

Fire Research Report

Evaluation of the Firewise Programme for Year One and Two Students

MartinJenkins

February 2008

The New Zealand Fire Service Commission contracted MartinJenkins to undertake an evaluation of Firewise (Year One and Two), a school based fire safety programme. The primary purpose of the evaluation was to help the Commission to understand:

- how it may increase uptake of Firewise by schools not currently participating
- how Firewise is implemented and, therefore, identify what improvements can be made to programme delivery, and
- the extent to which Firewise contributes to children's awareness of fire safety to help determine whether the programme is an effective investment.

This evaluation has found that the Firewise programme enjoys a high level of support and results in demonstrable benefits. However, there is room for improvement. We make a number of recommendations for improving uptake and delivery.

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29 February 2008

Final Report

Sonia Ogier

MARTIN^IJENKINS

Preface

This report has been prepared for the New Zealand Fire Service Commission by Sonia Ogier from MartinJenkins (Martin, Jenkins & Associates Limited).

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Executive Summary

Introduction

- 1 The New Zealand Fire Service Commission contracted MartinJenkins to undertake an evaluation of Firewise (Year One and Two), a school based fire safety programme. The primary purpose of the evaluation is to help the Commission to understand:
 - how it may increase uptake of Firewise by schools not currently participating
 - how Firewise is implemented and, therefore, identify what improvements can be made to programme delivery, and
 - the extent to which Firewise contributes to children's awareness of fire safety to help determine whether the programme is an effective investment.
- 2 This report summarises the findings of the evaluation.

Approach

- 3 To understand the extent to which schools are aware of, and engage in, Firewise we conducted an online survey of all New Zealand primary schools. We achieved a response rate of 42%, above the norm for surveys of this type. Analysis of the sample indicated no obvious identifiable biases by fire region, school decile, school size or location.
- 4 Following the survey, we used case study methodology to focus the enquiry on:
 - how the Fire Service promotes and supports the delivery of Firewise
 - the decision making processes within schools about whether to participate
 - how schools implement Firewise
 - what support role parents play, and
 - the value placed on the programme by teachers, parents, principals and firefighters.
- 5 The case studies also assessed, through classroom observations, children's level of fire safety knowledge. Twenty case studies were undertaken: 14 in schools that delivered Firewise; and six in schools that had not.

Uptake

- 6 There is a high degree of awareness and uptake of Firewise. Overall, 95% of schools responding to the survey reported awareness of Firewise and 92% had taught the programme since its inception. Of schools that delivered the programme, more than half (55%) reported teaching it most recently in 2006 or 2007. The vast majority (89%) have taught Firewise at some point in the last three years.
- 7 The perceived importance of teaching fire safety appears to be an important influence on the decision to teach Firewise, with 28% of non-participating schools rating the teaching of fire safety a low priority compared with 13% of participating schools.
- 8 In case study schools we found that, in addition to the perceived importance of teaching fire safety, a significant factor driving participation is *who* takes responsibility for teaching it. When school leaders take responsibility, fire safety is embedded into the school curriculum. When school leaders don't take responsibility, individual teachers or firefighters usually take responsibility. When teachers take responsibility, the delivery of Firewise becomes ad hoc and unpredictable. When firefighters take responsibility, schools lack incentives to drive participation; the onus is on the firefighters to maintain uptake of Firewise. When no-one takes responsibility, fire safety is not part of the school curriculum.
- 9 Firefighters have an important role to play in engaging schools and influencing decision makers. The attitudes and beliefs firefighters hold can affect how they engage with schools. In our interviews with firefighters we found a wide range of attitudes and beliefs towards Firewise. Firefighters with 'supportive' attitudes were passionate about teaching fire safety messages and were committed to 'selling' Firewise to schools. Firefighters with 'unsupportive' attitudes did not value Firewise, did not believe promoting and delivering Firewise was part of their role and, consequently, were not proactive in engaging schools.
- 10 Lifting the uptake of Firewise and embedding it into the school curriculum requires efforts to increase the priority accorded to teaching fire safety by school leaders. Firefighters have a key role to play in doing this but the attitudes and beliefs individual firefighters hold will have a strong influence over their willingness and ability to effectively engage with schools. This suggests the Fire Service Commission may need to increase its activities to support firefighters to deliver the programme.

Delivery

- 11 Firewise is designed to be taught over 16 to 20 hour-long classroom lessons. Survey respondents expressed concern that it is unrealistic to expect teachers to spend so long teaching fire safety. In the case study schools, we found that teachers who taught Firewise as a sequential programme, with little or no modification to the programme, spent a more realistic 6 to 10 hours teaching. However, others substantially modified the programme and spent considerably less time, sometimes covering the topic in as little as three hours.
- 12 One of the resources designed to support teaching of the programme's key messages is a homework booklet. Teachers interviewed varied in how they used the homework booklets. We found teachers tended to either treat the booklets as exercise books, requiring exercises to be completed at school or home, or sent the booklets home with children leaving it to the discretion of parents to decide whether or not to complete the exercises with their children. Teachers believe that young children need adult help to complete the homework booklets. Parents who engaged with the homework booklets found it a valuable exercise, especially the escape plan.
- 13 The programme is also often supported through a visit to the school by local firefighters. These visits are highly valued by teachers because they motivate and engage children and reinforce fire safety messages. Some visits were conducted according to the guidelines set out in the firefighter Firewise resource. Others were 'goodwill visits', focusing on children having fun on the fire trucks and playing with the equipment rather than teaching fire safety messages. In part this reflects what some teachers expect, and some firefighters believe this is a good way to engage children.
- 14 In two case study schools, programme delivery did not involve teachers teaching fire safety lessons. Instead, Firewise was limited to a one-hour talk by firefighters who followed the firefighter Firewise resource. In these schools, the teachers were unaware of the programme's teaching component. When questioned about whether they would use the teaching component, they thought such a programme would be 'over the top.' These schools relied on firefighters to arrange and teach fire safety. In contrast, other firefighters we interviewed would not attend a school unless fire safety lessons had been taught, because they correctly viewed their role as supporting, rather than teaching, the programme. This practice reinforces the need for schools to take responsibility for teaching fire safety.

Value of Firewise

- 15 Survey respondents overwhelmingly rated Firewise very positively. 65% of survey respondents rated the programme very highly, and a further 32% rated the programme as good. In general, respondents rated Firewise highly because they perceived it to be a complete programme that is user friendly. Teachers believe that children engage with the programme and become more fire safety conscious.
- 16 It is difficult for teachers to demonstrate children's learning from Firewise because no 'test' is conducted of children's knowledge. However, teachers identified three ways in which they observe whether or not children have learnt fire safety messages:
- through children's behaviour at school (eg when children find lighters or matches on school grounds and hand them to the teachers)
 - through children's application of fire safety knowledge, demonstrated at reading time (eg children spontaneously mention Firewise messages in response to stories about smoke or fire), and
 - parents sometimes report to teachers instances where children have demonstrated their fire safety knowledge at home.
- 17 In case study schools we conducted classroom observations of children to test the assumption that children who had been taught Firewise would demonstrate a better understanding of fire safety knowledge than children who hadn't. In general, this is what we found. Children who were not taught Firewise understand fire is dangerous, because it can damage property and burn people, but are unaware that fire produces smoke, that smoke is dangerous, or what the appropriate action is for escaping a room filling with smoke. Children who have been taught Firewise demonstrate a more sophisticated understanding of fire safety, including knowing that fire produces smoke and that to escape a room filling with smoke they need to Get Down, Get Low, Get Out. This is a key Firewise message. When firefighters visit schools they believe they can tell whether or not children have been taught Firewise. In schools where children have been taught Firewise the children are generally more enthusiastic and know the Firewise terminology and phrases.

Conclusion

- 18 Overall, this evaluation has found that the Firewise programme enjoys a high level of support and results in demonstrable benefits. However, there is room for improvement. We make a number of recommendations for improving uptake and delivery.

Introduction

Purpose of the evaluation

The purpose of this evaluation is to help the New Zealand Fire Commission (the Commission) to understand:

- how it may increase uptake of Firewise by schools not currently participating
- how Firewise is implemented and, therefore, identify what improvements can be made to programme delivery, and
- the extent to which Firewise contributes to children's awareness of fire safety to help determine whether the programme is an effective investment.

Methodology

Our approach to evaluating Firewise is based on two main data collection phases. First, we conducted a ***national survey*** of all New Zealand primary schools to measure the awareness of and level of participation in Firewise.

Second, we used ***case study*** methodology to focus the inquiry on:

- how the Fire Service promotes and supports the delivery of Firewise
- the decision making processes within schools about whether to participate
- how schools implement Firewise
- what support role parents play, and
- the value placed on the programme by teachers, parents, principals and firefighters.

The case studies also allowed us the opportunity to assess, through classroom observations, children's level of fire safety knowledge.

National survey of schools

Survey Design and Administration

Discussions with the Commission identified the following considerations as important factors to take into account when designing the survey:

- The primary goal of the survey is to understand *regional* differences in the uptake of Firewise
- Respondents are assumed to be IT literate with access to the internet

- Realistic expectations of response rates - a recent 'compulsory' Ministry of Education survey achieved a response rate of 53%. Voluntary web-based surveys typically achieve response rates of around 25%¹.

Key features of the survey design were:

- use of an online web-based survey instrument, designed to take 5-10 minutes to complete
- schools contacted by e-mail to participate
- survey sent to all schools to enable statistically robust analysis by region
- incentive to complete - a cash prize of \$500 to one randomly chosen school

The survey design and administration process was:

- sample frame – a list of all schools² and contact details was obtained from the Ministry of Education in April 2007
- sample frame cleaned – preliminary email contact made to confirm appropriate contacts' e-mail addresses and to give advance notice of survey
- questionnaire design was tested with a small selection of school principals, teachers, and evaluators
- Commission consulted on draft questionnaire
- survey sent on 25 May 2007
- two reminders sent to non-respondents (8 and 15 June) and a 'final chance' email (21 June)
- follow-up phone calls – 50 phone calls to non-respondents were made in the last week of June to understand potential sources of sample bias.

Response Rate

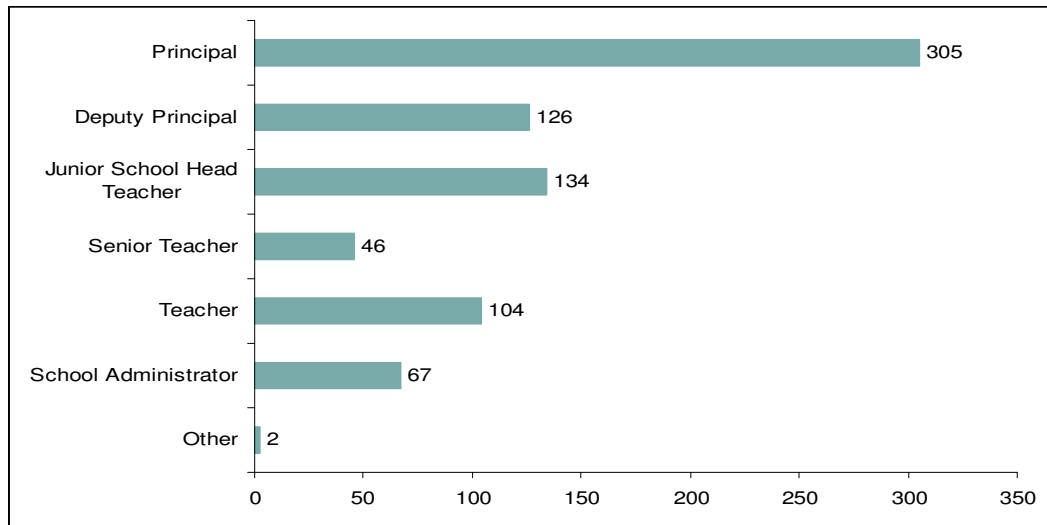
We targeted a response rate of 40% and achieved a final response rate of 42% (784 schools).

