

## HEALTH TECHNOLOGIES - CONFRONTING THE FIRE IN ELEMENTARY SCHOOLS<sup>1</sup>

Grazieli Cardoso da Silva\*  
Daniel Canavese de Oliveira\*\*  
Dagmar Elaine Kaiser\*\*\*  
Alcindo Antonio Ferla\*\*\*\*  
Érica Rosalba Mallmann Duarte\*\*\*\*\*

### ABSTRACT

The occurrence of fires in elementary schools does not only cause several damages to the school community's health and life, but it also causes the daily change to interrupt the normal operation of the school due to its destructive character. This study aims to know the health technologies used in fighting fire in elementary schools, using Collective Health concepts. The qualitative research used the Data Based Theory method, comprising nine semi-structured interviews with students, relatives, teachers, employees or firefighters, two focus group meetings with six teachers and a fire simulation that gathered 147 members of the school community and seven firefighters. The data collection occurred between May and July 2017. The data analysis led to the explanatory concept "health technologies - firefighting in elementary schools" supported by three categories: fire, a lived and felt experience; confronting fire situations from the perspective of the school community; the responsibility of the Government. The results contextualize intercessory processes between citizenship and health, education and state by the educational potential that lead the school community to (re) organization and significant degrees of freedom to face a fire or to protect it.

**Keywords:** Fires. Public policy. Accident prevention. Schools.

### INTRODUCTION

The elementary school, a collective space for reflection and learning, as well as a conscientious one, should be a safe place for children and adolescents. Investing in awareness, especially about the importance of safe fire behavior, makes a difference for children and adolescents to take the knowledge beyond school rooms, otherwise it will be used for the rest of their lives as multipliers of prevention culture when they live<sup>(1)</sup>. The occurrence of fires in these schools does not only generate several damages to the health and life of the school community in an age segment that requires comfort, protection and security, but also causes the daily change to interrupt the normal functioning of the school due to its destructive character<sup>(2)</sup>, characterizing important public health problems<sup>(3)</sup>. A fire that is out of human control may be a result of human actions of the school community, the territory, or of nature, and it is called a "fire principle" when it causes minor damage and "disaster" when it assumes proportions<sup>(3)</sup>.

In March 2018, the State Department of Education

of Rio Grande do Sul comprised an online register of 10,117 elementary schools, of which 5,096 were in the municipal network, 2,572 were in the state education network, 46 were from the federal education network, and 2,403 corresponded to the private education network<sup>(4)</sup>.

It is worth mentioning that the supplementary law n°. 14.924, dated from September 22, 2016, which governs the fire brigade's activities to supervise and to enforce the fire prevention policy in different types of buildings, emphasizes that educational establishments should be with the Fire Prevention Plan (Plano de Prevenção Contra Incêndio - PPCI) active or under review with the Regional Fire Department<sup>(5)</sup>. Firemen's instruction note n°. 2 from December 27, 2005, which regulates the School Fire Prevention Program, contributes to disaster-related preventive and disaster response actions to be followed by the school community as a whole with the Secretariats of State and entities involved<sup>(6)</sup>.

However, the Rio Grande do Sul Military Fire Brigade recorded incidents of attendance of 189 fires in schools in Rio Grande do Sul between 2012 and 2016<sup>(7)</sup>.

<sup>1</sup>From the dissertation entitled "Fire: the understanding of coping strategies in elementary schools", presented to the Postgraduate Program in Collective Health (PPGCOOL) of the School of Nursing of the Federal University of Rio Grande do Sul (EENF/UFRGS), in 2017.

\*Nurse. Master in Collective Health from PPGCOOL/UFRGS. Firefighter of the Fire Brigade of Rio Grande do Sul, Porto Alegre, Brazil. Orcid ID: <https://orcid.org/0000-0003-3761-6493> E-mail: [grazielisilva@yahoo.com.br](mailto:grazielisilva@yahoo.com.br)

\*\*Dentist. PhD in Pathology from the University of São Paulo, Brazil. Adjunct Professor of EENF/UFRGS. Teacher of PPGCOOL, Porto Alegre, Rio Grande do Sul, Brazil. Orcid ID: <https://orcid.org/0000-0003-0110-5739> E-mail: [danielcanavese@gmail.com](mailto:danielcanavese@gmail.com)

