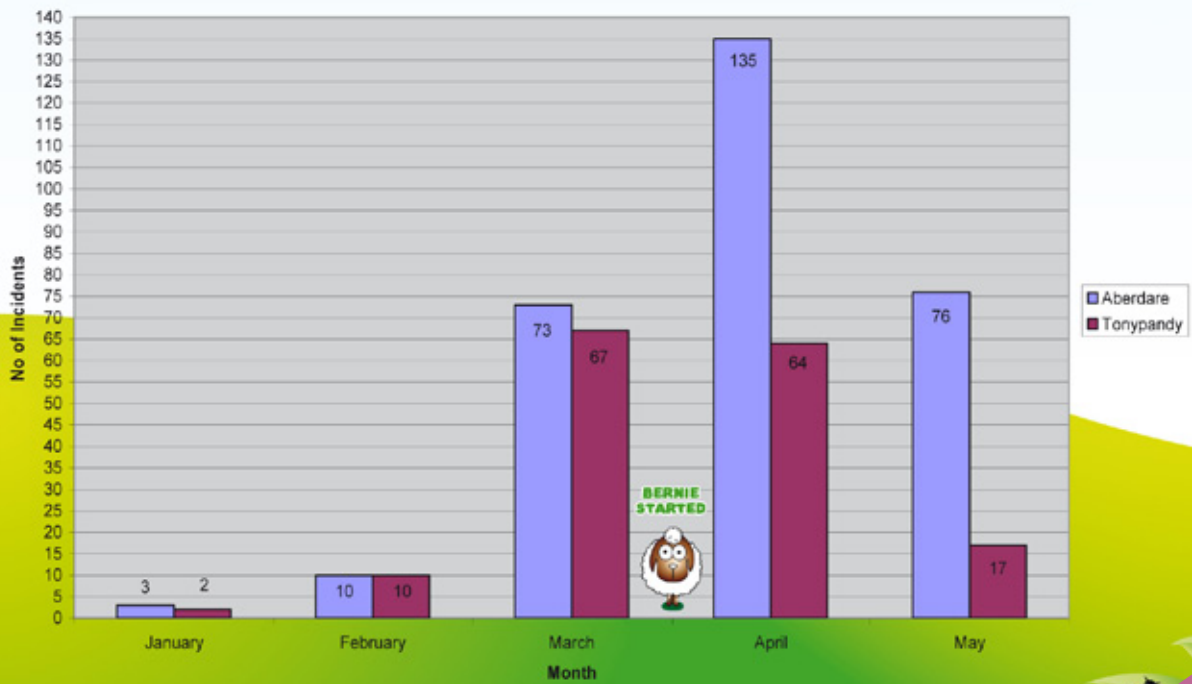


Deliberate Grass Fires in Tonypany and Aberdare by month (01/01/2010 - 31/05/2010)



A SOCIAL MARKETING PROJECT

To Reduce The Incidence of Deliberate Grass Fires in Wales, UK

Summary Report of Evaluation Phase

Prepared by Dr Sue Peattie and Dave Ansell

Executive Summary

The following report provides a brief overview of the Evaluation Phase of Project Bernie - a social marketing initiative to reduce deliberate grass fires in Wales.

This is the fourth report in the series, which follows the Total Process Planning Framework recommended by the NSMC. It begins with a recap of the recommendations from the Scoping Phase report published in October 2009 and then describes the methodology used for evaluation. The evaluation encompassed both extensive quantitative research and qualitative research with key stakeholders including:

- Comparison of deliberate grass fire incidents in Tonypanyd relative to Aberdare (control area) over the six week intervention period (13th March – 26th April 2010) and historical trends;
- Pre and post intervention questionnaires (1517 in total) with pupils in Tonypanyd and Aberdare;
- A debrief 'speed-dating' session with 43 members of the SWFRS Community Safety Partnership (CSP) staff who were involved in the intervention;
- Interviews with six SWFRS Community Safety & Partnership (CSP) managers responsible for designing and delivering the social marketing intervention;
- Interviews with other key Partners – Police, Forestry Commission, Asda, Tonypanyd Community College, Tonypanyd community (parents and young people) and the Youth Advisory Panel.

This report includes Outcome and Process evaluation as well as Cost/Benefit analysis.

Results indicate that Tonypanyd had 46% fewer fires during the 6 week period relative to Aberdare (3 times the original target goal). In addition, the social marketing project provided a catalyst for a number of improvements in effectiveness and efficiency within the CSP department.

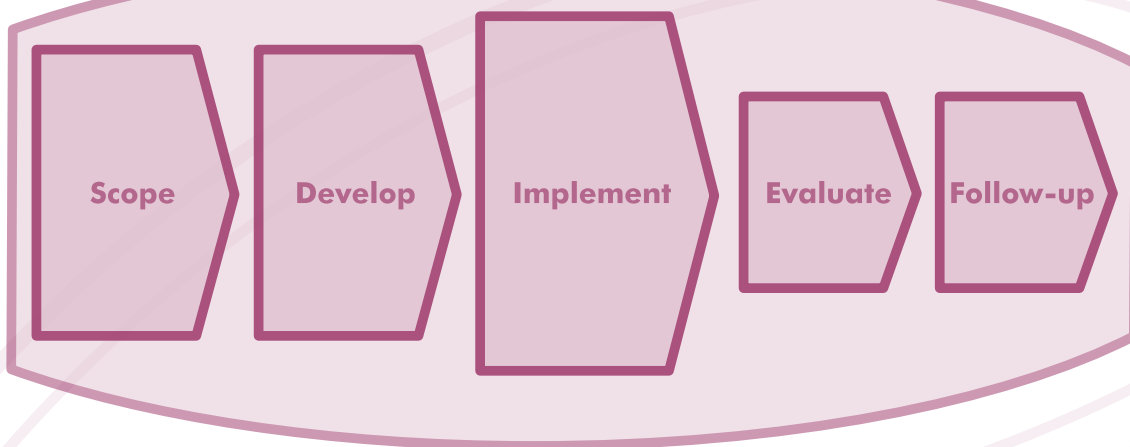
The Partnership working aspect was not as successful as hoped, but Project Bernie now provides a good framework for improving this in the future.

The report concludes with recommendations for expanding Project Bernie in the future which includes better project management and better partnership working.

Preface

This report provides a short non-technical summary of the Evaluation Phase for interested parties. It assumes a basic understanding of social marketing and sight of the Summary Scoping Phase Report (published October 2009), Summary Development Phase Report (February 2010) and Summary Implementation Phase Report (May 2010).

For the full report for any of the first four stages and/or more information about social marketing, please contact Dave Ansell, Social Marketing Project Manager, South Wales Fire and Rescue Service (d-ansell@southwales-fire.gov.uk). Feedback on this report is welcomed and can be sent to the same address.



Total Process Planning Framework

(NSMC Pocket Guide: Blair-Stevens a French, 2007)

Acknowledgements

We would like to thank all SWFRS CSP staff and Project Bernie Partners for participating in the quantitative and qualitative research that has informed this report.

Special thanks are due to Professor Robert Newcombe, Dr Fiona Davies, Professor Robyn Thomas, Professor Ken Peattie and Dr. Diego Vazquez from Cardiff University for providing their independent and specialist expertise on various aspects of the evaluation.

Key recommendations from Scoping Phase

The Scoping report recommended adopting a strategic multi-faceted approach that harnessed information, education, support, design and control components, to promote positive alternative behaviours and limit or remove negative ones.

Overarching Goal (OG):

To reduce the incidence of deliberate grass fires in the Tonypanydy area by 15% during the 2-week school Easter period (26th March 2010 – 12th April 2010) in comparison to the control area of Aberdare (allowing for any variance in weather or other external factors).

Behavioural Goal 1 (BG1):

To promote socially positive alternative behaviours and limit or remove opportunities for negative behaviour that could lead to deliberate causing of fires – with a particular focus on young people between 13 – 16 years of age (School Year Group 9 – 11).

Behavioural Goal 2 (BG2):

To encourage and support key professionals and organisations in working together and adopting a holistic and co-ordinated approach.