Figure 1 shows the distribution of respondents by their position in the school.

¹ Hamilton, M. B. (2005) Online Survey Response Rates and Times: Background and Guidance for Industry, SuperSurvey Whitepaper.

² Survey was limited to primary schools with students in year one and two.

Figure 1: Distribution of responses by position held in school



Source: MartinJenkins

Sample Bias

In any survey there is potential for sample respondents to differ from the underlying population. There are three types of bias: identifiable; inferred; and unknown. Identifiable bias relates to measurable differences in known characteristics of the sample and underlying population. Inferred bias is less readily quantifiable but may be tested indirectly by undertaking follow-up work with a sample of non-respondents. Unknown bias is, by definition, not identifiable.

Identifiable bias

We tested for identifiable bias by comparing known characteristics of the sample and the population. Known factors that may influence responses include:

- fire region in which school is located
- school decile
- school size
- location (urban/rural indicator).

We found no detectable biases in the sample on those dimensions. Appendix 1 contains a comparison of the population and sample by known factors.

Inferred bias

It is possible that non-responding schools may be less aware of Firewise and therefore less likely to run the programme than schools that responded to the survey. We explored this hypothesis by conducting follow-up telephone interviews with 50 randomly selected non-responding schools. The following results were obtained:

- 41 schools agreed to be interviewed about whether they had delivered Firewise
- of those, 68% indicated they had delivered Firewise
- this can be compared with the survey results, where 92% of respondents reported having delivered Firewise

Therefore, it is possible that estimates of the uptake of Firewise based on the survey may be biased upwards. A crude estimate that takes account of this potential bias suggests the true participation rate could be 78% if schools since programme inception.

Case study

Case selection

The results from the national survey were used as a sampling frame to select 20 schools for the case study research. The schools were selected from across two fire regions. Within each region, seven schools were selected on the basis that they had delivered Firewise in 2006. Three that had never taught Firewise were also selected in each region.

The Commission was interested to explore, through the case studies, whether and what regional differences exist. The national survey found, in terms of school participation rates, there was no regional difference. However, this result could still mean there were regional differences in firefighter practice in promoting and supporting the delivery of Firewise. Discussions with the Commission led to the selection of two fire regions that were thought to promote and support the delivery of Firewise differently.

Within each region schools were selected to ensure that a wide range of schools were sampled in terms of decile, size of school roll, and location (rural/urban).

Case recruitment

School principals were invited in term 3 of 2007 to participate in the case studies. School visits were conducted in term 4 of 2007.

Some schools did not agree to take part in the case studies for a variety of reasons including:

- preparations for ERO visits
- staff and accommodation shortages

- preparations for school-wide events (eg camps, artistic performances, and sports days).

Data sources

To understand and validate, where possible, findings from each case study we sought data from a wide range of sources. For each participating school³ we:

- interviewed the school principal and/or junior school head teacher;
- interviewed the Year 1 and 2 teacher(s) who had taught Firewise
- interviewed parents of Year 1 and 2 children who had been taught Firewise
- interviewed local firefighters responsible for delivering Firewise
- conducted observations of children who had been taught Firewise (these children were in Year Two and Three).

For each non-participating school we:

- interviewed the school principal and/or junior school head teachers
- interviewed local firefighters responsible for delivering Firewise
- conducted observations of Year Two and Three children.

Limitations

Our approach is based in part on interviewees **retrospectively recalling** when they delivered Firewise and how. During this evaluation it became apparent that there are a number of factors that make it difficult for some interviewees to accurately recall the delivery of Firewise:

- lack of institutional knowledge. Teachers did not usually record when they delivered Firewise. Therefore, school 'memory' is dependent on individual or group memory which may not always be reliable.
- schools can be stressful, busy environments. In this environment things change quickly making recall more difficult.
- staff turnover. In schools where institutional knowledge is confined to individuals, 'memory' is particularly vulnerable to staff changes.

To help gather high quality data, and overcome the problem of limited recall, we selected case study schools that had taught Firewise in 2006.

³ That is, a school that had taught Firewise

The Firewise Programme

This section briefly describes key elements of the Firewise programme, including the programme logic and key assumptions underpinning it.

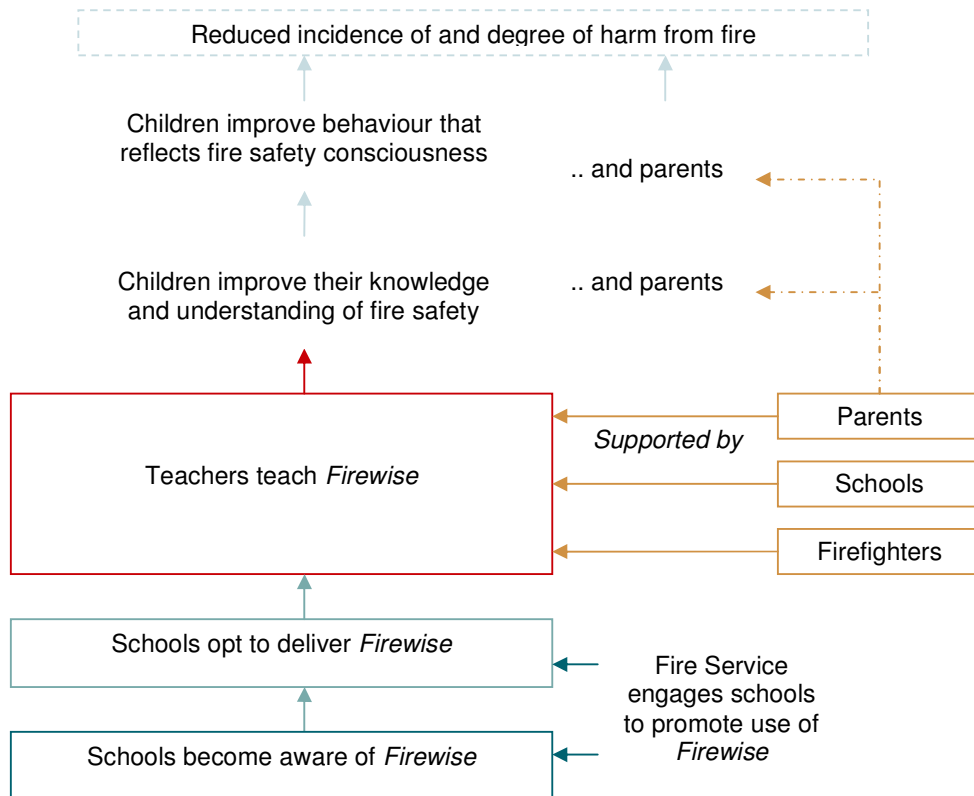
Description

'Be Firewise, Year One and Two' (Firewise) is a level one and two fire safety education programme produced by the New Zealand Fire Service (NZFS) and taught by teachers throughout the country. It aims to teach Year one and two children fire safety messages. Its delivery is supported by local firefighters, including through school visits to reinforce fire safety messages.

The Firewise programme has several components: a teacher resource comprised of a curriculum, posters, and large reading book; a homework booklet; and a teaching resource for firefighters that includes a flip chart and teaching guide. Firewise was developed by the NZFS in collaboration with teachers.

Programme logic

The following programme logic describes how Firewise is intended to operate:



To benefit from Firewise, schools must first become aware of the programme and then they must decide whether and how they will deliver it. NZFS has a role to promote uptake and influence school decision-making.

The delivery of Firewise is intended to happen in two stages. Firstly, teachers teach children between 16 to 20 hours of fire safety lessons using the teacher resource. Firewise homework booklets are intended to be used by children at home with their parents to support classroom lessons. Secondly, firefighters visit schools to give a structured talk to children recapping key fire safety messages taught by the teachers.

The primary intent of Firewise is to improve the knowledge and behaviour of children so that they are more fire safety conscious. It is believed that by exposing children to fire safety messages at school and doing homework, fire safety messages will be transferred to families, making parents a secondary target group.

Assumptions underpinning Firewise

The Firewise programme is based on a number of assumptions including:

- 1 schools are aware of Firewise when they make decisions about what to include in the school curriculum
- 2 schools believe that teaching fire safety is important
- 3 schools believe that Firewise is the best way to teach fire safety
- 4 schools have the time and resources to deliver Firewise
- 5 the Firewise teaching resources for teachers and firefighters are appropriate for 5 -7 year olds
- 6 fire safety messages are best absorbed when teachers have the support of parents, the local fire service, and schools
- 7 parents, the local fire service and schools have the time and willingness to engage and support teachers to deliver Firewise
- 8 children will, as a consequence of exposure to Firewise, improve their knowledge and change their behaviour to be more fire safety conscious
- 9 children will, as a consequence of exposure to Firewise, influence their parents to be more fire safety conscious, and
- 10 an improvement in children's fire safety conscious behaviour will reduce both the incidence of and degree of harm from fires.

The evaluation tests, to varying degrees, these assumptions, except assumption 10 which lies outside of scope.

Awareness and Uptake of Firewise

This section reports the results of our evaluation in terms of awareness and uptake of Firewise by schools.

Awareness of Firewise

95% of survey respondents reported that they were aware of Firewise. There is no statistical difference in awareness by fire region, school decile, school size, or rural/urban location.

32% of respondents became aware of Firewise through promotion by local firefighters. A further 49% were aware because of past experience of delivering Firewise. The case studies revealed that the age of the programme made it difficult for interviewees to recall how they first became aware of Firewise.

The majority of firefighters interviewed contact schools annually, either by letter or phone. They believe that the awareness of Firewise by schools is high. In case studies of non-participating schools, principals were often not aware of Firewise or unclear about the content of the programme. Our school visits prompted principals to investigate Firewise. They often then found the blue resource box in the resource library but were unfamiliar with it and unable to find staff who were.

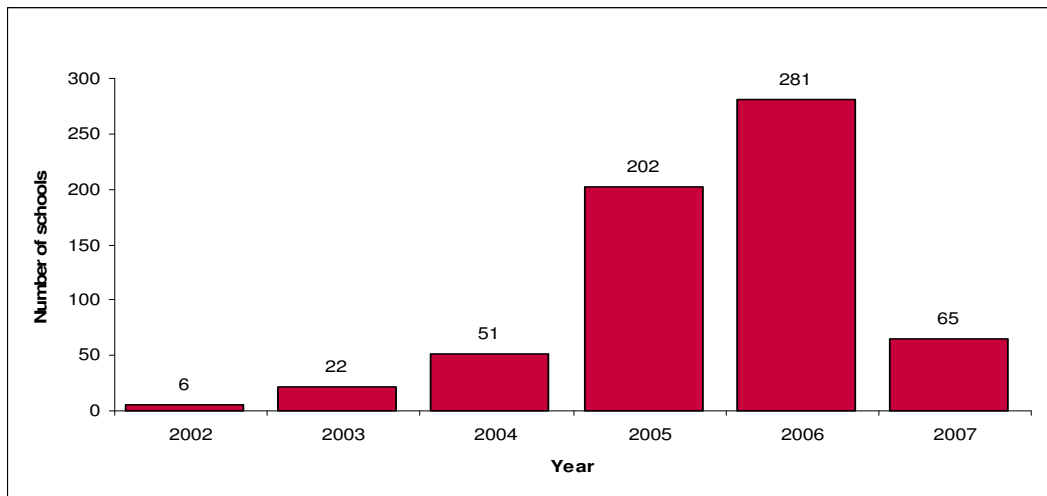
Principals interviewed explained they receive many promotional letters and resources about various programmes. Principals contacted by phone appreciated directly communicating with firefighters and thought it was an effective way to promote the programme.

