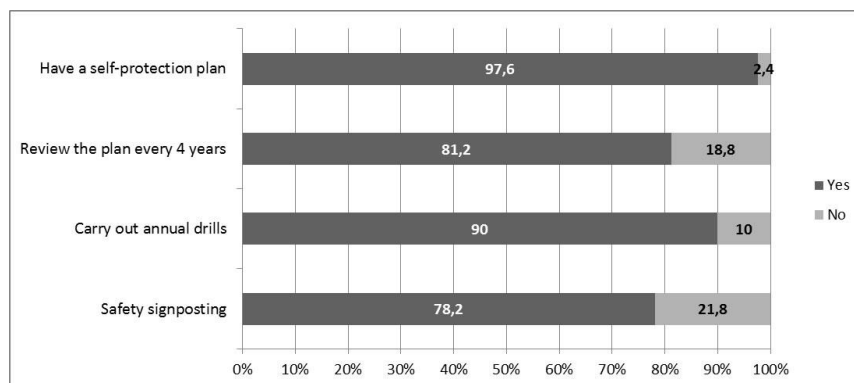


Figure 8. Self-protection Plan.

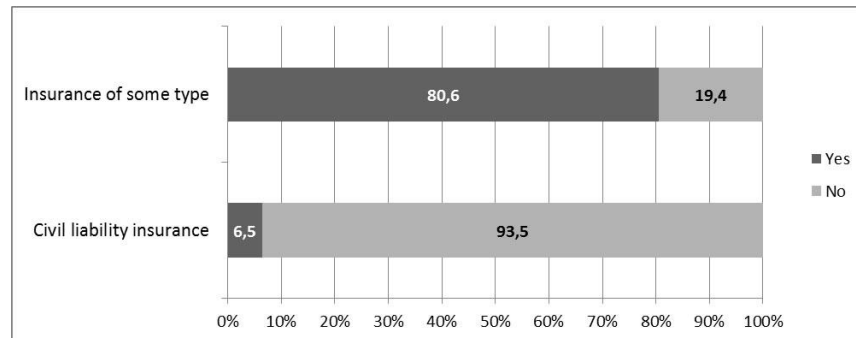


Figure 9. Insurance.

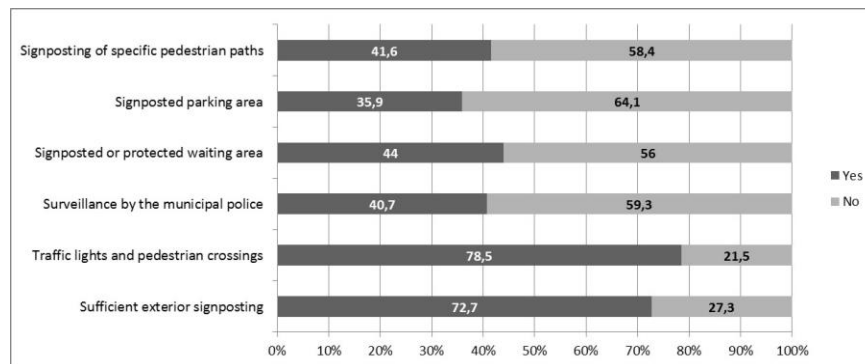


Figure 10. Exterior transit and traffic.

Dynamic Risk Dimension

In the static risk dimension different safety parameters have been analysed, grouped in five large blocks: (a) mobility risks; (b) protection measures; (c) prevention measures; (d) free time and; (e) first aid and medication.

a. Mobility Risks

In reference to the transit and traffic of people and vehicles in the school's interior and its surroundings, almost 50% present deficiencies in exterior transit and traffic (see Figure 10). 12.4% of the schools recognise that there has been an accident on the entrance or exit of students from the school. Regarding interior traffic, 25% of the schools indicate that there is traffic of vehicles (automobiles, motorbikes, bicycles, large goods vehicles, etc.) in the interior of the school grounds and that this area is not separated conveniently

from the pedestrian area, which increases the risk of traffic accidents (see Figure 11). With regards to school transport services, occasional and permanent, 60% of the schools comply with regulations (see Figure 12). Regarding the collection of the student body, 69.7% of the schools have established specific protocol for regulating this aspect. I should be noted that results were lower in secondary schools (only 37%), where there is less strict control due to the age of the students. A third of the schools do not have a specific document to authorise the occasional collection of students (30.3%) but almost 100% of those that analysed this field do not allow students to leave the school during classroom hours if they do not have express authorisation signed by their parents or legal guardians (see Figure 13).