\*\*\*Nurse. PhD in Nursing. Associate Professor of Nursing School at Universidade Federal do Rio Grande do Sul (EENF/UFRGS), Vice-president of the Brazilian Society of Nursing in Dermatology/Regional Rio Grande do Sul (SOBENDE/RS), Porto Alegre, RS, Brazil. Orcid ID: <https://orcid.org/0000-0001-5662-4653> E-mail: [dagmar.kaiser@ufrgs.br](mailto:dagmar.kaiser@ufrgs.br)

\*\*\*\*Doctor. PhD in Education for the Graduate Program in Education, UFRGS, Brazil. Associate Professor at EENF/UFRGS. Teacher of PPGCOOL, Porto Alegre, Rio Grande do Sul, Brazil. Orcid ID: <https://orcid.org/0000-0002-9408-1504> E-mail: [fetealchido@gmail.com](mailto:fetealchido@gmail.com)

\*\*\*\*\*Nurse. PhD in Engineering by the Graduate Program in Production Engineering, UFRGS, Brazil. Full Professor at EENF/UFRGS. Teacher of PPGCOOL, Porto Alegre, Rio Grande do Sul, Brazil. Orcid ID: <https://orcid.org/0000-0002-1792-327X> E-mail: [ermoduarte@gmail.com](mailto:ermoduarte@gmail.com)

It should be emphasized that even with all access to information and the full advancement of technology, fire prevention legislation and standards, the adoption and use of available resources remain subdued with regard to the management of the risk attributed to them, corroborating difficulties in fire prevention and in facing the resulting challenges, failing to produce prevention, which concretizes and gives consequence to the policies carried out by students, family members, teachers, employees, management and firemen in intervention technologies.

The study relies on the ways of thinking and acting brought about by collective health in the perspective of Mehry<sup>(8)</sup>, that technologies and knowledge are organized in a necessarily dialectical way, within a system, to respond to the needs of the community, classifying them as light, light-hard and hard.

Light technologies cover the subjectivities of health work and contemplate practices such as listening and dialogue, a field that favors the exercise of autonomy and doing<sup>(8)</sup>, allowing the establishment of living networks of care in the school community in the prevention of fires. Light-hard technologies deal with knowledge related to people's way of acting and structuring knowledges<sup>(8)</sup>, such as the technical knowledge of coping with the fire by the school community, health professionals, education professionals and the Government, associated with subjectivity of interpersonal relationships. Hard technologies are linked to norms and organizations, technological devices, equipment and machines<sup>(8)</sup>.

Technologies that have become challenging for those who work and attend school, implying in configuration and potential the expansion of shared relationships between schoolchildren, health professionals, education professionals and the State Government for security in dealing with fire and the defense of life, the prevention of accidents, social demand of contemporaneity.

In this direction, it was a guiding question of the study how health technologies have been used in the confrontation of fire in schools and how this theme

permeates Collective Health, contributions of knowledge about ways of thinking and acting contextualized by the interrelationships between citizenship and health/education/state, (re) organizing intervention technologies to the production of safety in dealing with fires. This study aimed to know the health technologies used in fighting fire in elementary schools.

## METHODOLOGY

Qualitative study that is in a scientific and artistic nature for a better understanding of the health experience, supported by Data Based Theory (DBT), allowing explanations from the understanding of the actions of individuals and/or groups in a context facing problems or social situations<sup>(9)</sup>.

In this sense, the data collection process had as objective to look for places, people and events that would potentiate the identification of modifications between concepts of the health technologies used in the confrontation of the fire in primary schools, as well as the densification of the categories, their properties and dimensions, according to information needs identified in the research development<sup>(9)</sup>.

There were two study scenarios of the elementary schools in the city of Porto Alegre. The choice of elementary schools was due to the fact that the population that attends them is mostly children and adolescents, who seem more unprotected in the event of a disaster. In addition, they are places of reflection and learning, conscientious trainers and information multipliers. The first school was indicated by the SDE, because it was a school that experienced a significant fire experience in 2014, denominated in this study of School A. The second school did not suffer a fire, but accepted to participate in the study, being called School B. The unit of the Fire Department that operates in the region of the schools also participated actively in the research.

Chart 1 details the data collection and study participants.

Study scenarios /Participants	Period	Schools	Participants	Nº
Data collection				
Fire simulation	27/06/2017 e 04/07/2017	B	- Teachers (2) - Students (140) - Employees (3) - Firefighters (7) - Direction (2)	154
Interviews	02/05 a 14/06/2017	A	- Teachers (3) - Students (2) - Familiar (1) - Employees (1) - Firefighters (2)	9*
Focus Group	15/05/2017 e 24/05/2017	A	- Teachers (6)	6**

Table 1 – Procedures for collecting information and study participants. Porto Alegre, 2017.