If you get a call (from firefighters) it raises the profile of the resource. (Principal)

Teaching Firewise

92% of survey respondents have taught Firewise to year one and two students since the programme's inception. Schools do not deliver the programme every year, with some teaching Firewise every 2 to 3 years. Figure 2 shows that, of schools that delivered the programme, more than half (55%) reported teaching it most recently in 2006 or 2007. The vast majority of schools (89%) have taught Firewise at some point in the last three years.

Figure 2: Last year Firewise was taught



Source: MartinJenkins

Factors driving uptake of Firewise

The perceived importance of teaching fire safety appears to be an important influence on the decision of schools to teach Firewise, with 28% of non-participating schools rating the teaching of fire safety a low priority compared with 13% of participating schools.

The case studies illustrated that, in addition to the perceived importance of teaching fire safety, a significant factor driving uptake lies in **who** takes responsibility for ensuring delivery of Firewise.

It's not the resource; it's whether teachers are encouraged to do something they know is good to teach. (Teacher)

While the survey indicates that uptake of Firewise is high, the case study research suggests that for many schools uptake is precariously positioned within the school; it may or may not be taught again. The case studies revealed that responsibility may lie with:

- school leaders (ie principals)
- individual teachers
- firefighters, or
- no-one.

When School leaders take responsibility

When school principals, or other school leaders, take responsibility for ensuring Firewise is taught, the teaching of fire safety is embedded into the school curriculum. In these schools, fire safety is viewed as a high priority to teach regardless of other competing demands.

The crowded curriculum has been blamed for lots of things but it's the importance you place on things. Fire safety is important; it can save a life, therefore we teach it.
(Teacher)

Fire safety is not only seen to be important, it is part of their (school) responsibility to ensure children are safe both at school and home.

The bottom line is I would never live with myself if one of our kids got lost in a house fire, as the leader of the school I could not let that happen.... If I've got a chance to make a difference then I will take it and encourage my staff to do the same. (Principal)

Fire safety is absolutely essential. (Principal)

I'm not wasting my energy teaching them to write a letter and read a book if they are either going to get burnt to death or killed on the road. (Deputy Principal)

The potential for fire to occur is seen to be high; it is a real and present risk with potentially catastrophic consequences. The actual incidence of fire is not important and teaching fire safety to young children is regarded to be 'catching' them at the right time.

Taking responsibility means ensuring fire safety is taught and teachers are motivated to teach it. In these schools, there is no debate about whether fire safety will be taught; it simply is. Firewise is used to teach fire safety as it is considered the obvious choice. Outward manifestations of this sense of responsibility include:

- Principals taking the lead in organising the Firewise visit by local firefighters and ensuring that all classes are taught it at the same time.
- Principals embedding the Firewise programme into a two or three year teaching cycle making it a 'standard' programme taught at the school. The cycle ensures all children in the junior schools are taught Firewise once.
- Principals' view that Firewise will continue to be part of the school teaching programme.

These principals and other school leaders are involved in ensuring fire safety is taught and that Firewise is used to teach it.

If teachers didn't want to teach Firewise, I would want to know why! (Principal)

We do not know why these principals came to view fire safety in this way, but three of seven principals who have taken responsibility are either volunteer firefighters or have directly witnessed the consequences of fire.

When others take responsibility...

When school leaders don't take responsibility for ensuring fire safety is taught, we observed three alternative scenarios:

- individual teachers take responsibility (Firewise is taught)
- firefighters take responsibility (Firewise is taught)
- no-one takes responsibility (fire safety / Firewise is not taught).

When individual teachers take responsibility...

When individual teachers take responsibility for fire safety, the delivery of Firewise becomes ad hoc and unpredictable. The importance of teaching fire safety and the value of the Firewise programme becomes dependent on individual teachers' personal views. Consequently, in these schools:

- Firewise (and fire safety) is not embedded into the teaching cycle. It may or may not be taught again
- some, but not all, junior classes are taught Firewise, and
- the future of Firewise is vulnerable to competing demands on teacher time, including Ministry of Education priority initiatives which are seen to take time away from teaching fire and other "safety" topics.

When firefighters take responsibility...

When firefighters take responsibility, they put fire safety onto the teaching agenda. These firefighters are very proactive in getting schools to engage with Firewise. In these schools, fire safety:

- is regarded as an important topic to teach but no more so than other important topics like healthy eating, sun smart, or fitness
- Firewise is not embedded into the teaching cycle, and
- continuation of Firewise is dependent on firefighters continuing to be proactive and this may occur for years.

He (firefighter) never misses (contacting the school) and I've been here for donkeys' years. (Teacher)

In some instances, firefighters have taken the responsibility to ensure Firewise is taught one step further by also assuming the responsibility for teaching Firewise. In these schools, the

continuation of Firewise is completely dependent on firefighters continuing to deliver the programme.

When no-one takes responsibility...

In schools where no-one takes responsibility for ensuring fire safety is taught, fire safety is not (and will not be) taught. This is because:

- teaching reading and writing rather than fire safety is regarded as the core role of the school
- fire safety is seen to be one of a number of safety issues (rail, dog, road, water, stranger, bike) that schools are asked to teach (for one principal, alternative safety programmes are more attractive because they include incentives e.g. funds to release teachers to be trained)
- fire safety is not thought to be an important risk because there is a low incidence of fire (in and outside the school) and/or the incidences that have occurred are considered irrelevant. Examples of how relevance was thought of include:
 - the types of fire hazards found in schools rather than those children are exposed to at home
 - actual local house fires being drug-related and therefore not a hazard to which children attending the school would be exposed
- schools' responsibility in relation to fire safety is to ensure the school has systems in place to prevent and respond to a fire (eg good fire equipment and regular fire drills)
- fire safety is thought to be something parents should teach their children, even though parents' knowledge of fire safety is considered, by some principals, to be poor, and
- principals had limited or no contact from firefighters encouraging them to take-up Firewise.

More broadly, these schools comment that programmes like Firewise compete with other 'priority' issues, as defined by the Ministry of Education. That reduces the time available to teach discretionary programmes. For example, in addition to the core curriculum, preventing obesity is currently a Ministry of Education priority, and consequently there is 'too little time to teach everything else' (Principal).

Some non-participating schools commented that programmes like Firewise may have an uncertain future because it was unclear whether teaching fire safety can be included in the new curriculum.

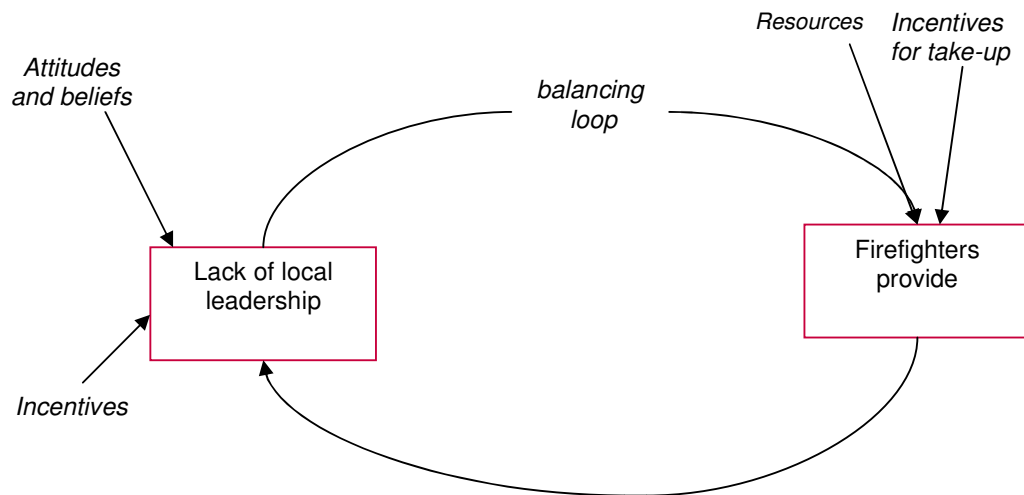
In schools where no-one is taking responsibility for teaching fire safety, there is a lack awareness or engagement with the Firewise programme. These schools may have the resource but it's simply one of many resources the school has. The schools have typically not been contacted by firefighters about the programme.

8% of survey respondents had not taught Firewise. The most common reasons given were: too many competing demands, lack of awareness and too time consuming to deliver.

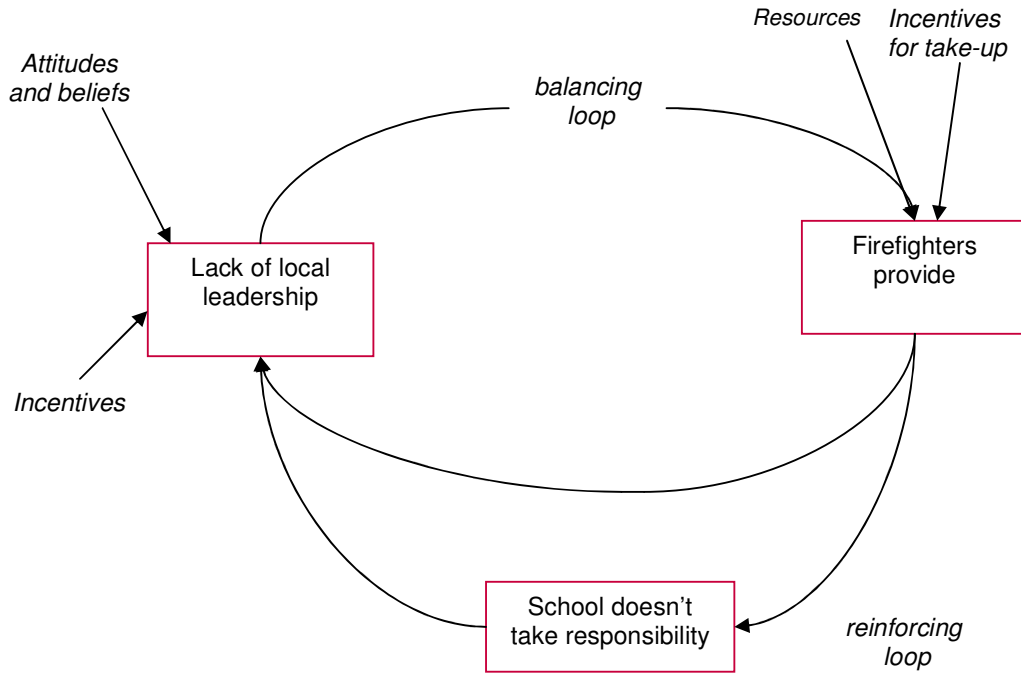
A systems perspective on participation drivers

The **role** of the person who takes responsibility for ensuring fire safety is taught has a strong influence on whether fire safety is and will continue to be taught. We found that when there is strong school leadership driving the teaching of fire safety, there is high uptake and commitment to teaching Firewise. There is no alternative programme competing against Firewise.