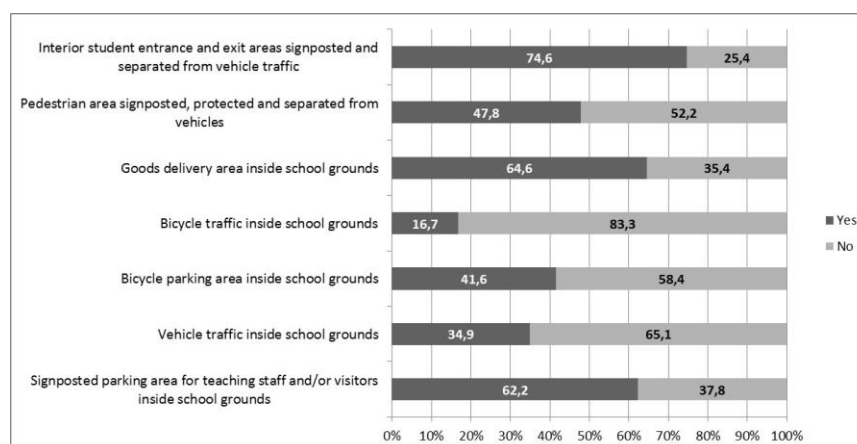


Figure 11. Interior transit and traffic.

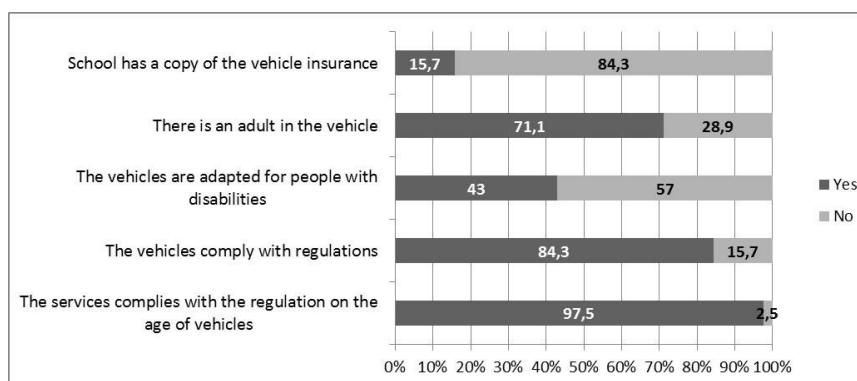


Figure 12. Compliance with regulations on regular school transport.

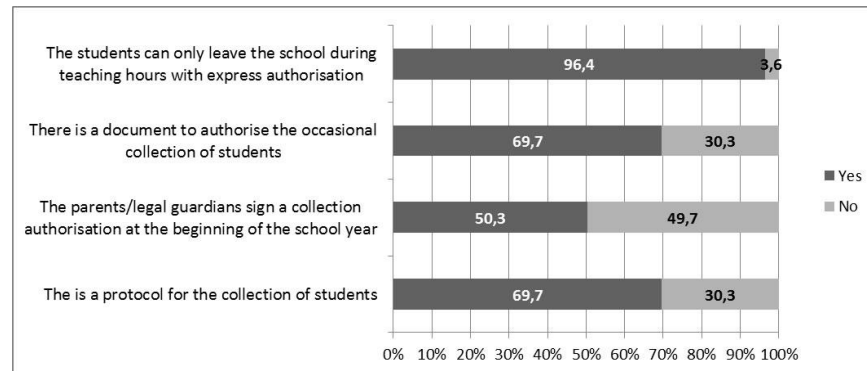


Figure 13. Collection of students. Protocols and authorisations.

b. Protection Measures

The protection measures applicable to physical safety, that is the assessment of the physical means available in the school to safeguard material or documentary valuables susceptible to robbery, theft or incorrect use, reflect that 80% of schools have suffered thefts and/or intrusions in the past but only 34.5% believe that they will reoccur, due to the adoption of physical and electronic protection measures.