Evaluation Phase

The social marketing intervention took place over a 6 week period from Saturday March 13th to Sunday April 25th 2010. The main focus was on the school Easter holidays (26 March – 12 April 2010) when a programme of diversionary activities for the young people of Tonypanydy was provided. However, from historical statistical data, the 2 week period pre and post Easter school holidays had also been identified as key times when deliberate grass fires posed a threat. For this reason, the intervention also included the fortnight before and after the two week Easter period. At these times, as well as during the school Easter holidays, SWFRS fire patrols were in full operation at known hot spot times and locations.

The purpose of evaluation is to measure the effectiveness of intervention elements – individually and collectively – based on qualitative and quantitative data. A baseline set of data was established in order to compare actual performance against the planned objectives of the social marketing intervention. This report includes Outcome and Process evaluation as well as a Cost/Benefit analysis.

Outcome Evaluation¹ - this involves assessing the extent to which the stated aims and objectives (and more specifically the behavioural goals) of the work have been achieved, drawing on short, medium and longer term indicators. As well as considering behaviour (the extent to which people have changed behaviours, and maintained positive changes), it should consider changes in knowledge (awareness and the extent to which information was understood and retained); and attitudes (the importance people attach to the issue, in this case grass fires, and the target behaviour).

Overarching Goal (OG):

To reduce the incidence of deliberate grass fires in the Tonypanydy area by 15% during the 2-week school Easter period (26th March 2010 – 12th April 2010) in comparison to the control area of Aberdare (allowing for any variance in weather or other external factors).

Methodology:

Detailed data is available from SWFRS Performance Management Unit recording the number of deliberate grass fire incidents in Tonypanydy during this period. However, it is important to allow for the strong possibility of large year-to-year differences that are simply due to weather. Consequently the data analysed incorporates two kinds of control. Fires in the Tonypanydy area were compared to fires in the Aberdare area, in which no such intervention took place. This is an ideal choice of control area in several respects. The two areas were both identified as hotspots for deliberate grass fires in preceding years, relative to other small areas of Wales. In each of the 6 preceding years, numbers of fires in the two areas were similar (though not identical). The numbers of fires fluctuated greatly from year to year, but retained the same pattern of good and bad years. In addition, the two areas are almost adjacent, separated only by the Rhondda Fach mountain. Thus, there is only a slight possibility of contamination, i.e. that the benefits of the intervention might spill over into the control area. The two areas are also of broadly similar topography, so they would be expected to have similar weather.

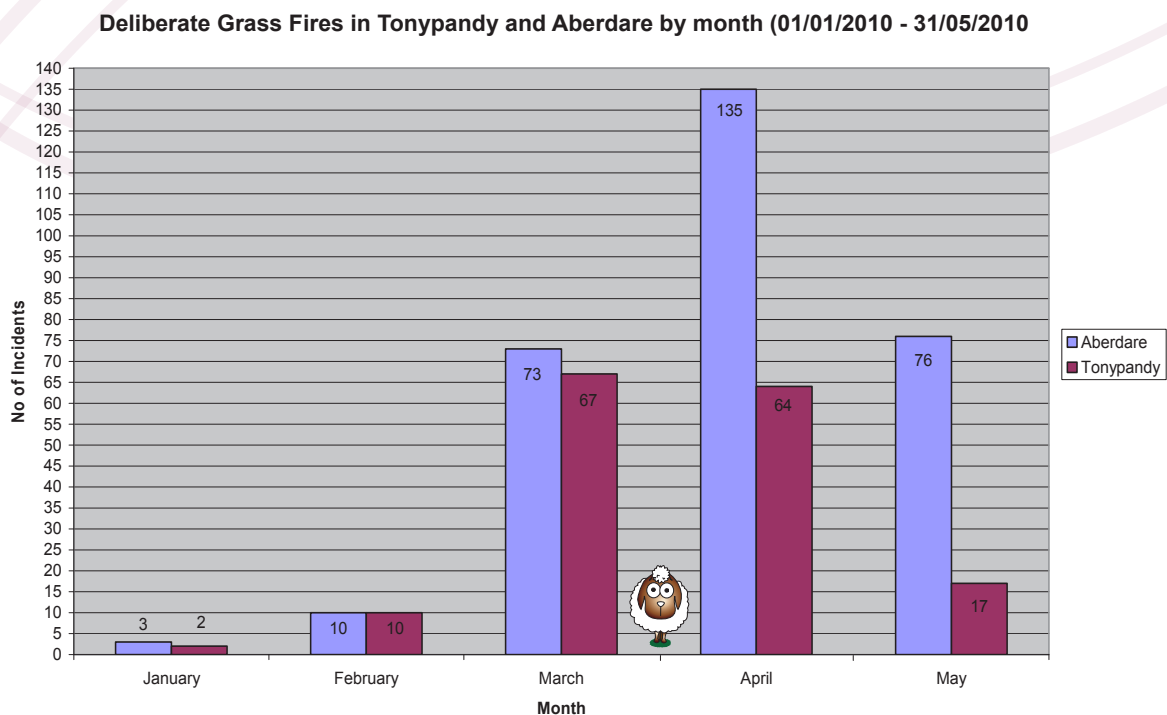
¹ NSMC Planning Framework 2008

Outcome:

An independent analysis of the grass fire statistics was prepared by Robert G. Newcombe (PhD CStat FFPH, Professor of Medical Statistics at Cardiff University), applying the same rigorous evaluation techniques normally used for epidemiological interventions. His conclusions are:

- For the fortnight that coincides with the Easter break, the best estimate of benefit is a **31%** reduction (double the original goal);
- However, a more statistically reliable measure would be for the 6 week intervention period (2 weeks pre, during and post Easter). The figures indicate that Tonypandy had **46%** fewer fires during the 6 week period than would be expected on the basis of the number of fires in Aberdare in 2010 and the numbers of fires in the two areas during the preceding 6 Springs;
- For the fortnight following Easter when the weather was hot and sunny and particularly conducive to fire-setting, the intervention appears to have made a particularly significant impact, estimated as a reduction of **74%**.

Thus the overall results shows that the social marketing intervention had a beneficial impact. In addition, it would appear from the following graph that this change in behaviour was maintained in the short term beyond the intervention period.



(NOTE: complete details of the calculations are available in the full Evaluation Report)

Behavioural Goal 1 (BG1):

To promote socially positive alternative behaviours and limit or remove opportunities for negative behaviour that could lead to deliberate fire setting – with a particular focus on young people between 13 – 16 years of age (School Year Group 9 – 11).

Methodology:

Baseline data was collected on knowledge, attitudes and behaviours of young people in both Tonypany and Aberdare via questionnaires. These were administered to Year groups 7-11 in Tonypany Community College, Aberdare Girls School and Aberdare Boys School. The pre-intervention questionnaire was distributed in early March 2010 and the post-intervention survey to measure changes was administered in May 2010.

Outcome:

Number of Respondents to surveys (1517 in total)

	Tonypany	Aberdare
Pre-intervention	244	687
Post-intervention	327	259

Knowledge:

- In both Tonypany and Aberdare there was an increase post-intervention in the percentage of pupils who thought that “most” or “all” grass fires were started deliberately, from 74% to 84% in Tonypany and from 65% to 77% in Aberdare;
- In both Tonypany and Aberdare there was an increase post-intervention in the percentage of pupils who gave the correct answer (2) to the number of fire engines in their local fire station, from 28% to 34% in Tonypany and from 10% to 15% in Aberdare.

This seems to indicate that conducting research into the issue, even without the intervention, increased young people’s awareness of deliberate grass fires as a social problem.

- In Tonypany there was better knowledge post intervention on the number of fire fighters available in each local station. The percentage giving correct answer of 10 increased from 6% to 11%. However, there was a decrease in correct answers in Aberdare - down from 11% to 6%;
- There was no change in Tonypany (20%) pre and post intervention, giving the correct answer of £2000 for the cost of tackling a fire. However, there was a slight decrease from 26% to 24% giving correct answer in Aberdare;
- Only one person in Aberdare post-intervention stated that he had heard of Project Bernie, but he did not elaborate on the answer.