When there is a lack of school leadership commitment to teaching fire safety, the local fire service may step in and take over responsibility for ensuring Firewise is delivered. There are incentives for the Fire Service to do this because uptake is tied to performance, although this appears to vary across different fire districts.



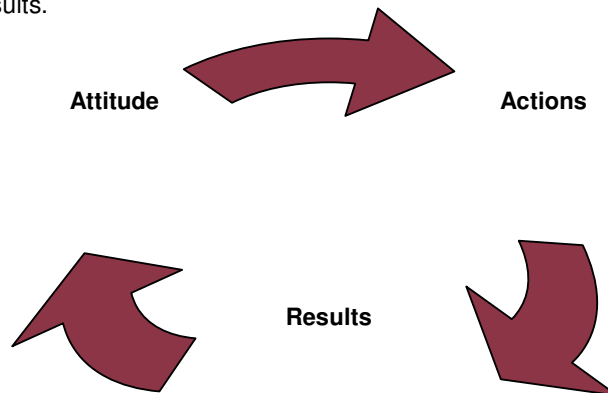
By stepping in and taking over responsibility, the problem of a lack of school commitment to teaching fire safety is reinforced. This lessens incentives for the school to then take responsibility.



Promoting Firewise

Firefighters can have an important influence on whether schools are aware of Firewise, uptake of the programme, and the way Firewise is delivered.

We found through our interviews with firefighters that uptake and delivery of Firewise is likely to be affected by the attitude and beliefs firefighters hold about Firewise. This is a reinforcing cycle with attitudes affecting actions and therefore results, and also being strengthened as a consequence of results.



Supportive attitudes and beliefs

Firefighters who have supportive attitudes and beliefs value Firewise and the importance of promoting and delivering the programme. These firefighters tend to be individuals who are

passionate about teaching children fire safety messages. They believe that educating children to be 'Firewise' is teaching children an important life skill and is a valid way to get fire safety messages into the home.

These firefighters rate Firewise highly because it covers all the information teachers need to know and includes parent involvement. They also believe it works because children take the messages home to their parents. These firefighters believe that promoting and supporting the teaching of Firewise is part of their role. They consider themselves to have the skills required to talk to young children and enjoy this part of the work.

These firefighters are committed to 'selling' Firewise and they usually clear expectations about what should happen, including what role teachers and firefighters should play. They believe that teachers should teach the course, that homework booklets should be completed, and that the purpose of their visit is to reinforce the Firewise messages. These firefighters have learnt from past experience that this does not always happen and have adapted their practice to include talking explicitly about their expectations with teachers prior to visiting schools. During the visit these firefighters focus on the educational purpose of the visit and do not bring fire trucks which are believed to distract children.

These supportive attitudes transfer on to the schools. Schools are positive about their interactions with the Fire Service, they rate firefighter visits highly, and Firewise is taught.

Challenges

For firefighters interviewed with constructive attitudes and beliefs, the key challenges for getting Firewise delivered in schools are:

- workload. These firefighters tended to be responsible for a large number of schools (45+). They consider their workload too great to be able to engage all schools.
- staff turnover in schools. The job of selling Firewise to schools is on going.
- morale. In the case of (career) firefighters, whose colleagues are not supportive of Firewise, work morale can be low; they can feel like they are alone.

Unsupportive attitudes and beliefs

Firefighters with unsupportive attitudes and beliefs about Firewise do not believe that promoting and delivering Firewise is part of their role as firefighters. These firefighters have low opinions of Firewise, believing that it is too intensive and has limited relevance because the incidence of child deaths in fire is low. The programme is regarded as too inflexible for teachers. It is not considered to be a valuable resource or way to teach children about fire safety.

It's expecting too much from schools to devote 16 hours to Firewise when only a minimal number of children actually die in house fires in New Zealand, two or three children per year.
(Firefighter)

These firefighters preferred delivering the Stop, Drop and Roll programme and/or the new pre-school fire safety programme. They want to engage children with things that children enjoy, like playing with hoses and going on to fire trucks. They believe if children are enjoying themselves they are more readily able to get fire safety messages across to them.

These firefighters have low expectations about how Firewise should be delivered. They are satisfied if the Firewise programme is condensed into a one-hour firefighter visit with the teaching component removed. School visits may not be delivered by following the firefighter teaching Firewise resource; instead, these may be done 'off the cuff.'

In addition, these firefighters were very unclear on how they have promoted Firewise. They couldn't recall contacting schools and one station seemed to only contact schools as a direct result of our visit. When opportunities presented themselves, these firefighters do not 'sell' Firewise. For example, firefighters often recall schools contacting fire stations requesting 'filler' visits for the end-of-school terms. Firefighters with supportive attitudes take these opportunities to promote Firewise and will usually refuse to do visit schools if schools don't engage in the programme; they don't have time to do work which they don't view as productive. Conversely, firefighters with unsupportive attitudes respond by doing goodwill visits that don't promote fire safety; they don't promote Firewise.

Firefighters with unsupportive attitudes and beliefs tend to hold less than positive views about teachers. Teachers were thought to procrastinate, or simply thought to say yes to engaging without meaning it because it's what firefighters want to hear. There was little appreciation about the pressures teachers often work under and the need to empathise.

It is likely that these attitudes are ingrained and have been present for many years.

Challenges

Firefighters with unsupportive attitudes and beliefs identify the key challenge to engaging schools to be the length of the programme. They consider that low uptake of Firewise is because schools think Firewise is too involved and inflexible.

Who holds unsupportive attitudes?

Few firefighters interviewed held unsupportive attitudes and beliefs. Case study methodology does not allow inferences to be made about the prevalence with which firefighters hold attitudes and beliefs, or where these firefighters can be found.

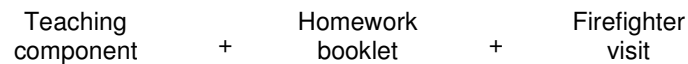
The firefighters we interviewed who held unsupportive attitudes and beliefs were:

- primarily clustered in one fire district within one fire region
- worked in career rather than volunteer stations, and
- tended to have responsibility for a negligible number of schools (1-5).

Delivery of Firewise

Intended delivery model

The Firewise programme is intended to comprise a 16-20 hour teaching component based on a Firewise teaching resource, completion by students of a homework booklet, and a supplementary fire safety lesson delivered by firefighters.



The teaching component is intended to be delivered by teachers in school. Teachers base lessons on the Firewise teaching resource, which sets out a sequential programme each with its own set of learning outcomes and activities to be done at school and home. The teaching resource asks teachers to 'teach as it is presented in the resource'.⁴

The Firewise classroom lessons are designed to be practiced at home. The resource includes a homework activity book to help children apply what they learn at school to home. It is also intended to be a way to engage parents with the fire safety messages being taught.

At the end of the teaching component it is intended that firefighters visit the classroom and give children a lesson that recaps what they have been taught. Firefighters are asked to attend the school visits in uniform and deliver a 50 minute presentation. The firefighter guidelines explain that 'it is very important that the day's learning is not confused with a demonstration of fire appliance, because this has such an impact on the children that other learned fire safety messages can be forgotten in the excitement of seeing the fire engine'.⁵

Actual delivery models

The case study research explored how schools and local firefighters have actually delivered Firewise. The schools were selected because they had delivered Firewise in 2006. Many of the teachers we interviewed had difficulty recalling exactly how Firewise was taught. It became evident during the research that some teachers significantly change the way they teach Firewise from one year to the next, making it difficult for them to recall what they had done when.

⁴ Be Firewise Teachers' guide for Year One and Two

⁵ Be Firewise Teachers' guide for Year One and Two

Firewise delivery as intended

The majority of teachers we interviewed delivered Firewise as intended in terms of the broad features of the Firewise Programme.

Teaching component + Homework booklet + Firefighter visit

Within each of these features there were a number of variations in terms of how each component is delivered.

Teaching Firewise

Some teachers follow the Firewise teaching resource and teach Firewise as a sequential programme. These teachers did not see the need to modify the resource because Firewise was developed by experts and contains everything a teacher needs to know. These teachers estimated they spent between 6 to 10 hours teaching Firewise, rather than the 16-20 hours signalled in the teaching resource.

Some teachers adapt the lesson plans to make them either more challenging for older children or easier for new entrants. In doing this, teachers may focus on particular lessons children found hard to learn and adapt the scope of what is being taught. For example, two classes focused on children learning to *write* their names and addresses, a considerable task for these children because many could not write their name. The scope of the Firewise lesson changed from *learning* names and addresses to *writing* names and addresses. These teachers estimated that they spent less than six hours teaching Firewise. They explained that it is hard to engage children for any length of time. Children need lots of 'hands on' activities and there is 'only so much you can do about fire'. (Principal)

Other teachers based lessons on the teaching resource but broadened the scope of what is taught and the types of activities. This was to enable Firewise to be integrated across a range of curriculum areas. These teachers estimate that they spend between 11 – 20 hours teaching Firewise this way. Additional activities included:

- creating poems about fire safety read to the class as joint reading
- children writing stories about firefighter visits
- children playing with cardboard fire engines: 'to get the boys interested' (Teacher), and
- children making videos based on Firewise adverts as part of teaching computer skills.

We found great diversity in the number of hours teachers spent teaching Firewise. Survey respondents also commented that the length of the programme is too long.

It is very comprehensive but we think the amount of time expected to teach it is unrealistic.
(Survey respondent)

Homework Booklets

The Firewise homework booklet is intended to be a way to link learning at school to the home. The teaching resource suggests that the homework booklet should be completed regularly throughout the course of the programme.

We found that teachers adopted two approaches to using the homework booklet - either sending the booklet home with no expectation about children completing exercises or, conversely, treating the booklet as an exercise booklet and expecting exercises to be completed at school and home.

Teachers who send booklets home without setting any expectations leave it up to the parents to decide whether or not it is something they should make time to do with their children. Various explanations for this approach include:

- the school has 'good' parents, who already educate their children about safety issues and, therefore, there is no need to formalise the link between home and school
- the belief by teachers that parents don't always have the time for homework, therefore the school shouldn't overburden parents
- the belief by teachers that parents won't engage with homework unless there is an incentive like a tea bag. There was no incentive to complete the Firewise books
- the belief that many parents do not speak English and therefore the written material is not useful.

These teachers did not view it as part of their role to engage parents with Firewise. This raises the question of whether these teachers understand the purpose of the homework booklet, which is to ensure both children and parents understand fire safety messages. In one instance, this mindset was illustrated when a teacher explained that she had feedback from parents that children were concerned their parents didn't have fire escape routes. The teacher did not take this opportunity to engage parents about escape routes but instead focused on reassuring the child that they didn't need to be fearful.

Other teachers used the booklets as part of the exercise they completed in school and as homework. These teachers expected parents to be involved and particularly focused on ensuring that parents work with their children to develop an escape plan for the home. As one principal commented: 'It's about setting expectations about how parents will engage'.

When parents are involved in completing the homework booklets, both teachers and parents value this input. Parents particularly find the escape plan and safe meeting place exercise very useful. Survey respondents also commented that the booklets are a good way to bring families together.