\* Indicated by the direction of the School for having experienced the fire and who accepted to participate in the study.

\*\* Interest in discussing the theme.

The data of the Focus Group<sup>(10)</sup>, interviews, preparation of the simulation and observation on the day of the simulation were collected and transcribed in reports, and it was also filmed, contributing to their analysis. For the analysis of the data the constant comparative method was used, weighing similarities, differences and consistencies of the data<sup>(9)</sup>. In this way, the data were grouped by similarities and conceptual differences, forming categories provisionally named. In the selective codification of the data, that is, the information, the experiences lived, heard, observed and recorded, the last stage of data analysis, the categories were refined and integrated to compose an explanatory concept of the subject under study, phenomenon "health technologies - fighting fire in elementary schools", being supported by three categories: fire, a lived and felt experience; confronting fire situations from the perspective of the school community; the responsibility of the State. The study followed the recommendations of Resolution No. 466/12 of the National Health Council, which presents guidelines and regulatory standards for research involving human beings, CAAE 67803917.2.0000.5347. Study participants received clarification and signed the Terms of Free Clarification. The institutions have signed the Terms of Consent.

## RESULTS

For the presentation of the results, the following codifications were adopted:

a) Interviews: the coding E-A1, E-A2 [...] corresponds to the students; E-P1, E-P2 [...] to teachers; E-B1, E-B2 [...] to firefighters; and Q-F1 to the familiar.

b) Focus group: GF-M corresponds to the moderator, and GF-P1, GF-P2 [...] to the teachers.

c) Fire simulation: S was adopted to record the notes, with generic references to students as S-A, teachers as S-

P, employees as S-F, direction as S-D or firefighters as S-B.

The following is a detail of the results.

### Fire, a lived and felt experience

In the living spaces of School A, even after three years, some marks of the fire have still remained. The site is almost completely rebuilt and it has functioned normally.

Participants in the School A study reported that the fire occurred at dawn during a school vacation, destroying the entire school library. They also reported feelings of relief, because the fire had not made victims, as well as despair, sadness, pain and horror, as follows:

What happened? They set fire to our school on a weekend. The school was in chaos. Soot, smell of soot, everything was out of place. Part of the building has been banned. In one breath we lost part of the school and many students did not return! You're being very desperate (E-P3).

I saw the school burning from my house and the firemen coming to put out the fire (E-A1).

For me, it was a criminal arson. It was night and there was no one in school. We had difficulty in getting into it, the truck had difficulty getting into the yard, which was small and had to saw the grills to enter (E-B2).

This fire was a very sad thing for all of us in the community [...] the children were frightened and did not want to go back to school. They were afraid (E-P2).

The library was the only resource for children to access the books, and there was nothing left, it burned everything (E-M1).

There was nothing left of the library. Just imagine if there were children there. If I stop to think, my God, everything was locked! Would we know how to proceed? How would we handle with Fire Extinguisher? This is scary (E-F1).

I spent a lot of time at home, scared. When I returned, I could not remember anything else I was studying when the school burned (E-A2).

Pain and sadness arising from the burned school were, initially, the predominant feelings. However, with the flow of the conversation, pain gave way to hope and, finally, revealed a feeling of overcoming, exemplified in the reports of how the reconstruction of the school took place: with the cooperation of the community.

From the community? We had a lot of help! At the time of the book fair, many editors learned about the fire and came here at school, gave lectures, and were kind. There was the period when the school was under construction [...]. We know what it cost and how hard it was for everyone (E-P1).

I helped to clean the school. Everything was destroyed and the smell of soot was very strong (E-F1)

### **Confronting fire situations from the perspective of the school community**

The results found on how the students, their families, the teachers, the employees and the direction of the school that integrated the interviews realized this confrontation highlighted the importance of the school to have the PPCI and the necessity of inspection of the extinguishers of fire, aiming at the maintenance. It was also emphasized that, after the fire, they were more interested in knowing how to face the fire.

The firefighters talked to us and also saw that fire extinguishers needed maintenance. The school also did not have a fire prevention plan (E-P1).

Ah, you have to learn to prevent it. They set fire to it here. When they said the firemen would come, I became interested. They taught us how to do it (E-A1).