Attitudes and Opinions

- Post-intervention, there was significantly more agreement in Tonypandy that “some kids set grass fires to impress others”. There were no other significant differences in the responses to the bank of attitude and opinion statements. In Aberdare, the only statement where there was a significant difference was a greater agreement in the second questionnaire with “The Police should do more to catch the firesetters”;
- 15% of Tonypandy respondents perceived an increase in fires following the intervention. This was not borne out by the facts;
- In Tonypandy it appears that the intervention increased awareness of the need to take responsibility for grass fires, as the percentage agreeing that a suggested body or group should be responsible for reducing grass fires increased by 10% for the Fire Service, by 4% for young people and by 5% for parents. Aberdare showed no increases in these percentages;
- Although fewer respondents in both areas post-intervention said that grass fires affected them, there appeared to be a heightened awareness in Tonypandy post-intervention as to some of the effects of grass fires: the percentage expressing concern for the environment went up from 8% to 15% (only 8% to 9% in Aberdare); the percentage concerned about the appearance of the area rose from 9% to 15% (fell in Aberdare); and the percentage concerned about smoke or fumes rose from 4% to 8%, with a slightly smaller 3% rise in Aberdare;
- The intervention itself appeared to make an impact as 66% of Tonypandy respondents believed there had been more to do this Easter holiday.

Behaviour

- One in six of the respondents had attended at least one Bernie activity;
- The main reason cited by those who did not attend was that their friends were not going.

(NOTE: Appendix 2 contains a summary of the post-intervention findings from the survey conducted in Tonypandy Community College. Complete details of all surveys including copies of the questionnaires are available in the full evaluation report)

Behavioural Goal 2 (BG2):

To encourage and support key professionals and organisations in working together and adopting a holistic and co-ordinated approach.

Methodology:

Qualitative interviews and focus groups were conducted with personnel from both within SWFRS and from External Partner organisations to evaluate changes in knowledge, attitude and behaviour. These were conducted with:

- 6 managers from SWFRS;
- 43 SWFRS CSP department staff;
- Representatives from Partner organisations – Police, Forestry Commission; E3 (Tonypandy Community College), Asda Tonypandy;
- Tonypandy community (parents & pupils), Youth Advisory Panel.

Outcome:

Internal working within SWFRS

To date, there has often been an acceptance of the annual deliberate grass fires with an expectation by all departments within SWFRS (e.g. CSP, payroll, stores and local fire stations) that this would be a busy period of the year. Although some educational events continued to take place in schools, the common view was that there was no other solution to this problem.

In post intervention interviews there was consensus that:

- Project Bernie was quite different to previous projects in being very rigorous, systematic, evidence led and involving the target audience. The average scoping phase for previous projects had been about 1 month. This compares with the 12 months of research for this project:

“I think what was really different about this project was that we really got to unpick the data piece by piece, it was very sequential, it was very honest more than anything else”;

“In the past there was no sort of involvement in the target group... We’d assumed alright this will be good, this is shiny, this is pink and fluffy. This has got to work because I have created it .”

- There was a new understanding that social marketing methodologies can be used upstream (e.g. funders), downstream (e.g. fire perpetrators) and sideways (e.g. partners or internal staff). In all cases it was necessary to understand the target audience, their agenda and adopt an appropriate intervention mix (educate, control, inform, design, support). It was acknowledged that all future projects could benefit from the applications of social marketing principles and methodologies;
- The project had been extremely successful in uniting CSP staff who had formerly tended to work in silos (even bringing together staff that historically had opposing perspectives on the deliberate grass fire issue):

“It’s certainly gelled the CSP department – the staff. And the buzz it created - certain barriers and personalities were broken down and it is a happy ship and that’s something that I would like to see continue.”

- The project has demonstrated to staff that change can be acceptable and that it is not necessary to stick to a rigid organisational structure. It is often more effective and enjoyable to adopt a matrix/project style, with teams working towards one common goal. It has also shown that sometimes it is worthwhile taking risks and being more ambitious about tackling issues, rather than accepting that some problems are intractable.

Partnership working:

Partnership working has become an extremely important way of working in the public sector. Many benefits are seen to arise from partnership working and other forms of inter-organisational collaboration. In particular, this mode of working is seen to offer: the best solution in resolving intractable social problems; the most efficient way of utilizing and sharing scarce resources and institutional knowledge; an effective approach to avoiding problems of service gaps and ensuring seamless service provision; synergistic approaches to innovation and inter-organisational learning; and a solution to demands for greater citizen democracy and inclusive forms of governance.

Research by Hardy, Lawrence and Grant (2005)² has shown that successful partnership working is based on cooperative inter-organisational action that produces innovative, synergistic solutions and balances divergent stakeholder concerns. To achieve this, two key issues need to be at the forefront in the forming and maintaining of successful partnerships. These are:

- achieving a collective identity;
- translating this identity into action through the achievement of common meanings and goals.

As noted above, Project Bernie was successful in achieving a stronger internal group identity within SWFRS CSP. However, this united and common identity was not as evident in the inter-organisational partnerships. The interviews, both within the Fire and Rescue Service as well as among other Partners, suggested ambivalence over the success of Bernie in strengthening and developing partnership relations and working. A number of interrelated reasons were attributed to this, which relate back to the Hardy et al. (2005) criteria for successful partnerships, centering on issues of partnership identity and the partnership goals:

“The partnership side was disappointing but it didn’t surprise me. Because I’ve worked in partnerships before”

Identity

A common challenge in partnership working is creating an identity that reflects the various partners and their organizations. However, Project Bernie is seen primarily as a Fire and Rescue Service project with partners making specific contributions, rather than having a complete and separate partnership identity in its own right. Instead there were perceived to be ‘pockets of partnership working’ within a wider Fire Service owned project, especially

² Discourse and collaboration: the art of conversation and collectivity identity C Hardy, T Lawrence, D Grant - Academy of Management Review, 2005

in relation to some of the activities taking place during the core weeks. However, the Fire and Rescue Service are seen to be setting the agenda and therefore the establishment of an identity for Bernie separate from the Fire and Rescue Service was difficult to achieve:

"It become a Fire and Rescue Service thing"

"Partnership working is the way forward without a shadow of doubt. The ability to achieve partnership working is the difficult bit. Bernie is about partnership working but it turned into a South Wales Fire and Rescue Service initiative. And it shouldn't have."

Once Bernie was established as a project and a goal, then partners worked effectively in contributing to the success of the project. However, it is questionable whether this is partnership working in the pure sense.

Need for common and meaningful goals.

Successful partnership working involves achieving common, meaningful goals that reflect the partnership as well as the integrity of the different partner's agendas and the concerns of their host organizations. The aims of the partnership, in particular, need to be meaningful for each of the partners. However, as the project was seen to be owned and driven by the Fire and Rescue Service, then this would tend to inhibit the achievement of goals that are relevant and resonate with the other partners:

"The key to partnerships is recognizing different agendas and common areas."

"We need to ask what's going to float their boat?"

"What's going to be necessary to get these people on board? I think we could have done that better."

It is apparent the project would have benefitted from a clearer common identity, separate to that of SWFRS and from involving the key stakeholders/ partners earlier in the project. This would involve negotiating and arriving at common aims and understandings among the different stakeholders. More efforts are needed at the planning stage to encourage greater involvement in formulating the aims and connecting with the various partner host organization agendas:

"One of the major pressure points for us was that we started too late – without a shadow of doubt." [commenting on when they got people on board with the project]

In addition, more thought should be given to thinking about the needs of partners in terms of their own accountability, key performance indicators and frames of reference.

However, recognition of the importance of partnership working in the delivery of public services was an issue highlighted by all the interviewees. Furthermore, the effective roll out and replication of Project Bernie in new areas was seen to hinge on the achievement of effective partnership working.

“We need partnership working if the project is going to be sustainable. Bernie in the future won’t work without partnership working”

PROCESS EVALUATION - this involves³:

- assessing the process and capturing learning from the work (at Scoping, Development and Implementation stages);
- considering such factors as efficiency, effectiveness, equity, quality, engagement and management processes;
- engagement and view of key parties e.g. the team undertaking the work and key stakeholders.

All SWFRS CSP staff were utilized during the 6 week intervention period. Staff took it in turns to work across teams and experience all aspects of the project. This provided a new opportunity for staff to work with different colleagues to those encountered on a normal daily basis. Staff liaison and regular team meetings took place to develop a coordinated and holistic approach to the project. Comprehensive ‘Team Rota Schedules’ were produced identifying who was working when and where.