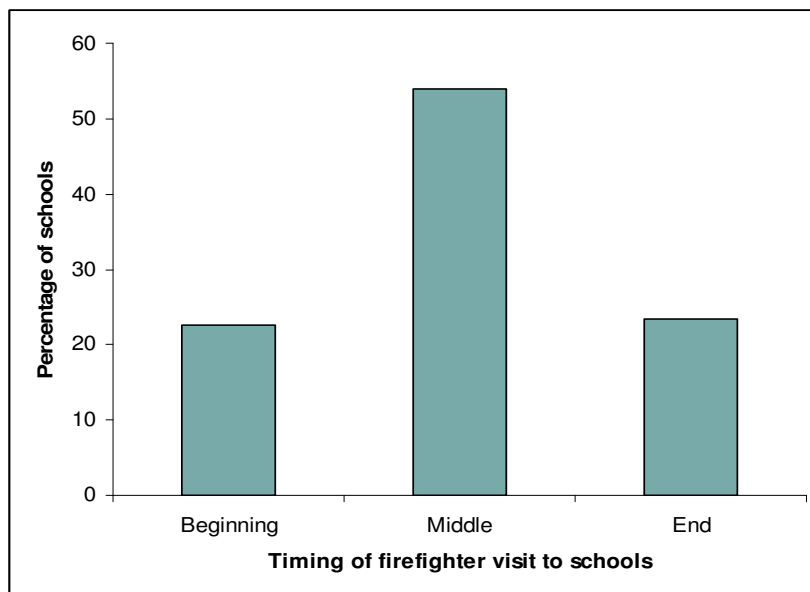
Sending booklets home for parental involvement in making homes fire safe good link to school. Found it good for the adults to make them conscious of being safe. The children also relayed information to the adults on how to keep safe. (Survey respondent)

The different expectations teachers have about the role and completion of the homework booklet may be due to a lack of strong signalling by firefighters about how they expect parents to be involved. The firefighters we interviewed did not expect parents necessarily to have completed the booklet as one firefighter said it 'doesn't matter where it (booklet) is done as long as the booklet is done'.

Firefighter visit

Case study schools tended to have had the visit from firefighters towards the end of the programme. In contrast survey respondents reported that the majority of visits were during the programme.

Figure 3: Timing of firefighter visit to schools



Source: MartinJenkins

The majority of firefighters explained that during their presentations to schools they usually follow the firefighter resource. This was confirmed by interviews with teachers.

In addition to the standard lesson, some firefighters and teachers believe it is important to include a demonstration by firefighters of the breathing equipment to children. Children are thought to be scared of the look and sound of firefighters wearing breathing equipment.

Desensitising children to the sight and sound is considered to be teaching children to run towards firefighters if they are in a building on fire.

Some firefighters include follow up visits to reward and provide other learning opportunities such as additional:

- visits to the Fire Station. These are goodwill visits, where firefighters can take the opportunity to give out smoke alarms to parents
- firefighter visits to the school for fire demonstrations, and
- field visits to burnt-out houses. Children see and smell the impact of fire.

Teachers and firefighters believe that 'good' visits depend on the skills of the firefighters. Essential skills include:

- being comfortable talking to children
- having behaviour management skills, and
- understanding the appropriate learning levels of differently aged children.

Teachers can tell when firefighters are not skilled in these areas, as can firefighters. Some firefighters believe they are 'not teachers and not trained how to related to children.'

Alternative 'Firewise' programmes

The case studies revealed that there are instances when the 'programme' delivered is so different to what was intended, that it is problematic to think of Firewise. This occurs when firefighters take over teaching Firewise, and when teachers apply the term Firewise very loosely. In three case study schools where this occurred, it is questionable that Firewise has been taught.

Firefighter Firewise

In one fire district within one of the fire regions we visited, firefighters have taken over the responsibility for delivering Firewise. In these instances, Firewise is entirely based on firefighters teaching Firewise. There is no teacher involvement. Instead, firefighters visit the classes and teach Firewise using the firefighters resource. In addition to this visit, the firefighters offered additional visits to demonstrate Firewise skills and/or visits to the fire station where children dress up, and play with hoses and fire engines. This was seen both by teachers and firefighters as a good way to engage boys.

In both these schools, the teachers:

- wouldn't teach fire safety unless firefighters did so because teaching Firewise is not a priority for them
- were unaware that there is a teaching component to Firewise, and

- think the idea of a fire safety programme is 'over the top'. They can't see how it could be taught for so long or the value that it would provide.

In both schools, teachers did not understand the importance of transferring fire safety messages to children's parents. One teacher explained that the escape plan was 'done on the whiteboard' by the firefighters to the children; therefore, it doesn't matter if children don't complete these exercises at home as they have already been taught it.

Firewise Outcomes

Assessing outcomes

Assessing children's knowledge of fire safety and changes in behaviour and attributing this to the programme is difficult because:

- What is a good test of knowledge?
- Where have children acquired that knowledge?
- Does new knowledge translate into changes in behaviour?

We addressed these challenges by observing children during a fire safety lesson and interviewing parents, teachers, and firefighters and seeking their views on the programme. Collectively, the observations and interviews enable us to build a picture of the outcomes and perceived value of the Firewise programme.

Observations

Set up

The classroom observations of children were designed to test the assumption that children who had been taught Firewise would demonstrate a better understanding of fire safety knowledge than children who had not been taught Firewise.

In participating schools, the observation was done with children who had received the Firewise lessons.⁶ Where classrooms included children who had not been taught Firewise, these children were identified to the researchers.

The observation involved testing a Firewise fire safety message that was unlikely to have been taught by parents or been more widely advertised. In consultation with the Commission, the fire safety message 'Get Down, Get Low, Get Out' (GD GL GO) was chosen as the message that most met these criteria. GD GL GO is the slogan used to help children remember how they should escape a room filling with smoke.

The observations involved the classroom teacher asking children a series of questions based on two picture boards. The first picture depicted a room with a waste paper basket on fire. There is no smoke in this picture.

⁶ In one participating school, due to a lack of understanding within the school about when children were taught Firewise, the observation was conducted with a class who had not been taught Firewise.

The children were asked:

- 1 What can you see in the picture?
- 2 Can you see anything dangerous? What is it?
- 3 What will happen if the fire doesn't stop?

The children were then shown a second picture board in which the fire is much larger and smoke is filling the room. Just under the ceiling, the smoke has become thick and black. A picture of a child was put into the room with their head in the smoke.

The children were asked:

- 4 What would happen if this person stayed in the room?
- 5 How should the person escape the room?

Across the 20 observations, children responded to this exercise in broadly two ways - they either demonstrated a **sophisticated** or a **basic** understanding of Firewise behaviour.

Children with a **sophisticated** understanding of Firewise behaviour knew that fire is dangerous, fire produces smoke which is also dangerous, and the appropriate way to escape a room filling with smoke is GD GL GO. These children tended to be enthusiastic in their response, and showed an applied understanding of fire safety by providing answers ahead of questions and not requiring the second visual prompt. These children also tended to use Firewise language like GD GL GO (though not all did).

Children with a **basic** understanding of Firewise behaviour understand that fire is dangerous because it can damage property and burn people, but they are unaware that fire produces smoke, that smoke is dangerous, and what the appropriate way is to escape from a room filling with smoke. These children tended to give either minimal or wide ranging responses and did not use Firewise terminology. For example, in response to question five, these children responded with:

- jump out of the window
- run to the door
- stop, drop and roll
- call 111
- put out fire with water.

In our interviews with firefighters, we found that they can easily differentiate between classes that have and have not been taught Firewise. Key signals for them include:

- use of Firewise terminology

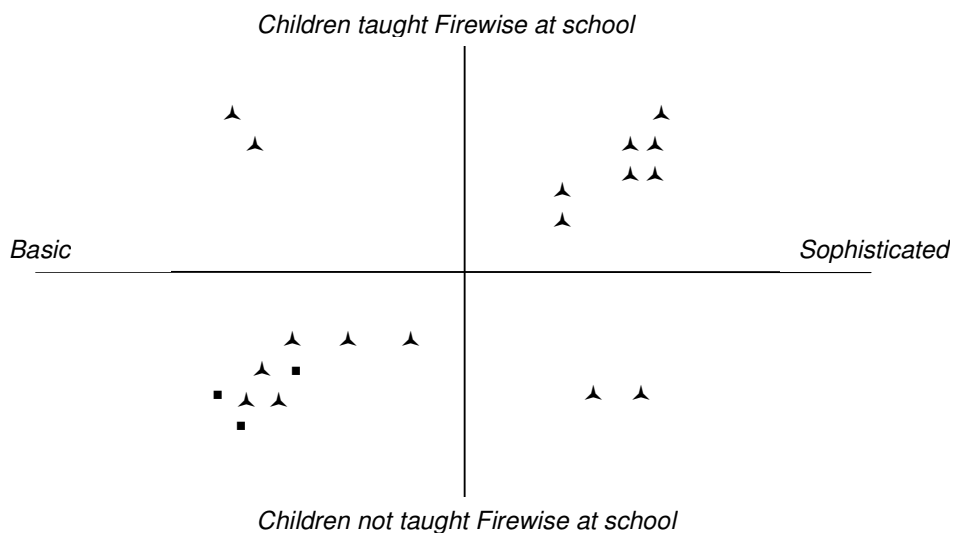
- knowledge of specific messages eg matches are tools not toys, and
- children who are proud and eager to answer questions.

These signals fit our experience of observing children.

Findings

We have plotted observation results, using the categories of sophisticated and basic Firewise knowledge, against whether or not the class had been taught Firewise.

Figure 4: Observation findings



- Alternative programmes. Technically, these children were not taught the Firewise programme

As is clear from figure 4, we found that the majority of children demonstrating a sophisticated understanding of fire safety had been taught Firewise and, conversely, children not taught Firewise had a basic understanding. The case studies allow us to unpick why these patterns have emerged, and provide insights into what differentiates classes that do well from those that do not.

Children taught Firewise who demonstrated basic understanding

Two classroom observations of children who had been taught Firewise found children demonstrated a basic understanding of Firewise. There appears to be a number of explanations for why this happens which centres on how Firewise was taught:

Aspects of Firewise not taught

In both schools, the teachers followed the Firewise teacher resource but spent time focusing on some aspects of the curriculum; the entire curriculum was not taught. These teachers had focused on 'matches and lighters,' and 'Dial 111 in an emergency.' Teachers commented that dialling 111 is challenging for some young children because they do not know their name, address or phone number.

Focus of Firewise lessons

In both schools, the teachers linked teaching Firewise to other aspects of the curriculum. For example, teaching Firewise in one class was linked to teaching computer skills through the children making a Firewise movie based on the Firewise advertisement, with children rapping and recreating the Firewise flame character. In other classes Firewise was linked to teaching language. In this class, children wrote stories about the firefighter visit. Consequently the focus was not on key Firewise safety messages.

Teacher lacks fire safety knowledge

In one school the teacher did not demonstrate a good understanding of fire safety. This was apparent in the second part of the observation, which focused on teaching GD GL GO message. This teacher gave inconsistent messages (for example, whether children should help other people, where should they go) and was not clear that GD GL GO applies when there is smoke.

No formal parental involvement

Neither of these schools formally involved parents to reinforce Firewise messages. Homework booklets were sent home and it was left to the discretion of parents whether or not to use them. The booklet was not used as homework requiring parental involvement.