The participants of school A also reported that they still lack information on how to act in case another fire situation occurs, which corroborates the results of the simulation carried out in school B, because they did not recognize protagonists in abandoning the building. For them, learning is not possible in just one day of training:

In fact, I've never imagined that we would experience a fire. I would come here, give my classes and leave. I did not worry about that. The fire extinguishers were there on the wall, but I could not even deal with them (E-P3).

If they told me: put out the fire, I would do it with a hose or with a bucket of water to put out the fire. I did not know that it was not so, but I did not know how to stifle the flames. I also do not know how to handle the fire extinguisher, I have no idea how it works. I know it's right there on the wall (E-F1).

There were many questions in regard to the simulation against fire:

Where are we going to leave? It's everything locked! And the walls are brick, where are we going to? Is it just the fire that kills or the smoke kills first? So what do you do? How is it done? Can the ones who are upstairs escape? And the teachers who have special students with disabilities to walk, how will they do to take the children? How will they go down the stairs? (S-P)

Regarding the fact that the fire happened due to lack of safety in the construction of the school, it was reported:

Everything that happened has led us to have a greater concern about the risks. It was horrible! Arrive and find the school on fire! We are struggling to get everything tidy up and as provided by legislation (E-P1).

### **The responsibility of State**

The participants highlighted the interference of the State as necessary for the maintenance of life and school spaces:

It was a normal fire, like so many others I've attended. But when I saw an entire library burned, this shocked me! The community needs to fight more for its rights and guarantees, learn more how to protect themselves in a fire (E-B1).

When firefighters arrived to fight the fire, one of them said he could not get the truck into the school yard because the gate was not wide enough to enter. This delayed the entrance, increased the time to install the hoses. And there was no fire hydrant on the street. It was an experience I will never forget and it marked me a lot. This fire could have taken the lives of many children and teachers, if it had occurred during class time (E-P2).

The dialogues in FG also referred to the responsibilities of the State in providing the means for schools to be according to legislation:

The government would need to study a way to help schools more in fire prevention! You should look more at schools. There, yes, there would be security measures that would prevent the fire. And when there was an emergency, schools would be appropriate and with appropriate emergency exits. They would not only have the entrance door, which is also the exit, with is our school, with no option of escape (GF-P2).

Just as health is the right of everyone and the duty of the State, the preservation of life has been recognized as essential for the good of the community. However, for the participants of the study, the confrontation of the fire

situations cannot be restricted to decided vertically technological knowledge; it must be constructed according to the means available in the community, accompanied by its diverse knowledges and modified according to reality.

## DISCUSSION

The lack of preparedness of the school community to face fire situations in the school was clearly verified. Consistent with the framework adopted, the subjectivities revealed practices that approximate the tendencies pointed out by Mehry in relation to the light technologies<sup>(8)</sup>, shaped by the experience and feelings resulting from the actions that occurred at the time of the fire and that emotionally debilitated those involved. Likewise, hard and light-hard technologies were also highlighted and (re) known in the study.

Questions came from the school community that was protagonist and was turned into victims, subjected to situations beyond their control. Now there were students, parents, teachers, staff, management and firefighters, with sufficient knowledge to act and do. However, there was no individual or collective identity that accompanied them; they were always in production<sup>(8)</sup>. It was highlighted that the behaviors in front of the occurrence of fires in the school can change with the education and the use of strategies to confront them.

In a school fire, the presence of flames, the warming of the environment, the presence of toxic and suffocating smoke and the collapsing of walls are situations that can cause those involved to crash or become ill. Adapting school spaces to standards and forming a prevention culture were identified as strategies needed to protect the life of the school community by study participants. For them, it was not enough to protect people or to prevent fire from spreading, and also necessary conditions for fire-fighting operations to be carried out by the Fire Department<sup>(5)</sup>, since the rapid evacuation of the spaces where there was fire was a priority.

The video footage of fire simulation at School B shows how important it was for everyone in school to know the escape routes and to be able to move about in the burning school. It was noticed that the halls were not wide enough to vent people and allow the fire truck to enter and exit. In addition, the roads would need to be signaled to bring safety to anyone who leaves the burning area or to take refuge from fire and smoke.

Regarding the confrontation of fire situations, the need to develop a preventive culture accompanied by control, plans and rules to guide fire safety and prevention, such as community campaigns, with training in the school, was highlighted. A fire can be avoided with simple safety strategies<sup>(4)</sup>. And, while the actions were promoted in order to restructure the school, the school community were united and carried out that change.