Methodology:

A Debrief session was held with 34 members of the SWFRS CSP staff who were involved in the intervention, arranged in two sessions on separate days to give all personnel an equal opportunity to attend. Those unable to attend were given the opportunity to feedback in writing. All staff were also invited to feedback anonymously if they preferred. This allowed every member of the department the opportunity to express their views and opinions.

The debrief sessions were arranged into individual topics to cover all aspects of the project. These were:

- Patrols;
- Promotional Materials (hoodies, key rings, pin badges, window stickers etc);
- Media (newspaper, radio, TV, billboards);
- Diversionary Activities & other potential workshops not offered.;
- Facebook & Website;
- Refreshments & Welfare (personnel and delegates);
- Internal Communications & Internal Partners;
- Staffing & Resources;
- External Partners

³ NSMC Toolbox 2010

To make the process more engaging and enjoyable, the sessions were run along the lines of 'speed dating'. For each topic staff worked in a series of small groups to tackle three key questions:

- 1) What went well (good bits)?
- 2) What could have been better (not so good bits)?
- 3) How do we make this bigger to cover 4 Unitary Authorities (UA's) in the future?

Each discussion group lasted 10 minutes, was run by an independent and impartial facilitator with the responses collected for subsequent transcription by the secretary responsible to the area manger for Risk Reduction.

Also included in this analysis is feedback from a focus group with staff at Tonypany Community College who were involved in the delivery of Bernie as well as feedback from the other qualitative interviews with key stakeholders.

Outcome:

This feedback provided extensive and comprehensive views on the strengths and weaknesses of this pilot social marketing project and what would be required to extend it to other areas in the future.

Some of the strengths highlighted include:

- The regular Fire Patrols around the community demonstrated a new 'zero tolerance' approach whilst allowing interaction with the local residents who were happy to see that some action was being taken to tackle the deliberate grass fire problem:

"All the strategic groups we sit on were aware of the patrols and their value. It was well received by everyone in the community"

- The Bernie logo and brand became pivotal, gaining lots of attention and recognition throughout the community including neighbouring villages. Everyone could relate to the Welsh sheep and the cartoon character appealed to all ages (it would not have worked so well with, for example, a fireman icon).The Bernie hoodies, especially the pink ones, were the most successful promotional article:

"Hoodies were excellent and very worthwhile. They gave an image to the project and were worn with pride. The kids soon realised that you had to earn one"

- Facebook was an essential and successful communication tool allowing two way interaction with a large number of young people in a personal manner through their preferred media. It also allowed the young people to view images of their achievements from the events and discuss with friends what they had accomplished:

“Facebook was excellent. All the kids said I was talking to Bernie yesterday. It was good for putting up the photos of what they have achieved”

- Most of the diversionary activities were well attended and successful especially Bush craft, Fire fighter for a day, abseiling and the workshops. Many of these activities incorporated educational elements as well as practical, transferable skills:

“Is there going to be anymore activities going on because I would love to do more to help stop deliberate grass fires?” (Facebook comment)

“I had loads of fun doing firefighter for the day last week :)” (Facebook comment)

“Jonny and Adrian were great. I loved the rat run. I learnt how to work as a team” (feedback from activity)

“Had a wicked day and would definitely apply for a job with the Fire Service. The best part was the Search and Rescue” (feedback from activity)

“They both had a great time and didn’t stop talking about the activities. Thank you all” (parent feedback from activity)

“It was great fun. It shows what people put fire fighters through. Dave and Ash encouraged us” (feedback from activity)

- The Design and Print team were extremely helpful and produced documents and products of the highest quality;
- Appointing a project manager with no previous social marketing experience (& therefore no pre-conceived ideas) but who had top management backing was effective as was using external experts in social marketing and project management to add rigour;
- Project Bernie adopted a Strategic Social Marketing mix with 5 key delivery teams (inform, control, design, educate, service / support). It has been evident that no one delivery team would have succeeded on its own but success was due to them all addressing the issue in a holistic way.

Some of the weaknesses highlighted included:

- Confusion over the protocol and procedure for reporting incidents to South Wales Police (SWP) and SWFRS Fire Control;
- Some flaws in the activity booking system, logistics, equipment, facilities and distribution of the hoodies;
- Insufficient opportunity for the Tonypandy fire station crew and SWFRS staff from other departments to be involved;
- Differing levels of involvement of external Partners;
- Overburdening of some staff with responsibilities e.g. Facebook, project management , some of the diversionary activities & fire patrols;
- Limited internal communications (to get internal buy in) and external communications to Partners;
- Inadequate time management and lack of resources.

Cost Benefit Analysis and Return on Investment

This analysis looks at the range of costs and benefits associated with the BERNIE project. In theory, if benefits exceed costs such an intervention would be justified on economic grounds. Economic costs and benefits have been accounted for as fully as possible. However, a proviso is necessary - the analysis does not attempt to monetise all costs and benefits. This is particularly important in terms of policy implications, since non economic benefits are expected to be significant while non economic costs are negligible. Specifically, a monetary value associated with the potential damage caused by deliberate grass fires (e.g. to forestry) is not calculated. In addition, environmental benefits (e.g. carbon emission reductions and protection of biodiversity in the area) and social benefits have not been included in the calculations. For example, South Wales Police statistics for the period (see Appendix 4) indicate a significant reduction in other forms of anti-social behaviour.

The Return on Investment (ROI) evaluates the efficiency of the investment and allows comparison with alternative investments. The return on investment formula is:

$$\mathbf{ROI} = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

If the ROI is negative, the project is not economically viable and it should have not been undertaken (French et al, 2009).

The results in Appendix 3 show that from 2010 net costs are lower than benefits (savings achieved) leading to a positive ROI as early as the first year of the intervention. This suggests that even if the project were discontinued, Project Bernie has been successful on economic grounds; reached break-even point and provided value for money. However, if the project is continued, the ROI will have doubled in just 2 years and it will keep providing increasingly above average returns.

Conclusions

Overall Project Bernie has delivered beyond everyone's expectations. In addition to reducing the number of deliberate grass fires, there appears to have been a change in the awareness and attitude of the community to the issue:

"People are far more aware of the issue and perception of the incidents. It has changed the views of 'it's normal, let's except it' to 'let's do something about it.'"

The social marketing approach has developed a more holistic and harmonious internal work force within the CSP department, with personnel developing a greater understanding and appreciation of each others' differing roles. There is great interest and enthusiasm from other SWFRS staff to be involved in future initiatives.

Although the partnership aspect of the project was less successful, SWFRS can now go to the table with a solution rather than a concept. Project Bernie can in many cases offer something tangible which also meets the agenda of other organisations. There is a genuine willingness from all stakeholders to improve partnership working on this issue in the future:

".....looking back on it, we could have done more. It was a very good start but next year the experience will be bigger and better and more powerful."
(quote from Partner)

Recommendations

Recommendations for extending Project Bernie fall into two main categories:

Better project management including:

- Appointing a dedicated co-ordinator or team of people depending on the size of the proposed area to be covered;
- Being aware that to maintain the behaviour in Tonypandy, the intervention approach will need to be continuously rejuvenated and maintained;
- Appreciating that any new target areas may be different to Tonypandy and therefore there is a need to listen, learn and adapt the approach to the target audience;
- Earlier planning and tighter control on all aspects of the intervention (e.g. number and contents of activities offered, resources, booking system for activities, staffing, training of personnel, budgets, communications);
- Drawing up guidelines in collaboration with SWFRS Print and Media team on the protocol for using the Bernie brand in order to maintain its integrity.

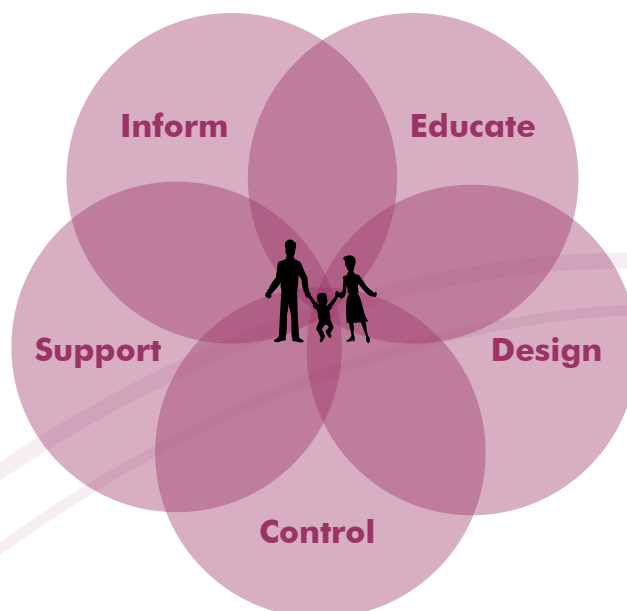
Better partnership working.