Among the most extensive are the installation of alarms (82.4%, presence detectors (80.6%) and the use of grilles in doors and windows (60.4%), both in the interior and exterior of the buildings. Few schools have electronic measures to control access to the school (less than 25%), there being deficiencies detected in mechanical control measures (locks and keys).

Academic documentation, sensitive documentation and computer data are stored appropriately in most of the schools, but a third do not have security cupboards in which to safeguard information and, although the data stored in computers is protected with keys and passwords, in 84.7% of the schools they are not always registered nor periodically changed (in 39.7% of cases) as the corresponding regulations establish (see Figure 14).

c. Prevention Measures

Social Risk

17.6% of schools declare that there are cases of physical violence (see Figure 15) and in a similar percentage of schools there are objective criteria to suppose that they could reoccur.

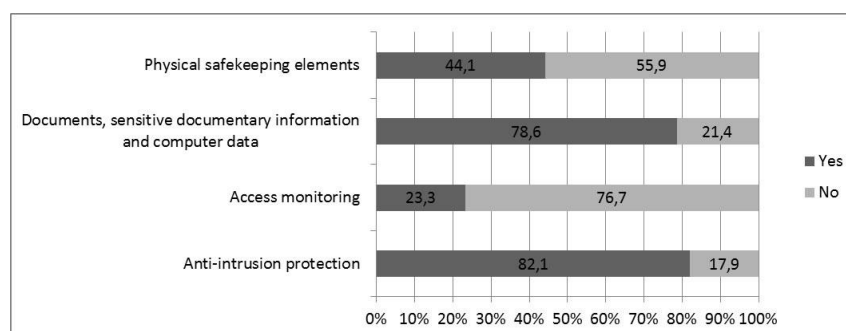


Figure 14. Physical safety.

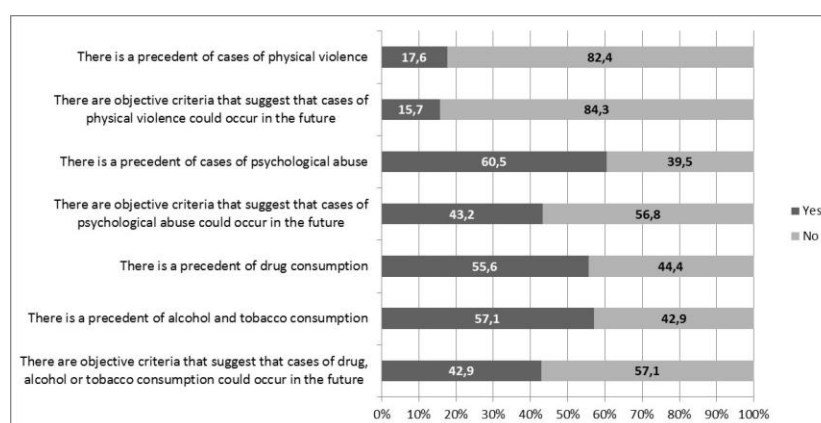


Figure 15. Social risks linked to physical violence, psychological abuse and the consumption of drugs, tobacco and alcohol.

In relation to psychological abuse, 60% of the analysed schools indicate that they have previously suffered cases of psychological abuse between students and between students and teachers. However the percentage that believe that these cases could reoccur is less (43.2%). These situations occur with greater frequency in compulsory secondary schools. The percentage of schools with previous cases of drug, tobacco and/or alcohol consumption is over 50%, though the percentage of schools that believe that further cases will arise is lesser (see Figure 15). In order to tackle these situations, the schools implement various preventative measures, amongst which the following stand out: permanent surveillance (78.5%), the development and application of action protocols (72%), the request for familial collaboration in school dynamics (56.5%) and formative and informative campaigns (51.1%).

The use of information and communication technology and mobile phones increases during school hours.

Progressively, the schools adopt preventative measure to avoid the risks that come from their use (mainly illicit use of computers to connect to websites with content unsuitable for minors, connection to social networks during school hours, copying of internet context protected by authors' rights and bullying between students or against teaching staff). 63.9% of the schools adopt preventative measures but 70% do not carry out any informative and formative action (centred on risks and the precautions and measures that can be adopted) aimed at the student body, teaching staff and families.

Physical Risk

11.4% of the schools indicate that serious accidents of students have occurred at some point in their history and 60% state that they regularly experience falls, mainly during more play-based activities (break time and physical education) and during non-teaching hours (cafeteria time and afternoon activities).