Conflicting messages

Across a number of schools we observed how in a number of instances children may receive mixed messages because school fire safety practices (eg fire drills) appear inconsistent with Firewise messages. For example:

- Children being unfamiliar with the location of a school's safe meeting place because they are used to being led by the teacher during fire drill practices. Firewise teaches children to take responsibility and act to protect themselves. We noticed that fire drills were teaching children the opposite; that it's the adult job to rescue and look after children. We also noticed that teachers did not use the same terminology as Firewise to describe where children should meet.
- Children are expected to use certain doors in their classroom for the fire drill. Firewise teaches children how to identify danger, plan, and if the situation arises to respond appropriately. Fire drills conversely seem to treat fire as predictable (ie would never come from a certain direction) and that children should respond uniformly (use the usual door).

Children not taught Firewise who demonstrate basic understanding

Nine classroom observations of children who were not taught Firewise demonstrated a basic understanding of Firewise messages. In four schools, the simple explanation of why children have a basic understanding of fire safety knowledge is that fire safety had not been taught to the children,⁷ and their only exposure to fire safety messages (at school) would have come from experiencing school fire drills.

Limited fire safety lessons

In the remaining five schools, children had received limited fire safety lessons (eg one-off lessons). Three of the teachers had described these lessons as being the Firewise programme, the lessons departed substantially from the programme resource. In two of these schools, this 'branding error' occurred because the firefighters had branded their one-hour lesson to the children to be the entire Firewise programme. Consequently, while children had a one-hour lesson from firefighters, the teachers did not teach them any fire safety messages.

In another school, the 'branding error' happened because while Firewise was taught in full the first time it was taught in the school, the second time it was delivered the teacher made no use of teacher resource instead making up a few lessons. The booklets were simply distributed to the children and the firefighter visit was based on the children exploring the fire trucks and using the equipment.

Children not taught Firewise who demonstrate sophisticated understanding

Two classroom observations of children who were not taught Firewise demonstrated a sophisticated understanding about fire safety. In one of these classes, children said they knew they had to GD GL GO because they had been taught it in kindergarten. In the other class, the teacher had very recently (less than 5 weeks previously) taught fire safety by showing children the Firewise video which focuses on a room catching fire. These classes indicate that, where children are exposed to other ways of teaching fire safety, both of these can be linked to resources the Fire Service provides.

Parent perceptions

One intended outcome of the Firewise programme is that parents will engage with learning about fire safety. Engagement may be direct, through parents being involved with the Firewise homework booklet, or indirect as children talk to them about fire safety messages learnt at school.

⁷ In one school, a few children in the class had learnt fire safety during the safety inquiry unit. These children self-selected to learn about fire safety themselves and used the resources available in the school to learn about fire safety, but the depth of their learning is unknown and only a minority of the class were exposed to learning about fire safety.

In the case study fieldwork, it was difficult to learn about parental involvement because only a small number of parents volunteered to be interviewed. Of those interviewed, some were not aware that their children had been taught Firewise.

In instances when parents were aware we found a range of responses about the impact Firewise:

- parents who had seen the Firewise booklet but had not read it or engaged with any of the exercises
- parents who had engaged with the Firewise booklet, in particular the home escape plan
- parents who recalled how their children had educated them about the need to have fire alarms and escape plans, which they had then implemented, and
- a parent who recalled how her daughter, following Firewise, was actively telling her parents off when they left matches lying around the house. This parent believed that she had become more safety conscious.

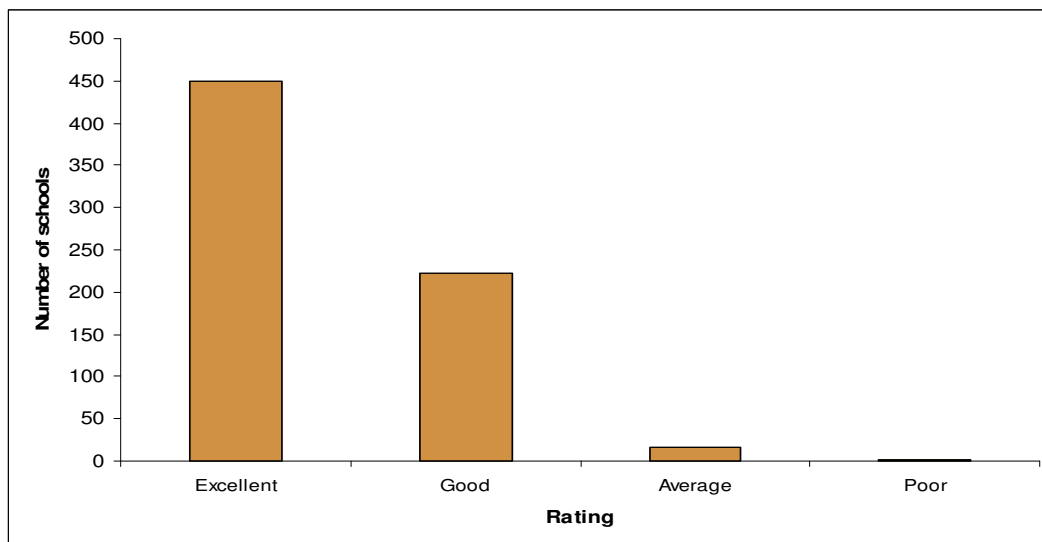
In some cases where parents were aware of and had engaged in the booklet, the teacher had set specific exercises for homework. In other cases there was a mixture of responses.

Schools perceptions

Schools' perceptions about the quality of the programme

Schools' perceptions about the quality of Firewise provide another indicator of the outcomes achieved. Survey respondents overwhelmingly rate Firewise very positively.

Figure 5: Overall Rating of Firewise Programme



64% of survey respondents provided additional qualitative comments explaining their rating of Firewise. In general, respondents rate Firewise highly because they perceive it to be:

- **A complete programme.** All the information and resources teachers need (teaching materials, homework booklets, props) is provided. The burden of developing comprehensive teaching resources has been taken away from teachers so there is 'no need for extra planning which is great' (Teacher). The Firewise lessons are reinforced by firefighter visits and this is seen to be a key component of the programme. 'The involvement of fire safety personnel is the jewel in the crown for this age group' (Teacher). The programme also involves families which respondents believe is important dimension.
- **User friendly:** The Firewise material is well presented and organised. Respondents believe that it makes good use of visual materials, which are colourful and engaging. The teacher resource clearly articulates learning outcomes, is easy to follow, and sequential. The material is age-appropriate, which makes the programme ready to teach.
- **The firefighter visit:** The visit by firefighters is highly valued, with 90% of survey respondents rating visits as very helpful. The main benefits were perceived to be: enabling the children to have a 'practical' learning experience which includes seeing real firefighters and asking questions, and enforcing fire safety messages from an authoritative adult and role model.

More real life experiences they can relate [to]. Makes learning "real life".

Because they generally think firefighters are cool, and it would be a good way to reinforce the message.

The children really listen and take note of the firefighters.

Past experience for me shows that these things imprint strongly on children of this age group.

Principals and teachers interviewed as part of the case study commented that teachers simply don't have the time, nor necessarily the skill and knowledge to develop such comprehensive resources. This was echoed in the survey:

It's a great resource and I would not be so inclined to teach it as comprehensively if it wasn't for the kit provided.

All such resources are essential for teaching children.

Schools perceptions of the value of the programme

Survey respondents commented on their perception of what children learn as a result of being taught Firewise and what they notice about the retention and use of fire safety knowledge:

An excellent resource and underlying messages to raise fire safety awareness.

It teaches children exactly what to do in a fire, eg safe meeting place. Totally relevant.

We had children in fires who have been able to tell their families what to do. (6 incidences)

Children who are now a lot older are still able to discuss key points of the programme.

A most worthwhile programme, I am sure the messages about fire safety remain with the children and their families for years to come.

Case study teachers teaching Firewise tended to believe children learn important fire safety messages including:

- GD GL GO
- not to play with matches
- knowing where their safe meeting place to meet is, and
- what smoke alarms are and why they are important.

It was difficult for teachers to demonstrate this learning because there is no 'test' of children's knowledge, but teachers did identify three different ways they notice children have learnt Firewise messages:

- by children's behaviour at school, for example if children find lighters or matches in the school grounds they hand them into the teachers
- by children's application of fire safety knowledge demonstrated at reading time when children spontaneously mention Firewise messages in response to stories about smoke or fire. For example, one teacher explained how when reading a story to a child about a man who runs when his clothes catch on fire was told by the child, 'he shouldn't run, he should stop, drop, and roll.'
- by parents reporting to teachers instances when children have demonstrated their fire safety knowledge. One teacher for example explained how a parent had been told off by her child for using matches in a poker game because they are 'tools not toys.'

Several teachers had much lower expectations about what young children can learn about being Firewise. These teachers didn't expect children to understand Firewise because it's too difficult to hold children's attention and they tend to misunderstand messages.

Firefighter perception

As discussed earlier the case studies identified two predominant attitudes and beliefs amongst firefighters interviewed: supportive and unsupportive.

Firefighters with supportive attitudes and beliefs value the Firewise programme and perceive it to make a difference to children's fire safety knowledge.

Firefighters with unsupportive attitudes and beliefs don't value the Firewise programme. They believe it is too politically correct, too long and hard to engage schools with.

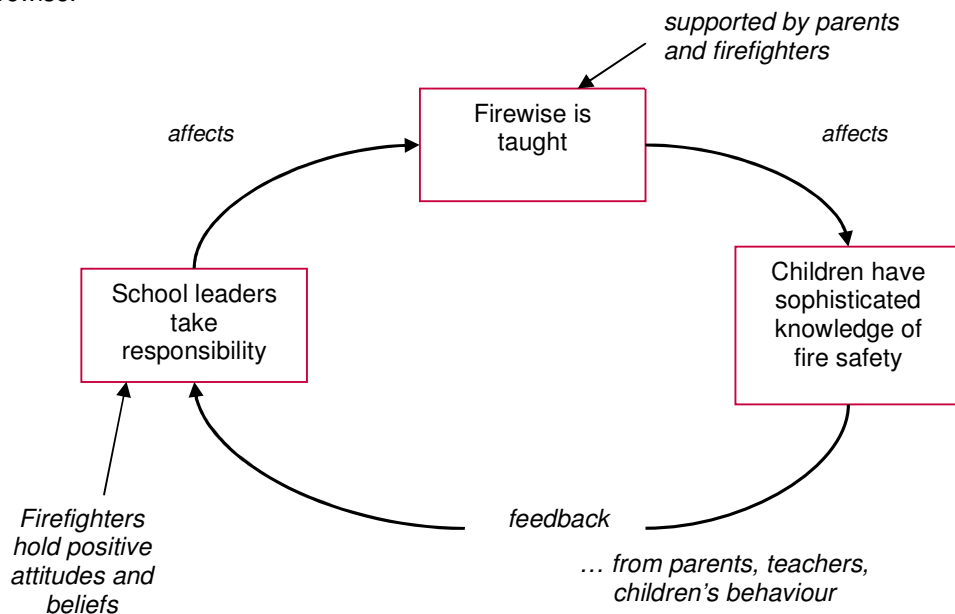
Conclusion

The observations are not a 'perfect' test of children's Firewise knowledge. There was variation in terms of when children had been taught Firewise, and we were testing one of a range of Firewise messages. However, the results strongly suggest that across the case study schools a clear pattern emerged showing that children taught Firewise had a more sophisticated understanding of the GD GL GO fire safety than those not taught Firewise.