Expansion cannot be achieved by SWFRS working in isolation but will need support and development from high level strategic managers, Unitary Authority CSP's, South Wales Police, Local Education, Forestry Commission Wales and other partnership working. Deliberate grass fires are now seen as an issue that affects ALL partners. In order to develop stronger partnerships it is recommended that:

- Partnerships are organised at a strategic level in the form of a service level agreement but with co-operation at strategic and tactical levels. Many good partnerships are built on personal relationships therefore it would be particularly advantageous if the continuity of partner representatives could be maintained (even if their own internal job role changes);
- Use the existing partnerships (e.g. E3 programmes, Asda) which may also available in other areas to be targeted;
- Liaise and obtain support for resources and assistance from other community groups and the private sector;
- Involve all partners at an earlier stage and keep them fully engaged throughout.

Appendix 1 : Some facts and figures on the Strategic Social Marketing Mix

Strategic Social Marketing Mix



Influencing behaviour - 5 primary domains (NSMC Pocketbook: Blair-Stevens & French, 2009)

Project Bernie adopted a Strategic Social Marketing mix with 5 key delivery groups (Inform, Control, Design, Educate, Service / support).

INFORM

- Facebook went live on 24th February becoming popular and successful very quickly with 161 friends joining in the first 7 days. On Monday 15 March, 2 days after the first high visibility patrol, 95 people joined in 24 hours. A total 1022 people became friends of Bernie overall. On average Bernie was chatting live to 15 young people a night mostly between 20:00 and 22:00.
- From the 21 Feb 2010 to the 25th May 2010 the English website had 1867 hits and the Welsh version 51 hits.
- Project information was sent to over 40 national and international contacts
- For 12 days out of the 16, SWFRS staff had a presence in Asda, speaking to the public regarding Bernie.
- 5 meetings were held with the Youth Advisory panel (5 boys and 2 girls) to obtain feedback on Bernie branding; Facebook & website including the content and style; promotional material; post intervention analysis.

CONTROL

- 121 Patrols were carried out over a 6 week period. Each patrol had 2 occupants and averaged a 7 hour period. This equates to 1694 staff hours and use of 121 vehicles.
- 5 young people were arrested with 1 prosecution for setting deliberate grass fires.
- 30 local businesses pledged their support to a voluntary scheme concerning the sale of matches and lighters to persons less than 18 years of age.

EDUCATE

- In order to continue educating children on the consequences of deliberate grass fires for people, property and their environment , 2 members of SWFRS staff underwent training to deliver the Forest Schools education program. So far, three groups of 13 year olds have received a one day forest schools session and a local primary school is due to start in the autumn term.
- 15 drama students from Year 10 Tonypandy Community College researched and produced a DVD on deliberate grass fires. Their research included attending a Fire Service presentation, visiting a Fire Station and gathering views from the community and fellow students. The film includes short interviews portraying representatives of the community including youths, parents and elderly persons. It is planned that the DVD will be seen by local primary schools and youth voluntary organizations during the next year.
- 24 educational events were delivered to a total of 710 pupils from Year groups 8,9 & 10 at Tonypandy Community College

DESIGN

- An agreement was made between the Probation Service and the Forestry Commission that they would use people on Community Service to clear areas of bracken near to the forestry. This operation was conducted on 1 occasion

SUPPORT

- The activity events had provision for a total of 360 places. Of these there were 312 attendees with an even 50 - 50 split of female and male. Each received a certificate of attendance incorporating the Pledge conceived by the Youth Advisory Panel **"I am helping and supporting Bernie in reducing deliberate grass fire across Wales"**.
- From the initial order of 750 hoodies there are 7 pink and 63 black remaining

Appendix 2 - Summary of post-intervention findings (Tonypandy)

Questionnaires returned

	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Total
Male	43	49	26	15	21	154
Female	47	41	38	17	28	171
Total	90	90	64	32	49	325

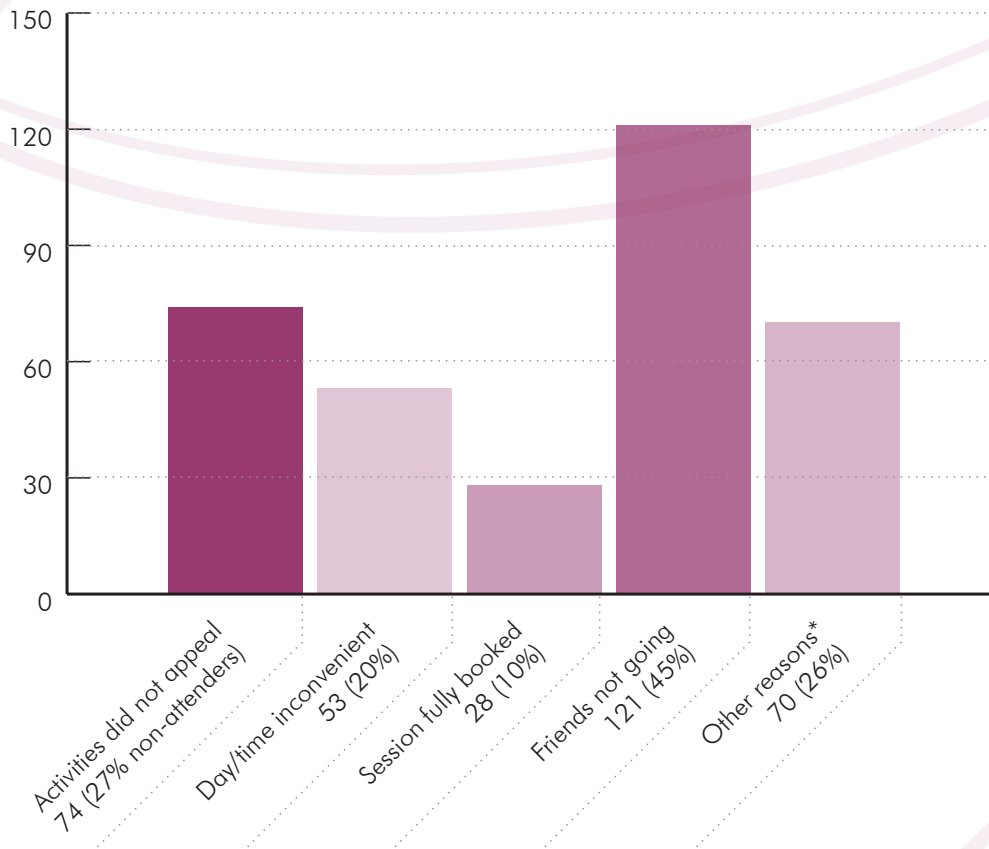
Plus 2 more who omitted to answer whether male or female.

Response to activities

201 respondents 66% (86 boys, 115 girls) said there had been more to do in the Easter holidays.

272 did not attend any Project Bernie activities; 55 attended one or more activities.