If we analyse the elements that are commonly the cause of accidents in schools (see Figure 16), we observe that 81.2% of schools have railings that exceed the minimum advised height (1.10m) but, by contrast, 74.6% have heavy bars at a greater distance than that established in the corresponding regulations (10cm).

Furthermore, 62.7% do not carry out adequate maintenance of the sandy areas and other play elements of the playgrounds and 61.3% do not have anti-slip strips on ramps and ladders or anti-slip floors in areas in which students perform leisure activities.

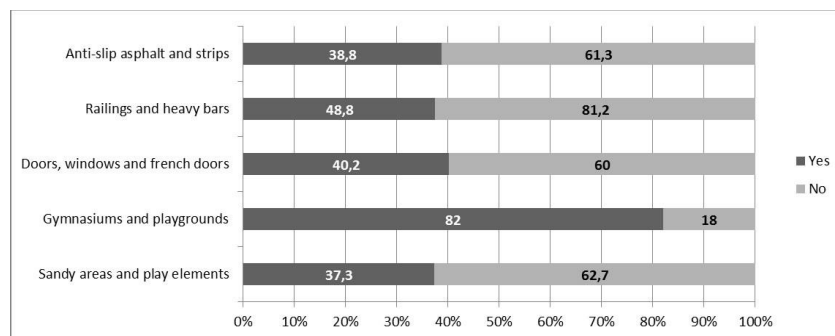


Figure 16. Physical risks to the student body.

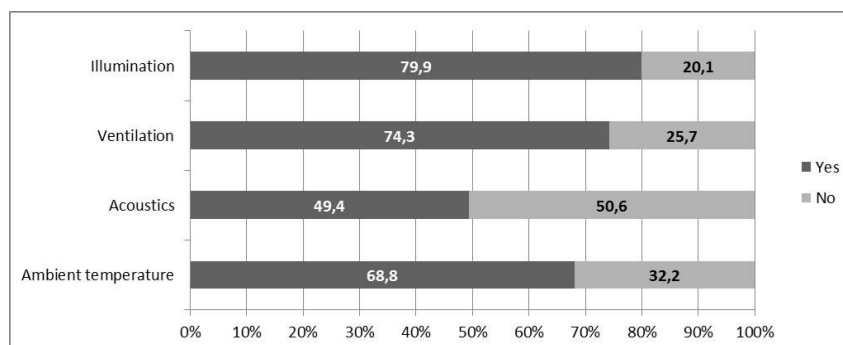


Figure 17. Comfort: illumination, ventilation, acoustics and ambient temperature.

89.9% of the schools analysed state that they guarantee good conditions of cleanliness and tidiness, both of indoor and outdoor areas. The aspects relevant to the comfort of the student body, teaching staff and administration and services personnel are considered adequate in 68.1% of the schools analysed. Specifically (see Figure 17), 79.9% of schools consider the illumination of their spaces to be adequate and 74.3% that the indoor spaces are ventilated adequately.

The ambient temperature is considered suitable in 68.8% of cases, while only 49.4% of schools indicate that the acoustic conditions of their spaces are adequate for the normal performance of teaching activities. If we focus on this last aspect, which is the aspect with the lowest obtained score, it is noteworthy that 47% of the schools indicate that their spaces are not free of exterior noise and that 29.5% have detected reverberations.

With regards to school spaces and materials, 16% of the schools indicate that the dimensions of the different spaces do not comply with existing regulations.

By contrast, 90% state that their furniture and material is adequate for the student body, teaching staff and administration and services personnel.

Regarding physical and sport activity, approximately 85% of the schools comply with the related regulations and the recommendations established for proper attention in these two safety fields.

Specific Risks of the Teaching Staff and the Administration and Services Staff

Almost 60% of the analysed schools exhibit, among the staff, previous cases of leave for physical reasons, 48.7% exhibit previous cases of leave for psychosocial reasons and 25.6 for ergonomic reasons.