The fire simulation responded in part to the planning used to verify that the abandonment plan corresponded to the expectation that the entire school community would be able to get out of school in a timely and organized and safe way, aiming at an equally safe place<sup>(4, 11)</sup>. Educational activities with firefighters and the school community need to be taken up regularly so that everyone can interact, exposing their doubts and their cultural baggage, including to keep information flowing, even by the rotation of teams and students in schools. This can be done through listening, talking wheels and dialogues, negotiating and agreeing on effective practices to deal with the fire<sup>(12)</sup>.

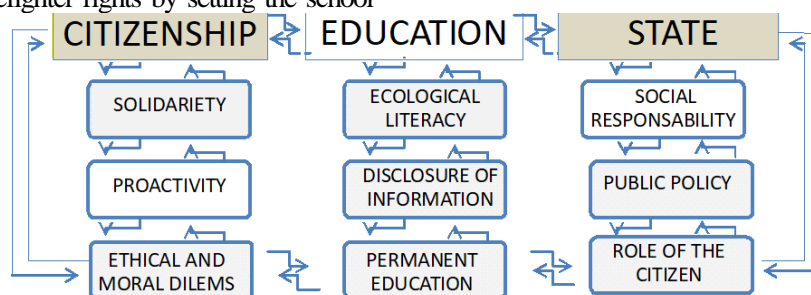
Considering the growing inequities in school safety, in which, on the one hand, there is a need for schools with adequate spaces so that, in case of fire, there is a flow of those involved without risk; and that, on the other hand, there is a need to install barred gates and high walls surrounding the school for security reasons to invasions and assaults, to prevent criminal fires, this is too damaging to the fire safety measures<sup>(12)</sup>. How can we prioritize the demands, if the structural or personnel resources, which should be adequate, are increasingly scarce, as well as the social issues, which are increasingly aggravated? How to invest in school safety and use creative planning that can address these issues?

The great fires that moved society were more effective public policy drivers capable of increasing the safety of buildings<sup>(5)</sup>. It is the State that establishes safety, fire prevention and protection standards in buildings and fire risk areas and, by extension, in schools<sup>(7)</sup>. It is also the state's enforcement and enforcement agent that will check if the PPCI is adequate and toward fighting it when prevention fails. In this sense, the firefighters participating in the research revealed arduous experiences in fire operations, revealing that the struggle of the school community for their rights and guarantees, as well as the search for correct information is essential.

New practices and ways of thinking about fire safety have proved to be vital for dealing with safety disasters in the schools studied. The role of students, family members, teachers, employees, directors and

firefighters, when discussing health technologies in dealing with school fires, acted as a device to approximate everyday life with light, hard and hard technologies<sup>(8,13)</sup>, contextualizing them as intercessory processes between citizenship and health, education and state for the educational potential that lead the school community to (re) organization and significant degrees of freedom to face a fire or to protect itself, that is, **"technologies of health - fighting fire in elementary schools"**, as it is shown in Figure 1.

Citizenship and health were complemented as community and firefighter rights by setting the school



**Figure 1:** Interrelations perceived as health technologies in confronting fire situations in schools.

Source: Research results.

The results showed that the proactivity, with actions of citizenship, occurred from the school community, when requesting a talk in the school with the presence of firemen, whose survey added preventive knowledge against disasters. These actions, the light technologies, led to a movement and involvement of the school community so that everyone was familiar with the procedures to be adopted in the event of a future fire at school, coming out of behavioral inertia.

It was found that both firefighters and teachers have perceived education as an act of performing punctual and decisive capacities. After successive reflections and frequent fire-fighting discussions, establishing a learning process, knowledge and safety actions that are extremely important for understanding the dangers of fire or how to manage it if it were out of control, a new approach fire prevention has emerged as necessary with investment in a wide range of active and participatory learning methods involving critical thinking, with the development of skills such as communication, cooperation and conflict resolution<sup>(16)</sup>, producing negotiations on the basis of the problematization of risks and hazards in order to resolve exposure issues arising from the unpredictability of the fire, including light-hard technologies.