Reasons for not attending:

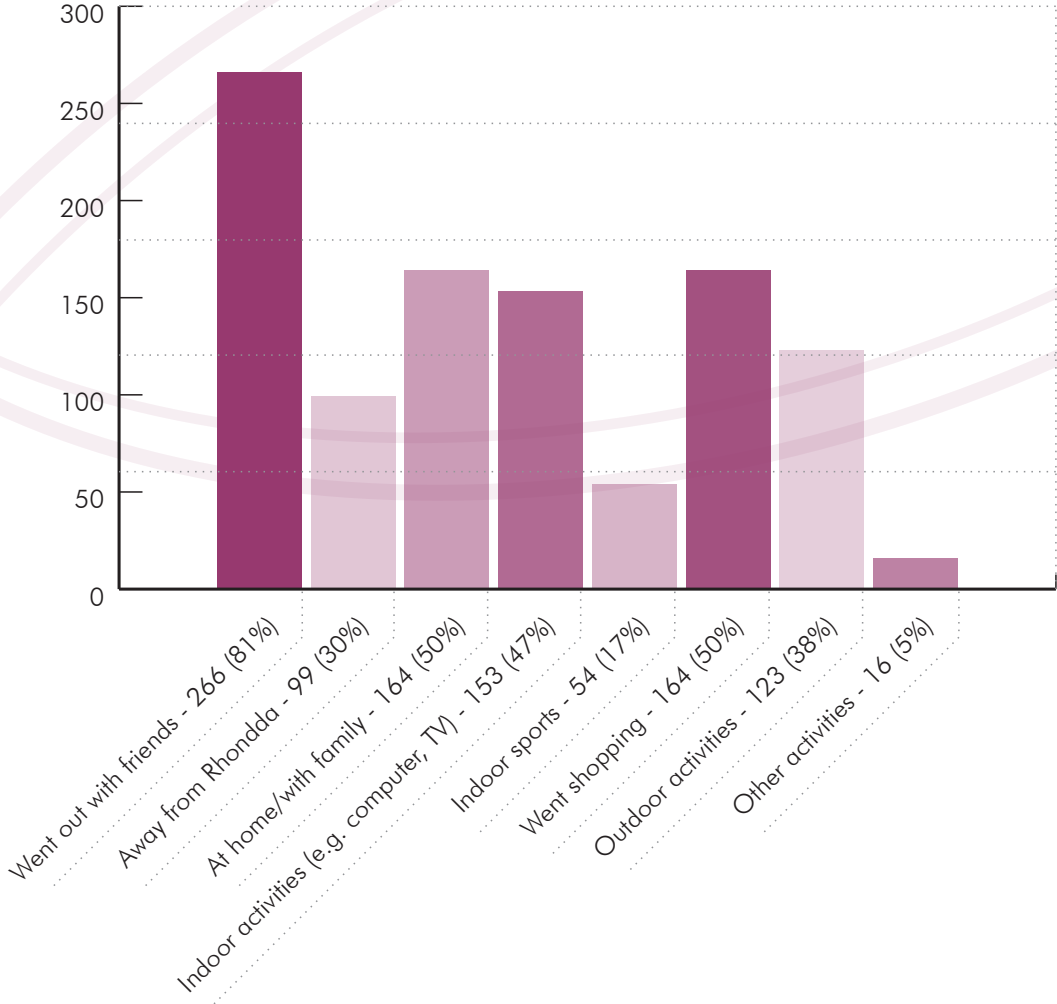


*Most frequently mentioned were "on holiday" and "did not want to go"

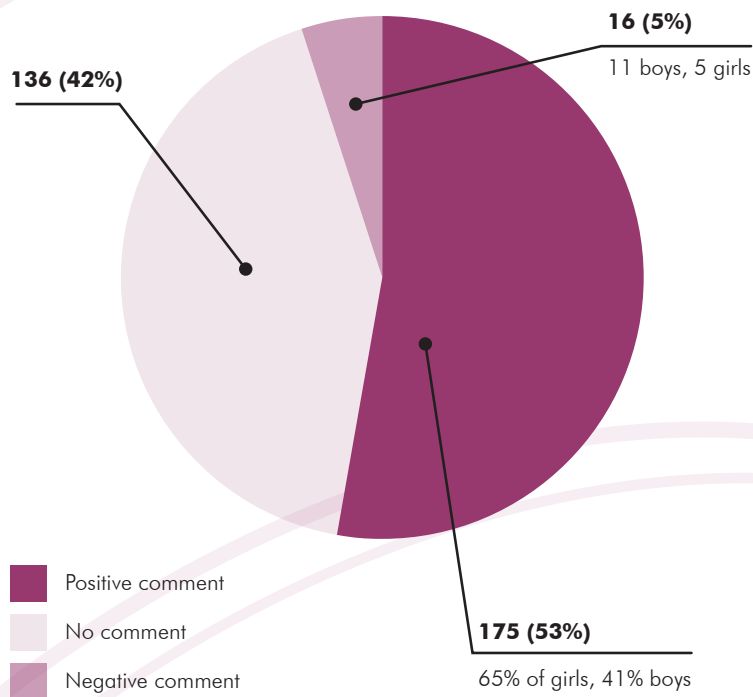
Mean ratings of activities (1 to 6 scale, 6 is highest rating)

	Number attending	Mean rating
Graffiti Art	42	4.05
Bushcraft Survival Skills	41	3.59
Firefighter for a day	57	4.40
Pottery Workshop	35	3.94
Abseiling	39	3.85
Music Workshop - record your own CD	35	4.29

Other things they did in holidays:



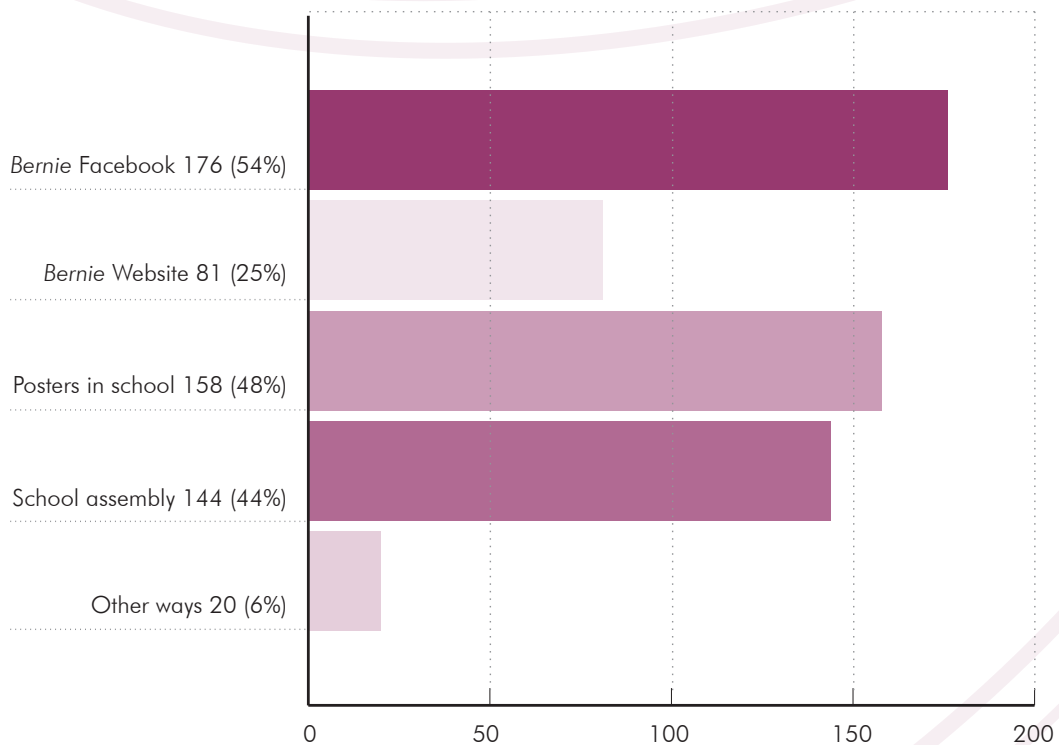
Opinions on Project Bernie:



Apart from Year 10 where only 7 of the 32 respondents commented positively, over 50% of each year group were positive about Project Bernie.

However 49 respondents (most of whom were positive about Bernie generally) perceived there had been more fires since the project started.