The schools consider that there is a moderate risk at mid and long term of new cases of leave for psychosocial reasons (symptoms of stress, depression, work overload, truncation of expectations, among others).

d. Free Time

In relation to the activities performed outside teaching hours, such as the services of morning reception, cafeteria and extracurricular activities, 92.2% of the schools indicate compliance with the ratio of one qualified monitor per ten participants and 90.5% comply with the minimum percentage of qualified staff established by the regulations (40% of the total workforce). However, 40% of schools do not have a director of leisure activities, when the number of participants in the activity requires it (groups of more than 25 children).

e. First Aid and Medication

98.3% of the schools have an appropriately equipped school first aid kit. Furthermore, 86.2% have established action protocols for when a student or member of staff of the school suffers an accident.

Regarding the dispensing of medication, 25% of the schools exhibit deficiencies: 22.9% do not have an established policy of medication dispensing, 12.4% administer medication without a prescription or medical report presented by parents or legal guardians and in 67.6% students can enter the school with medication.

CONCLUSION

The data analysed as a result of the application of Q-EDURISC in 273 Spanish schools demonstrates that, in general, the schools of the country present adequate levels of safety, although in many instances their scores are below acceptable levels (it seems ideal to us for the schools to obtain, in all the fields, values between 90 and 100%). The deficiencies and problems are more or less common among the schools (see Table 6) but they manifest with different degrees of intensity according to the particular situation of each school (Gairín, 2012b). Comparing the results of this study with those obtained in previous research carried out in 2008 and 2009 by the same research team (Gairín and Castro, 2011; Gairín et al., 2011), we observe that the strengths and weaknesses identified do not differ from those previously found. This indicates that the level of integral safety (NiSI) of Spanish schools has remained stable over these recent years.

Table 6. Strengths and weaknesses of Spanish schools in safety

	Strengths	Weaknesses
Static	Conservation and maintenance of buildings. Compliance with the installation regulations of apparatus and installations.	School and extracurricular insurance. Maintenance of apparatus and installations. Accessibility.
Dynamic	Compliance with regulations on school transport services. Cleaning and tidying of spaces. Comfort (illumination, ventilation, acoustics and ambient temperature). School first aid kit. Dispensing of medications.	Interior and exterior transit and traffic. Protection measures against theft and/or intrusion. Safekeeping of sensitive documentation. Prevention of physical and psychosocial risk to the student body and teaching staff.

We have observed improvements in the aspects related to the implementation of prevention and protection mechanisms for psychosocial risks but the same deficiencies are consistently detected in the aspects relevant to the building and installations; on the other hand, the results in other fields remain almost invariable: self-protection plan, interior and exterior transit and traffic, school transport and management and safekeeping of documentation.

Other national and international studies that have analysed specific safety fields display similar results: deficiencies in structural elements (Albulescu, 2009; Consumer-Eroski, 2008), in material resources (Adegbenro, 2007; García, Salado and Romero, 2009), in safety against emergencies (Consumer-Eroski, 2008; Defensor del Pueblo Andaluz (Andalusian Ombudsman), 2003), in road safety and school transport (Anund, Dukic, Thomthwaite and Falkmer, 2011; Direct Line, 2010), in information and communication technology (INTECO, 2008; Save the Children, 2010) and in psychosocial risks (Benbenishty and Avi, 2008; FETE-UGT, 2010), among others. In all the cases it is evident that the level of safety in schools is improvable; it is necessary to intervene in the deficient parameters.

To detect the areas of priority attention, schools must have sufficient data to take decisions on corrective and preventative actions to be adopted. Assessment processes are a central mechanism.

The use of instruments, such as Q-EDURISC, help to direct the process, offering the members of the education community sufficient “elements” to intervene in their situation (Landi and Palacios, 2010). Q-EDURISC meets this objective.

However, we must not make the mistake of thinking that simply knowing the level of safety of a school is sufficient. Analysis is only the first step and must be followed by conscious reflection and the planning of frameworks that will make improvement possible, improvement that will have repercussions for all the organisational dimensions.

In the following section we have compiled a set of recommendations for the static risk dimension and one for the dynamic risk dimension, from analysis, reflection and exchange with school directors (Gairín et al., 2009):

Static dimension

Installations

- 1 *Review.* The staff of schools should carry out continuous reviews of the elements susceptible to loosening, damp leaks, etc. in person. These more informal reviews must be complementary to the periodic technical inspections.
- 2 *Register.* Formalise in the official and unofficial documents the authorisations and periodic reviews of the installations.
- 3 *Document management.* Management and safekeeping of the documentation regarding the updates and reviews of the installations and services. Formalising everything relevant to the installations in the documentation enables the management of the knowledge that the school has of safety.