Ethical and moral dilemmas surfaced when issues of violence and vulnerability were discussed, such as the

collective in the fire throughout the results of the study. It meant making decisions, opining about school life and claiming rights, being protagonists their existence in relation to fire safety, looking for knowledge to take ownership of it, rebuilding it for civil and political equality, with rights associated with social justice<sup>(14)</sup>. A transforming power that changed the school where they asserted rights and duties from the fire experience, which is focused on health promotion and considered a strategy essential to the process of individual and collective schooling awareness<sup>(15)</sup>.

need for physical protection like the use of grids in the school environment and, in counterpoint, the withdrawal of grills as a necessary action to evacuate people in the occurrence of fires. The dialogue has led to possibilities on how best to agree on ways to resolve these impasses. For that purpose, the Permanent Education in Health (PEH) assumed an important community and social relational role<sup>(17-18)</sup>, considering the experience of the disaster in the school, aiming at fire prevention. Therefore, it is imperative that fire prevention information be available for seizure in the school community and for effective ecological protection, strengthening reflections and transforming institutionalized safety practices, weaving a network of preventive learning.

In this way, these technologies were incorporated into teaching plans, with lectures, films, among many activities planned at school and with the participation of firefighters, since PEH has the capacity to transform practices<sup>(19)</sup>. Although there is legislation on fire prevention in schools, regulating behaviors and actions in the public and private spheres, the social responsibility that each person possessed within the school community was important, leading them to modify them as agents of state actions. More than the generator of rights and obligations, the State is also a supervisory agent, since it concretizes and gives result to the public policies

consummated jointly with the Secretaries of State and entities involved. Sufficient reasons for investing in preventive actions and response to those disaster related accidents in elementary schools, leaving the role for the citizen.

## FINAL CONSIDERATIONS

The results found constitute a field of discoveries and reflections based on the perception of life, of the community that mobilized the school community and the health, education and state professionals in the configuration of the confrontation of the fire in the school and its (re) construction based on the prevention of accidents.

In this paradoxical context in which we designed ways of acting with light technologies in health in relation to the fire experienced and/or simulated, the results showed a new logic of organization to face the fire situations. This occurred both in School A, where the fire and focus group dialogues occurred, as well as in the collective interaction during the fire simulation in School B, whose life experiences, marked by history and socially, spent energy for interrelations between citizenship and health, education and State in (re) organization in the school context to confront the fire.

It was verified that the empirical knowledge of how to face and to prevent fires brought to the fore discussions carrying with them purposes that awaken to the importance of permanent education in health, in which discussions of subjects related to the school routine are imbricated, bringing together light and light-hard health technologies. Therefore, it is composed based on such conceptions, with routines and articulations of the networks of civil protection with the school. This intellectually broadened dialogue showed

how much it is necessary to dissolve the boundaries between technical knowledge and popular knowledge internalized by the school community with light-hard health technologies, allowing its renewal and reinvention. There are definitely multidisciplinary perspectives on the subject, in whose constructions not only in everyday life, but in political spaces, in the collective articulations of answers and in the challenges posed, it becomes extremely necessary the involvement of the people to become protagonists in creative solutions to overcome inefficiencies in dealing with risks and hazards in the event of disasters.

It was possible to verify that in spite of the existence of legislation and technological apparatuses in the prevention of fire in schools, the social responsibility that each person possesses within the school community can bring about a result to the public policies consummated together to the Department of State and entities involved, establishing multiple lines of relation in preventive actions and of response to the disasters in the schools.

Regarding the limitations, possible biases or weaknesses of the study, no scientific publications were found that could problematize or detail technological interrelations of health as knowledge needed to confront fires or aiming at the controls of this problem.

It is hoped that the results can guide strategies of permanent education in health that enable the empowerment of the school community in the process of confronting the fire situations, valuing its subjective dimension for the reconfiguration of the intercessory nature between citizenship and health, education and State, strained by the knowledge and ways of acting of the school community with the norms and rules instituted, opening possibilities for significant degrees of freedom to face fires or protect them.