Best ways to keep people informed about Project Bernie:



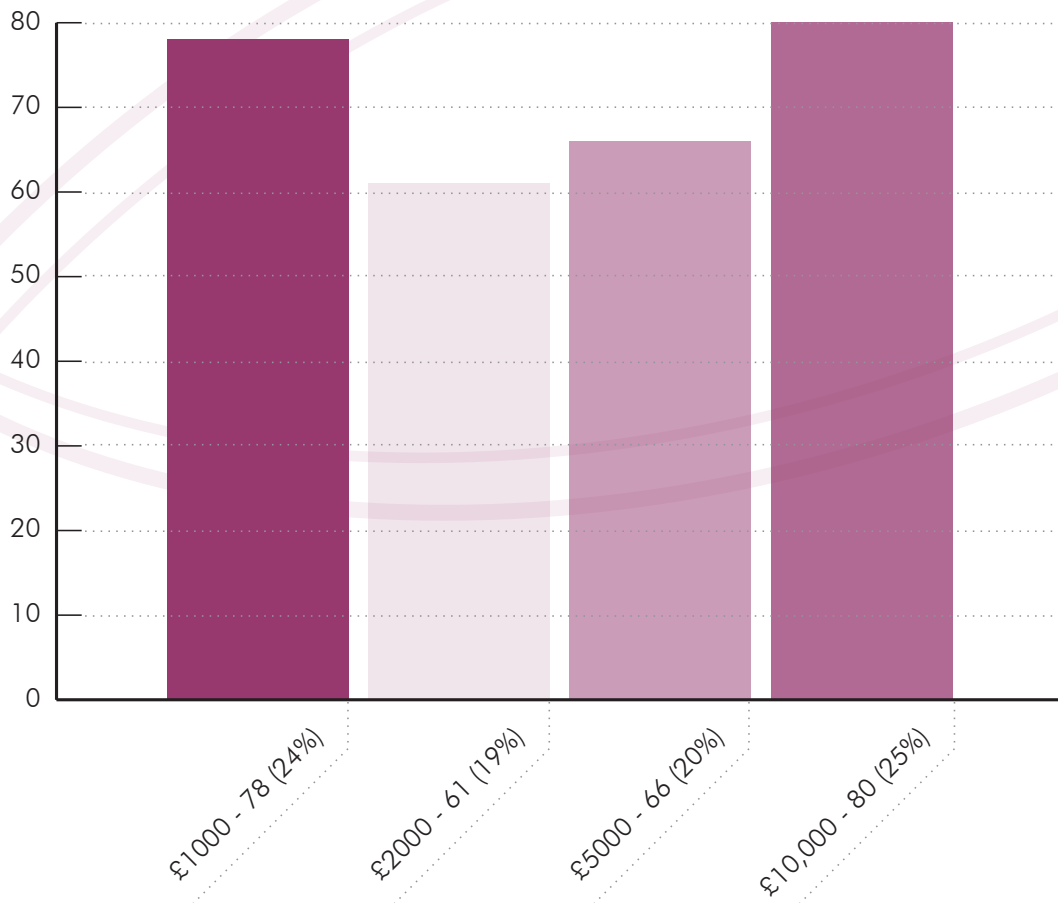
Questions on grass fires

212 respondents (69%) believed most grass fires to be started deliberately, while 44 (14%) believed all were started deliberately.

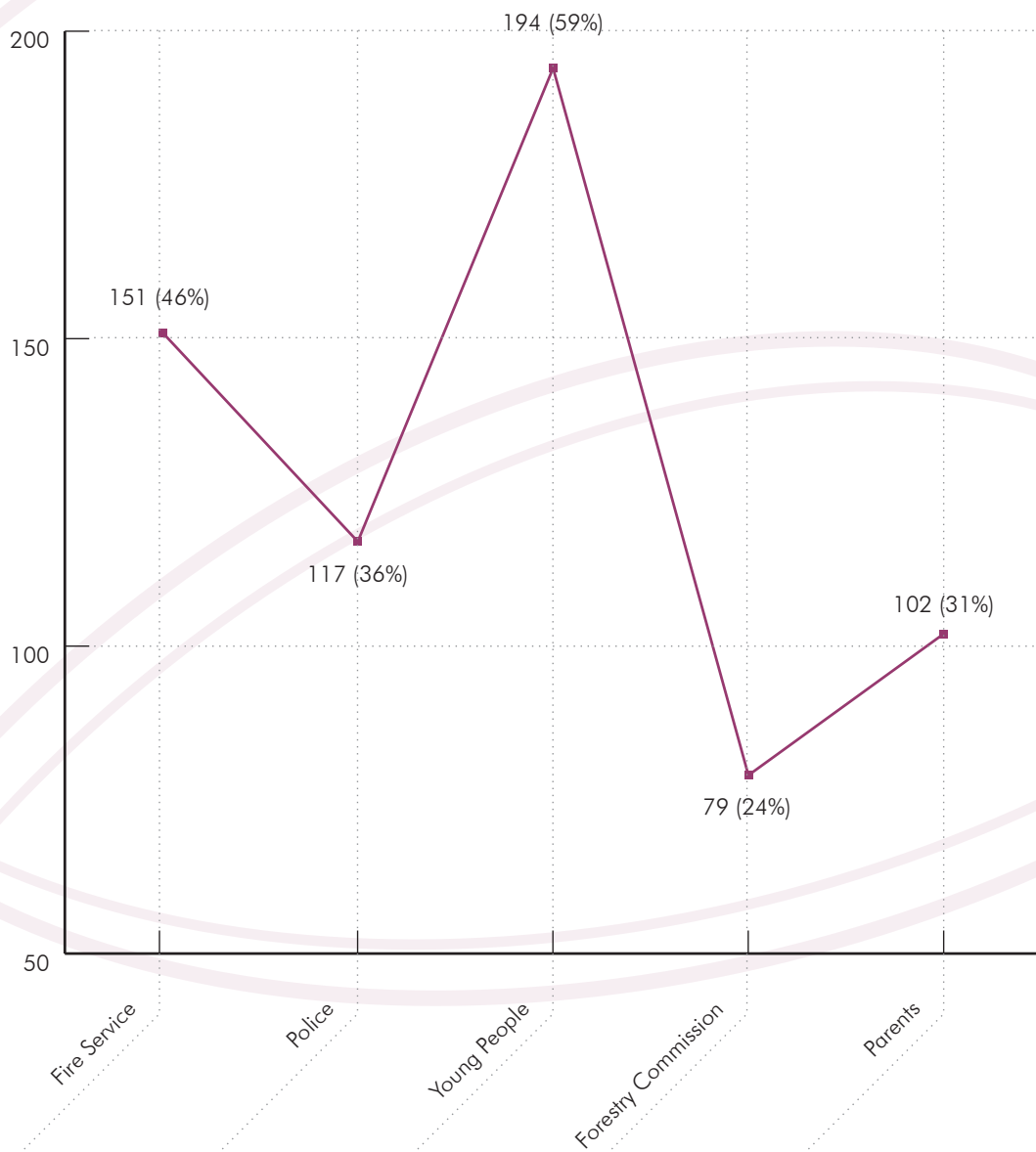
The most popular answer to the number of fire engines in the area Fire Station was 2, chosen by 105 respondents (32%). The correct answer is 2.

There was a variety of answers to how many firefighters were on duty, each of the possible answers being chosen by at least 17 people. The most popular answer was 8 (52 people, 17% of sample). The correct answer is 10.

Few people chose the £50 and £100 alternatives for the cost to tackle a grass fire, but responses were similar for the other categories. The correct answer is £2000.



Whose responsibility to reduce grass fires?



Comparisons of mean responses to the statements about grass fires, pre and post-intervention: The only statement where there was a significant difference between pre- and post-intervention means was "Some kids set grass fires to impress others". Mean went up from 3.14 to 3.29 (sig t = 0.02) where 3 was "agree" and 4 was "strongly agree".

How grass fires affect respondents:

Post intervention, the most noticeable changes in responses to this question were the number of respondents mentioning the effects on the environment (up from 8% to 15%), the look of the area (up from 9% to 15%), and the fumes and/or smell (up from 4% to 8%).

Appendix 3

Table 1: Distribution of Incurred (2009/2010) and expected (2011-2020) costs and savings/benefits

Year	Cost of Consultants	Annual Cost				Benefits	Net Flow
		Overtime	Marketing	Manager	Total	Cost Fire Avoided	
2009	10,218			32,827	43,045		-43,045
2010	46,742	27,500	16,500	32,827	123,569	285,655	162,086
2011		5,000	16,500	32,827	54,327	285,655	231,328
2012		5,000	16,500	32,827	54,327	285,655	231,328
2013		5,000	16,500	32,827	54,327	285,655	231,328
2014		5,000	16,500	32,827	54,327	285,655	231,328
2015		5,000	16,500	32,827	54,327	285,655	231,328
2016		5,000	16,500	32,827	54,327	285,655	231,328
2017		5,000	16,500	32,827	54,327	285,655	231,328
2018		5,000	16,500	32,827	54,327	285,655	231,328
2019		5,000	16,500	32,827	54,327	285,655	231,328
2020		5,000	16,500	32,827	54,327	285,655	231,328
Total					709,884	3,142,209	2,432,325

In Table 1, costs and benefits are matched to calendar years. However, benefits only reflect savings from fires prevented in the 4 month period from February to May every year. This covers the 2 week pre, post and Easter school holiday period irrespective of when Easter falls each year. If behaviour is maintained and there is a reduction in fires at other times of the year, then benefits will be even greater.