Self-protection Plan

- 1 *Design.* It is necessary that every school has a self-protection plan and reviews its content at least every four years. This document must contain the combination of measures established by the school for neutralising or minimising, with the means available, accidents and emergencies and their possible consequences until the arrival of the emergency, or other, services. Additionally, in the design of the plan, evacuation, confinement and other protocols must be considered.
- 2 *Circulation and training.* The content of the self-protection plan must be known by the entire education community, carry out periodic formative actions on prevention and safety. Furthermore, it is

important that the school has adequate signposting: indication of the exits, evacuation routes and fire protection systems, among others.

- 3 *Drills*. The performance of emergency drills is part of the measures for circulating the self-protection plan of the school. The legislation determines that schools must carry out an annual drill, during the first 3 months of the school year, with the participation of the entire student body and teaching staff.

Protection measures

- 1 *Fire extinguishers*. There must be a periodic visual check of the liquid levels of the fire extinguishers.
- 2 *Alarms*. It is important that the school has some type of fire alarm to alert in case of fire.
- 3 *Fixed installations (Fire hose reels and detectors)*. It is obligatory that the person responsible visually checks the aspects determined by the Regulations on Fire Protection Installations.

Accessibility

- 1 *Accessibility*. All schools must be accessible by disabled people. It is necessary to promote the adoption of measures that allow any person to access and move around the school, use school transport, communicate autonomously and independently and receive emergency warnings.

Dynamic dimension

Transit

- 1 *School transport*. The vehicles used for any type of school activity must have the corresponding insurance and conform completely to the regulations on school transport (signposting, seatbelts, etc.).
- 2 *Signposting*. The surroundings of the school must have adequate horizontal and vertical signposting (traffic lights, pedestrian crossings, school zone signs, etc.).
- 3 *Transit support personnel*. The school must have the necessary personnel to monitor the student body on boarding and alighting from vehicles, as well as for the monitoring of the traffic in the interior of the school. Furthermore, it must have the support of the necessary and

obligatory personnel in all the occasional outings that the school schedules, with specialised personnel for all outings in which the monitoring of the students cannot be covered reasonably by school staff.

Safekeeping and access

- 1 *Building.* The school must have physical safety measures, to avoid the access of unauthorised personnel and avoid thefts, vandalism and attacks.
- 2 *Documentation and data protection.* Sensitive documentation (personal records and academic data) must be safeguarded by expressly authorised personnel. Computers with access to private information must be protected with access passwords.
- 3 *Access.* Measures must be implemented to impede access by persons unknown: proper identification of everyone that enters the school, permanent observation of the people that move around the school, installation of mechanisms to allow the opening of the access doors only to authorised personnel, etc. There also must be an inspection of the people that come to collect students.

Risks to people

- 1 *Student body.* The managerial staff of the education institutions must implement measures to prevent and avoid the traffic and consumption of narcotics, tobacco and alcohol, and avoid situations of physical violence and psychological abuse.
- 2 *Teaching staff.* The school must establish mechanisms to prevent physical, psychological and ergonomic risk to the teaching staff.
- 3 *School climate and coexistence.* The establishment of measures for protection from physical, psychological and social risks to students and teachers must necessarily result in an improvement in school climate and coexistence.

Applying preventative and safety measures from a universal perspective, initiating integral processes and institutionalising the processes of integral safety management will promote and generate a:

- 1 *Culture of integral safety in schools*. Integral safety must be submitted to processes of institutional planning, co-ordination, control and assessment, including the performance of actions to develop it in the school.

The consideration of the previous measures can have various degrees of formalisation (Gairín et al., 2009) that allow us to speak of a greater presence of the culture of safety:

- a The school applies various initiatives related to safety and security (for example, it reviews its installations).
- b The school anticipates risks through the formalisation of preventative actions and measures (for example, it circulates its self-protection plan among school staff).
- c The school has institutionalised the culture of safety so that all the elements and structures of the organisation are impregnated with it - structures, human resources and materials, institutional documents, etc.-, sharing values, norms and beliefs on safety (for example, it circulates its self-protection plan).

The ultimate goal is to make our schools safe, healthy places with a low level of risk to people.

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