---

## TECNOLOGIAS DE SAÚDE – ENFRENTAMENTO DO INCÊNDIO EM ESCOLAS DE ENSINO FUNDAMENTAL

### RESUMO

A ocorrência de incêndios em escolas de ensino fundamental não só gera diversos prejuízos à saúde e à vida da comunidade escolar, mas também acarreta a alteração do cotidiano interrompendo inesperadamente o funcionamento habitual da escola devido ao seu caráter destrutivo. Objetivou-se conhecer as tecnologias de saúde utilizadas no enfrentamento do incêndio em escolas de ensino fundamental, utilizando conceitos da Saúde Coletiva. A pesquisa qualitativa utilizou o método da Teoria Fundamentada em Dados contemplando nove entrevistas semiestruturadas com alunos, familiares, professores, funcionários ou bombeiros, dois encontros de grupo focal realizados com seis professoras e um simulado de incêndio que reuniu 147 integrantes da comunidade escolar e sete bombeiros. A coleta de dados deu-se entre maio e julho de 2017. A análise dos dados levou ao conceito explicativo “tecnologias de saúde – enfrentamento de incêndio em escolas de ensino fundamental” sustentado por três categorias: incêndio, uma experiência vivida e sentida; o enfrentamento às situações de incêndio na perspectiva da comunidade escolar; a responsabilidade do Estado. Os resultados contextualizam processos intercessores entre cidadania e saúde, educação e Estado pelo potencial educativo que levam a comunidade escolar à (re)organização e graus de liberdade significativos para enfrentar um incêndio ou dele proteger-se.

**Palavras-chave:** Incêndio. Políticas públicas. Prevenção de acidentes. Escolas.

---

## TECNOLOGÍAS DE SALUD – ENFRENTAMIENTO DEL INCENDIO EN ESCUELAS DE ENSEÑANZA PRIMARIA

### RESUMEN

La incidencia de incendios en escuelas de enseñanza primaria no solo genera diversos daños a la salud y vida de la comunidad escolar, sino también implica en la alteración del cotidiano interrumpiendo inesperadamente el funcionamiento habitual de la escuela debido a su carácter destructivo. El objetivo fue conocer las tecnologías de salud utilizadas en el enfrentamiento del incendio en escuelas de enseñanza primaria, utilizando conceptos de la Salud Colectiva. La investigación cualitativa utilizó el método de la Teoría Fundamentada en Datos contemplando nueve entrevistas semiestructuradas con alumnos, familiares, profesores, empleados o bomberos, dos encuentros de grupo focal realizados con seis profesoras y un simulado de incendio que reunió 147 integrantes de la comunidad escolar y siete bomberos. Se llevó a cabo la recolección de datos entre mayo y julio de 2017. El análisis de los datos condujo al concepto explicativo “tecnologías de salud – enfrentamiento de incendio en escuelas de enseñanza primaria” sostenido por tres categorías: incendio, una experiencia vivida y sentida; el enfrentamiento a las situaciones de incendio en la perspectiva de la comunidad escolar; la responsabilidad del Estado. Los resultados contextualizan procesos intercesores entre ciudadanía y salud, educación y Estado por el potencial educativo que llevan la comunidad escolar a la (re)organización y a los grados de libertad significativos para enfrentar un incendio o protegerse de él.