Schools were very positive in both how they rated Firewise and the outcomes achieved. When parents were involved, they too valued the programme. The Firewise resource is seen by teachers and principals to be an essential tool to help children learn about fire safety.

In general, the pattern we find across case studies is that schools with leaders who take responsibility for teaching Firewise tend to be the schools that;

- teach Firewise
- have children who, in the observation, demonstrated sophisticated knowledge of fire safety
- get positive feedback, and
- are located in fire districts with firefighters who hold positive attitudes and beliefs about Firewise.



The case study schools were selected across two fire regions so that differences between regions could be investigated. The survey had shown there to be no regional difference in terms of participation rates. What we find is that the above pattern seems to be the key to understanding why schools that implement Firewise well achieve demonstrable results. The role of firefighters is important to influencing what is achieved. What we find when we compare case studies across the two fire regions is:

- in region 1 there is a cluster of firefighters in one fire district with unsupportive attitudes and beliefs
- in region 1 in one fire district the firefighters are delivering 'Firewise', and
- in region 2 there is central co-ordination of Firewise which includes a Firewise specific database, promotional material, motivation and reminding firefighters to contact schools. This co-ordination is seen by firefighters to be important for encouraging and driving Firewise in schools.

Conclusions and Recommendations

An effective investment

The survey and case studies indicate strongly that, amongst principals and teachers, there is a definite need for Firewise. There is a high level of support for the programme and demonstrable benefits.

A wonderful programme. Keep it up!

An important part of our planning and one we would not like to miss out on doing.

Excellent programme which helps the children understand fire safety.

Great programme - good reminder for the adults too.

Teachers do not have the time or the resources to develop programmes that are as comprehensive as Firewise. There will always be a place in the teacher's resource kit for Firewise or programme like it.

Recommendation 1: The Firewise for Year One and Two programme should continue.

Improving Uptake

We found that uptake of Firewise is high but Firewise may be precariously positioned within the school. Unless school leaders take responsibility for ensuring the teaching of Firewise, it may or may not be taught in the future. Further it is counterproductive for firefighters to take over responsibility for teaching Firewise. It leads to a further lack of engagement by schools, overburdens firefighter resources, and doesn't lead to productive outcomes. When school leaders take responsibility for ensuring Firewise is taught, the role of the firefighter changes from promoting Firewise to maintaining its relevance and importance.

Schools are unique. Each school has its own preferred time to plan teaching, its own set of circumstances to consider, its preferred way to be communicated with etc. In addition, staff changes can lead to new opportunities to engage schools with. Schools receive many requests to teach a huge range of programmes. They need to be reminded about Firewise.

Recommendation 2: Firefighters need to find strategies for engaging school leaders and encouraging them to take ownership for ensuring fire safety is taught. This is likely to necessitate a flexible approach to engaging principals centred on understanding the unique situation each school is in. We recommend firefighters spend time networking with schools and developing engagement strategies.

Recommendation 3: Engaging schools is an ongoing task. Firefighters need to be sufficiently resourced to promote and support the delivery of Firewise and sufficiently motivated. We recommend that a limit is placed on the number of schools a firefighter should be responsible for. We suggest this limit be in the range of 12 to 16 schools.

Recommendation 4: The attitudes and beliefs that firefighters hold about the value of Firewise affect their ability to engage schools to promote and support programme delivery. We recommend that the NZFS assign the responsibility of Firewise to staff dedicated to Firewise and/or offer training to staff who are not.

Improving delivery

The majority of teachers we interviewed delivered Firewise as intended in terms of the broad features of the programme. We found teachers:

- shortened the length of the teaching component
- expanded the scope of Firewise lessons to include other curriculum learning goals
- required/ did not require parent involvement in homework.

We also found that the majority of firefighter visits occurred during the middle of the programme, and firefighters departing from the Firewise presentation guidelines.

A significant departure from the intended Firewise programme occurs when the 'programme' is limited to a firefighter presentation.

Recommendation 5: The Firewise teaching component is currently too long. There appears to be scope to reduce the number of hours Firewise is expected to take to teach without compromising quality. We recommend developing options for teachers to deliver a shorter programme that is more focused on key messages. The Commission will need to determine what a Firewise child should know, what it is desirable for them to know, and refine the programme and resources.

Recommendation 6: Teachers need to be able to respond to a wide range of questions raised by children when they teach Firewise. For example, questions that arose in the observations include:

- Should children help others out of a burning building?
- Should children with broken legs walk out of a room filling with smoke?
- Is it important to stick to the GD GL GO slogan or can teachers adapt it?
- Should children when GD GL GO 'wriggle like worms'?

- Should children be encouraged to believe that family members will be ‘rescued’ by firefighters if they are in a house that is burning?

It is not possible or practical for the fire service to provide direct training or advice on all possible questions. We recommend that, as part of the teacher resource, teachers are provided with an overview of the key principals of Firewise so that they are equipped to respond to questions.

Recommendation 7: Parental involvement with homework is a valuable way to support classroom learning. It is important that teachers set clear expectations about how this should be done. Exercises on escape plans and safe meeting places seemed to be particularly valued. We recommend that homework engagement continues and, to maximise involvement, that it focuses on key messages. The role of the Fire Service is to communicate and influence schools and teachers in this regard.

Recommendation 8: Firefighters who currently deliver a one-hour Firewise presentation in place of the teaching component of Firewise do not achieve the desired results. We recommend that this approach ceases.

Recommendation 9: Firefighter support in visiting schools and recapping fire safety messages is a valued part of the Firewise programme. However, visits that focus on fire trucks and playing with hoses may distract children from learning fire safety messages. We recommend that firefighters should stick to delivering the firefighter presentation guides and avoid turning visits into goodwill visits. Other opportunities such as school fairs are better suited to such visits.

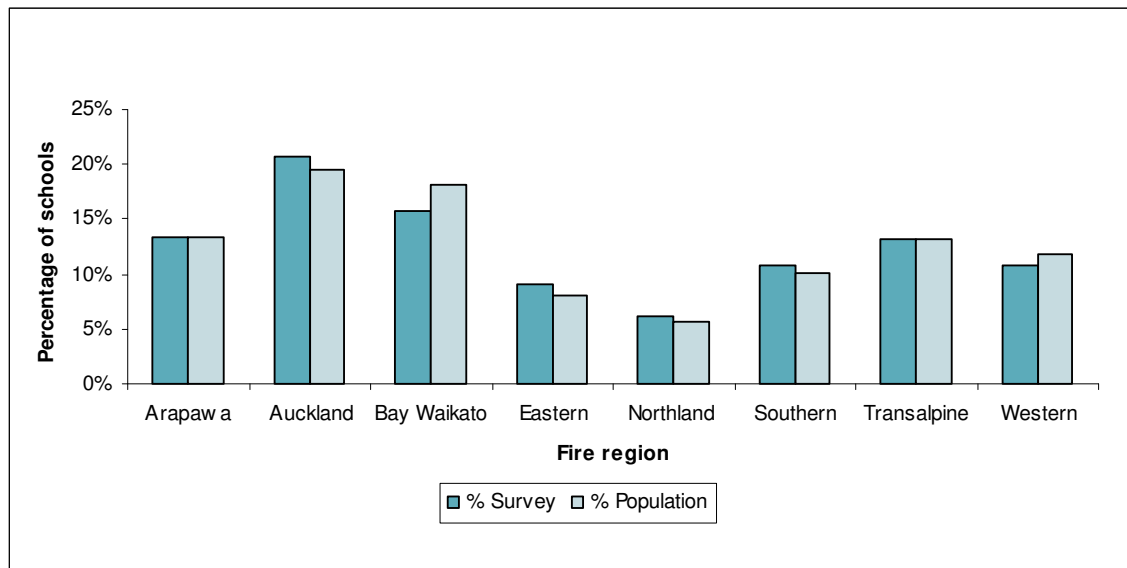
Recommendation 10: Firefighters’ approach to promoting and supporting the delivery of Firewise appears to vary across fire districts. To achieve consistency and provide support to firefighters, we recommend that the appointment of regional Firewise co-ordinators be considered. Their role would include: ensuring consistent practice; ensuring adequate resourcing; providing training and promotional material and generally supporting firefighters.

Appendix 1: A comparison of population and sample characteristics

Fire region

Figure 6 shows there is very little variation in the percentage of schools in the underlying population and the percentage of schools who responded to the survey.

Figure 6: Population and sample response by fire region

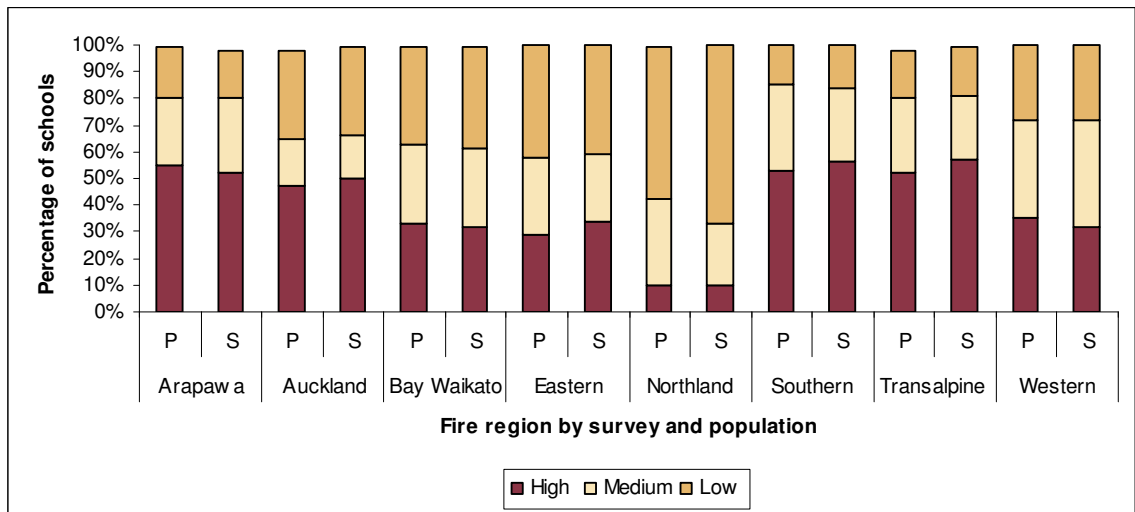


Source: MartinJenkins

School decile

Figure 7 illustrates a high degree of correspondence between the sample and population when analysed by fire region and by school decile.