**Palabras clave:** Incendio. Políticas públicas. Prevención de accidentes. Escuelas.

### REFERENCES

- Mendes CMRA. Percepção de risco de incêndio em escolas de Campo Magro/Paraná. Monografia (Especialização em Engenharia de Segurança do Trabalho) – Programa de Pós-Graduação em Engenharia Civil, Universidade Tecnológica Federal do Paraná; Curitiba, 2014. Disponível em: <http://repositorio.roca.utfpr.edu.br/jspui/handle/1/3803>.
- Organização Pan-Americana da Saúde. Ministério da Saúde. Desastres Naturais e Saúde no Brasil. Brasília, DF: OPAS, Ministério da Saúde, 2014. 49 p.:il. Disponível em: [http://iris.paho.org/xmlui/bitstream/handle/123456789/7678/9788581100210\\_por.pdf?sequence=1](http://iris.paho.org/xmlui/bitstream/handle/123456789/7678/9788581100210_por.pdf?sequence=1).
- Freitas CM, Silva DRXR, Sena ARM, Silva EL, Sales LBF, Carvalho ML et al. Desastres naturais e saúde: uma análise da situação do Brasil. Ciênc. saúde coletiva [Internet]. 2014;19(9): 3645-3656. doi: <http://dx.doi.org/10.1590/1413-81232014199.00732014>.
- Rio Grande do Sul. Secretaria Estadual de Educação. Busca de escolas. [Internet]. 2018. Disponível em: <http://www.educacao.rs.gov.br/busca-de-escolas>.
- Rio Grande do Sul (BR). Lei Complementar n.º 14.924, de 22 de setembro de 2016. Disponível em: <http://www.cbmr.rs.gov.br/upload/arquivos/201703/28171517-14-924.pdf>.
- Fundação para o Desenvolvimento da Educação (FDE). Diretoria de Obras e Serviços. Manual de orientação à prevenção e ao combate a incêndio nas escolas. São Paulo: FDE, 2009. Disponível em: <http://file.fde.sp.gov.br/portalfde/Arquivo/DocRedeEnsino/ManualIncendio.pdf>.
- Rio Grande do Sul (BR). Secretaria de Segurança Pública. Brigada Militar/Comando Corpo de Bombeiros. Ofício n.º 27/DODC/CCB/2016. Porto Alegre, 2016.
- Mehry EE. Saúde: a cartografia do trabalho vivo. 3ª ed. São Paulo: Hucitec, 2002.
- Santos JLG, Cunha K, Adamy EK, Backes MTS, Leite JL, Sousa FGM. Data analysis: comparison between the different methodological perspectives of the Grounded Theory. Rev Esc Enferm USP [Internet]. 2018;52: e03303. doi: <http://dx.doi.org/10.1590/S1980-220X2017021803303>.
- Kinaski DDF, Paula CC, Padoin SMM, Neves ET, Kleinubing RE, Cortes LF. Focus group on qualitative research: experience report. Rev Bras Enferm [Internet]. 2017; 70(2):424-9. doi: <http://dx.doi.org/10.1590/0034-7167-2016-0091>.
- Lino AGH et al. Plano de Abandono Escolar. Módulo III. Paraná; Governo do Estado do Paraná, 2013. Disponível em: [http://www.educadores.diaadia.pr.gov.br/arquivos/File/marco2015/cursobrigada/modulo3\\_planodeabandonoescolar.pdf](http://www.educadores.diaadia.pr.gov.br/arquivos/File/marco2015/cursobrigada/modulo3_planodeabandonoescolar.pdf).
- Reis MMAS. Acidentes escolares nos agrupamentos de escolas de Braga entre 1998 e 2003. Monografia (Mestrado em Estudos da Criança). Braga, Universidade do Minho, 2005. Disponível em: <http://repositorium.sdum.uminho.pt/bitstream/1822/3247/1/ACIDENTES%20CORRIDOS%20NOS%20AGRUPAMENTOS%20DE%20ESCOLAS%20DE%20BRAGA%20NOS%20ANOS%20LECTIVOS%201998%20a%202003.pdf>.
- Sabino LMM, Brasil DTM, Caetano JA, Santos MCL, Alves MDS. Uso de tecnologia leve-dura nas práticas de enfermagem: análise de conceito. Aquichan. 2016;16(2):230-239. doi: <http://dx.doi.org/10.5294/aqui.2016.16.2.10>.
- Ferreira VF, Rocha GOR, Lopes MMB, Santos MS, Miranda SA. Educação em saúde e cidadania: revisão integrativa. Trab. educ. saúde [Internet]. 2014;12(2):363-78. doi: <http://dx.doi.org/10.1590/S1981-77462014000200009>.
- Paim JS. Thirty years of the Unified Health System (SUS). Ciênc. saúde coletiva [Internet]. 2018;23(6):1723-28. doi: <http://dx.doi.org/10.1590/1413-81232018236.09172018>.
- Ceccim RB, Müller GS, Maia LP, Cataluña V. Círculos em redes: da construção metodológica à investigação em saúde como pesquisa-formação. Fórum Sociológico [Internet]. 2014;24. Disponível em: <http://sociologico.revues.org/1111>.
- Miranda ACB, Jófili Z, Cameiro-Leão MA. Ecological literacy – preparing children for the twenty-first century, Early Child Development and Care. [Internet]. 2017;187(2):192-205. doi: <http://dx.doi.org/10.1080/03004430.2016.1226353>.
- Kebian LVA, Oliveira AS. Health practices of nurses and community health agents of the family health strategy. Ciênc Cuid Saúde [Internet]. 2015 Jan/Mar; 14(1):893-900. doi: <http://dx.doi.org/10.4025/ciencucuidsaude.v14i1.22466>.
- Lemos CLS. Educação Permanente em Saúde no Brasil: educação ou gerenciamento permanente? Ciênc. saúde coletiva [Internet]. 2016;21(3):913-922. doi: <http://dx.doi.org/10.1590/1413-81232015213.08182015>.

**Corresponding author:** Dagmar Elaine Kaiser. Rua São Manoel, 963 – 90620-110- Porto Alegre, RS, Brasil. Email: [dagmar.kaiser@ufrgs.br](mailto:dagmar.kaiser@ufrgs.br)

**Submitted:** 16/08/2018

**Accepted:** 20/12/2018