Figure 7: Population and sample response by fire region and by school decile

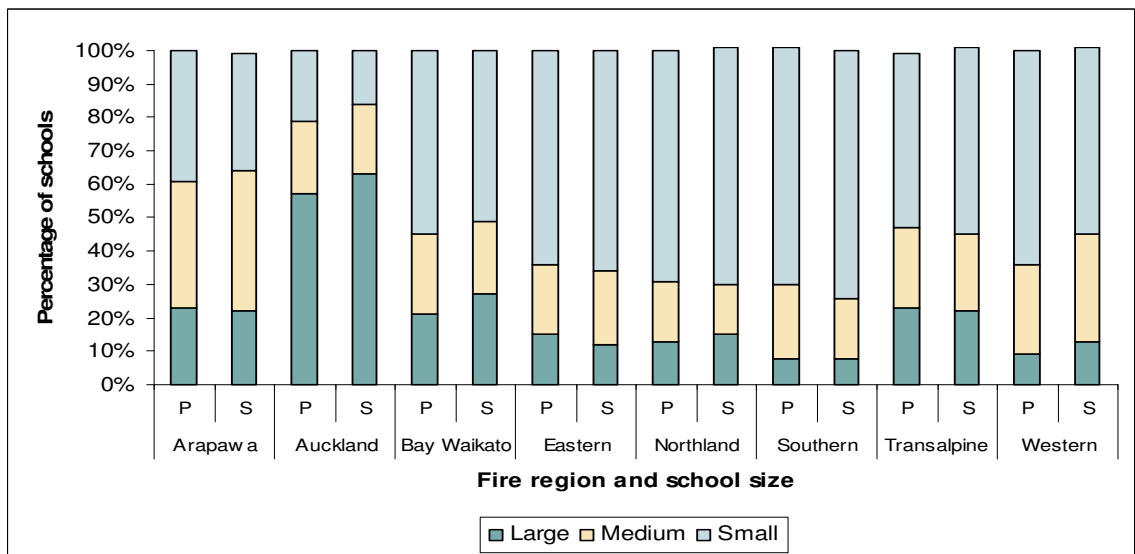


Source: MartinJenkins

School size

Figure 8 shows very little variation in the population and sample response by fire region and by school size.

Figure 8: Population and sample response by fire region and by school size

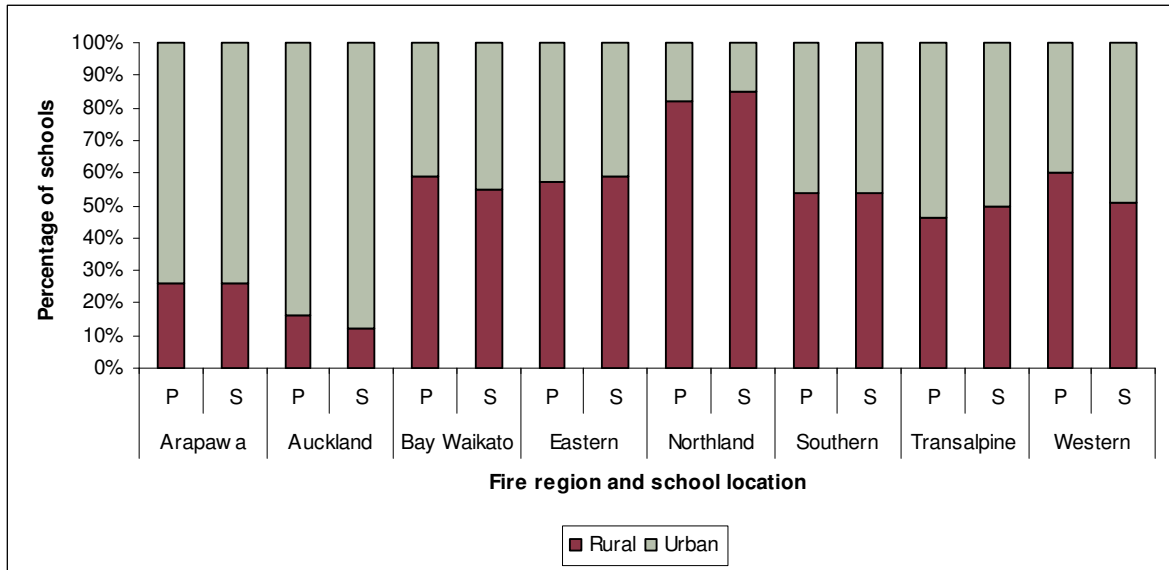


Source: MartinJenkins

Rural/Urban Indicator

Figure 9 illustrates there is no detectable variation between the population and sample for rural or urban schools within each fire region.

Figure 9: Population and sample response by fire region and by school location



Source: MartinJenkins

Appendix 2: Survey Questionnaire

Teaching Fire Safety (year 1 and 2)
Welcome
<p>Thank you for setting aside time to complete this survey.</p> <p>It has been designed to take no more than 10 minutes to complete.</p> <p>The information you provide is confidential.</p> <p>This survey will help the New Zealand Fire Service better understand and improve how fire safety is taught to year 1 and 2 students throughout New Zealand.</p>
School profile
<p>The following questions are about your school</p>
What position do you hold at your school
<p><input type="radio"/> Principal</p> <p><input type="radio"/> Deputy Principal</p> <p><input type="radio"/> Junior School Head Teacher</p> <p><input type="radio"/> Senior Teacher</p> <p><input type="radio"/> Teacher</p> <p><input type="radio"/> Other (please specify)</p> <p><input type="text"/></p>
In your school who makes decisions about what to teach year 1 and 2 students
(you may tick more than one response)
<p><input type="checkbox"/> Principal</p> <p><input type="checkbox"/> Deputy Principal</p> <p><input type="checkbox"/> Junior School Head Teacher</p> <p><input type="checkbox"/> Senior Teacher</p> <p><input type="checkbox"/> Teacher</p> <p><input type="checkbox"/> Curriculum Leader</p> <p><input type="checkbox"/> Other (please specify)</p> <p><input type="text"/></p>
The health and physical education curriculum covers a broad range of topics.
Given competing demands, how much of a priority is it to teach fire safety to year 1 and 2 children in the current school year?
<p><input type="radio"/> High priority</p> <p><input type="radio"/> Moderate priority</p> <p><input type="radio"/> Low priority</p>

Teaching Fire Safety (year 1 and 2)
Firewise programme (year 1 and 2)
<p>'Firewise' is a fire safety education programme, also known as 'Be Firewise.'</p> <p>Firewise is delivered by teachers using materials provided by the Fire Service. The material includes lesson plans and take home booklets for students. The programme is designed to take 16 -20 hours to teach. Firefighters may visit the students as part of the programme.</p> <p>The programme is aimed at two different age groups of students. We are interested in programmes delivered to year 1 and 2 students.</p> <p>Are you aware of the Firewise programme (year 1 and 2)?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>
Awareness of Firewise
<p>How did you become aware of the Firewise programme (year 1 and 2)?</p> <p><input type="radio"/> Local firefighters</p> <p><input type="radio"/> School staff</p> <p><input type="radio"/> Past experience</p> <p><input type="radio"/> Ministry of Education</p> <p><input type="radio"/> Other (please specify)</p> <p><input type="text"/></p>
Contact
<p>Who initiated contact about teaching the Firewise programme (year 1 and 2)?</p> <p><input type="radio"/> Fire Service</p> <p><input type="radio"/> The School</p> <p><input type="radio"/> Unsure</p>
Delivering the Firewise programme (year 1 and 2)
<p>The Firewise programme (year 1 and 2) has run for 6 years.</p> <p>Has your school ever taught the Firewise programme (year 1 and 2)?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>
The last year
<p>When was the last time the Firewise programme (year 1 and 2) was taught in your school?</p> <p><input type="radio"/> 2007 <input type="radio"/> 2006 <input type="radio"/> 2005 <input type="radio"/> 2004 <input type="radio"/> 2003 <input type="radio"/> 2002 <input type="radio"/> Unsure</p>

Teaching Fire Safety (year 1 and 2)

No Firewise programme

Why has the Firewise programme (year 1 and 2) not been taught at your school?

Alternatives to Firewise

Have you taught fire safety to year 1 and 2 students using materials other than the Firewise programme?

- Yes
 No

If yes, can you explain how you have taught fire safety?

Rating Firewise

How would you rate Firewise (year 1 and 2) as a programme to teach year 1 and 2 students fire safety?

- Excellent
 Good
 Average
 Below Average
 Poor

Please explain your rating

Teaching Fire Safety (year 1 and 2)
Fire Service
How would you rate your school's relationship with local firefighters?
<input type="radio"/> Excellent
<input type="radio"/> Good
<input type="radio"/> Average
<input type="radio"/> Below average
<input type="radio"/> Poor
Please explain your rating
<input type="text"/>
Awareness of visit
Are you aware that firefighters can, as part of Firewise, visit year 1 and 2 students to reinforce fire safety messages?
<input type="radio"/> Yes
<input type="radio"/> No
Role of firefighters
Thinking back to the last time the Firewise programme (year 1 and 2) was taught in your school.....
Did firefighters visit the year 1 and 2 students as part of the Firewise programme?
<input type="radio"/> Yes
<input type="radio"/> No

Teaching Fire Safety (year 1 and 2)

Firefighter visit

Did the firefighters visit students at the school's request?

- Yes
 No

At what stage in the programme did firefighters visit?

- Beginning
 Middle
 End

How helpful was the visit from firefighters to reinforce fire safety messages to year 1 and 2 students ?

- Very Helpful
 Helpful
 Neutral
 Unhelpful
 Very unhelpful

No visit

Why didn't firefighters visit your school as part of the Firewise programme (year 1 and 2)?

Would year 1 and 2 students have benefited from a visit from firefighters?

- Yes
 No

Why? Please explain

Teaching Fire Safety (year 1 and 2)
Other thoughts
Is there anything else you would like to say about the Firewise programme (year 1 and 2)?
<input type="text"/>
Fire Service
How would you rate your school's relationship with local firefighters?
<input type="radio"/> Excellent
<input type="radio"/> Good
<input type="radio"/> Average
<input type="radio"/> Below average
<input type="radio"/> Poor
Alternatives
Are year 1 and 2 students usually taught fire safety at school?
<input type="radio"/> Yes
<input type="radio"/> No
If yes, can you explain how?
<input type="text"/>
Almost finished
Is there anything else you would like to say about teaching fire safety in general at your school?
<input type="text"/>
Finished!
Thank you for taking time to complete the survey.
Now press 'DONE'

Appendix 2: Observation guidelines

Part one: Observation (15mins)

Purpose of the observation is for the researchers to assess children's awareness of fire safety.

Note:

- To avoid leading the children, please do not prompt. You can clarify or expand their responses.
- Try to ensure that the majority of the class takes part and avoid individuals dominating answering the questions.

Instructions:

- Show picture one
- Question 1: What can you see in the picture?
- Question 2: Can you see anything dangerous? What is it?
- Question 3: What will happen if the fire doesn't stop?
- Show picture two + place picture of standing person into room with their head in the smoke
- Question 4: What would happen if this person stayed in the room?
- Question 5: How should the person escape the room?

Part two: Fire Safety Lesson (15 min)

Objective: When you are in a room that is on fire you need to **get down, get low and get out**.

Suggestion for teaching lesson as tested in our pilot. Please adapt as you see fit.

- Place model of rubbish bin on fire near the window.
- We have a fire here in the classroom!!
 - (Reassure the class knows that this is pretend- but important to learn!)
- What do we need to do to get out safely?
- Discuss... have a child modelling this as you show the class what to do
 - Get down (from chairs)
 - Get low (down to the ground- the safest place to breathe)
 - Get out (the safest and quickest way (door/window)
 - ask the children what way they would go at school?
 - when out where do you go?
- Whole class practises the above
- Bring class back together to reflect on the lesson
 - Children talk with a buddy about
 - Where in a room does smoke go first?
 - What do you do if there is a fire?
 - Why do you need to get low?
 - Whole class feedback
 - What was the most important thing you learnt today?

Props: to be supplied by researchers

- Two fire pictures
- One picture of a person standing – one picture of person crawling
- Model bin on fire