Costs for overtime (primarily to finance Fire Patrols) are estimated to fall significantly in subsequent years as most of this work would be conducted by or with South Wales Police.

The distribution of BERNIE project costs and benefits in Table 1 shows that savings (benefits) commence in 2010, but costs had been incurred already in 2009. Therefore, a key element of the cost-benefit analysis framework is the use of a discount rate to compare costs and benefits received at different points in time.

Although the choice of discount rate can make a significant difference to whether the present value of a project is positive, there is debate about the appropriate discount rate, with cost-benefit guides, academics and textbooks giving conflicting advice. A high discount rate favours projects where benefits are accrued early while a low discount rate favours projects where significant costs are incurred before benefits are obtained. The timeframe selected for the project will also influence the impact of discount rates. High discount rates will be particularly disfavour short projects where cost are incurred early and benefits perceived late (as in the case of BERNIE if we consider it a two year project)

The discount rate used to evaluate the present value of future costs/benefits takes into account interest rates and inflationary effects. The most commonly used discount rate in the cost benefit analysis of public projects in UK is 3.5% as recommended by the “Treasury Green Book”, which can be accessed via the Treasury website (www.hm-treasury.gov.uk). The 3.5% figure for the discount rate assumes a growth rate of 2%, and a pure time preference rate of 1.5%.

The higher the discount rate, the more conservative the model in terms of present net benefits obtained. 7 % is appropriate when expected future benefits have a wide span of confidence levels (Littlechild, 1981). It is also appropriate when project flows are sensitive to market returns and other factors, while projects that are less sensitive (as in our case) should have a lower one. The low- risk characteristics of the proposal (e.g, clearly defined fixed costs and low expected variation of costs and benefits with the state of the economy) suggest that 3.5% discount rate is the most appropriate value for this project. However, following Davies (1991) we verify sensibility of cost/benefits to discount-rate selection with a higher discount rate (7%) Therefore two Models are assessed using different discount rates. While Model 1 uses a discount rate of 3.5%, Model 2 uses a discount rate of 7%.

Table 2: Cost-Benefits Analysis

Year	Model 1 Discount rate: 3.5%		Model 2 Discount rate: 7%	
	ROI	Net Benefit	ROI	Net Benefit
2009				
2010	0.8	109,720	0.8	101,344
2011	1.6	318,365	1.7	290,176
2012	2.2	519,954	2.2	466,656
2013	2.5	714,727	2.5	631,590
2014	2.8	902,912	2.8	785,734
2015	2.9	1,084,734	3.0	929,793
2016	3.1	1,260,408	3.1	1,064,429
2017	3.2	1,430,141	3.2	1,190,256
2018	3.3	1,594,134	3.3	1,307,851
2019	3.4	1,752,581	3.4	1,417,754
2020	3.4	1,905,670	3.4	1,520,467

Model 1	ROI = 3.4	PVC = 578,717	PVB = 2,571,342	Net Benefit = 1,905,670
Model 2	ROI = 3.4	PVC = 481,437	PVB = 2,142,037	Net Benefit = 1,520,467

¹ Sensitivity analysis informs how changes in figures assigned to different variables will affect the overall costs and gains of the project. It shows how sensitive predicted net benefits are to different values of uncertain variables and to changes in Assumptions (Davies, 1991)

The results in Table 2 show that from 2010 net costs are lower than benefits (savings achieved) leading to a positive ROI as early as the first year of the intervention suggesting that even if the project were discontinued, Project Bernie has been successful on economic grounds; reached break-even point and provided value for money.

Additionally, the long term implications for sustaining the policy should be assessed (French et al, 2009). The increase in positive net flow from 2010 shown in Model 1 and Model 2 indicates that the longer the project is sustained, the higher the returns that will be obtained. When present values of future cost and benefits are accounted for and ROI assessed against a project time-frame ranging from 2010 to 2020, the analysis reveals that if the project is carried on just two more years (until 2012) the gains of the project (in terms of present value of savings achieved) will have doubled the investment, regardless of the discount rate adopted. The sensitivity analysis also shows that predicted net benefits and ROI do not change substantially with different values of discount rate and therefore there is low sensitivity to changes in discount rate assumptions.

All in all, the cost-benefits analysis indicates that the investment was a viable option and if the project is continued it will keep providing increasingly above average returns.

References

Davies, H (1991) *Managerial Economics for business, management and accounting*, London: Pitman

French, J, Blair-Stevens, C, McVey, D and Merrit, R (2009). *Social marketing and public health theory and practice*, p133

Littlechild, S (1981) 'Misleading calculations of the social costs of Monopoly power', *Economic Journal*, 86, pp 321-342

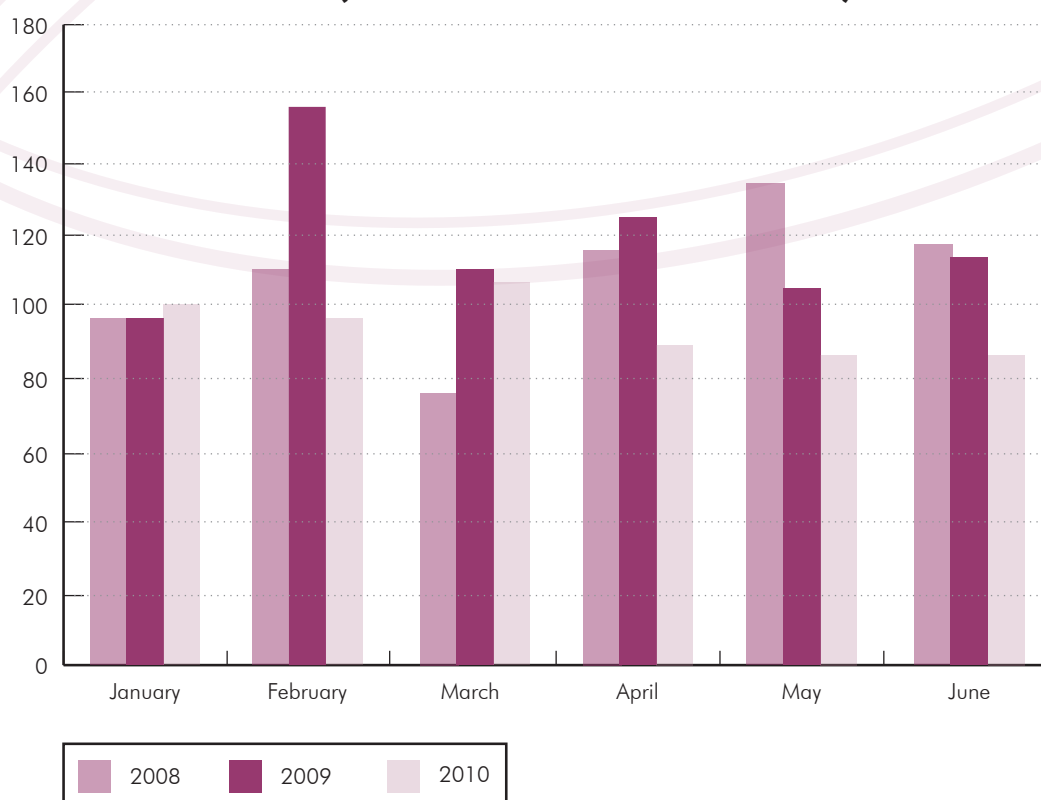
Appendix 4 - South Wales Police Statistics on other reported anti-social behaviour

Project Bernie had an overarching goal of reducing deliberate grass fires in Tonypanyd however it appears to have produced additional benefits of reducing reported crime in the same area over the same period.

The South Wales Police statistics are worked out on an electoral ward basis. In the Tonypanyd area there are 4 electoral wards; Llwynypia, Tonypanyd, Penygraig and Clydach Vale. The reported crime figures for the 3 months of April, May and June were 369 in 2008 and 346 in 2009. The implementation of Bernie has seen these three months figures reduce to 262 in 2010, a reduction of nearly 25% compared to 2009.

In the ward of Penygraig there was an impressive 61% decrease in reported crime for the month of May compared to the 2008 figure.

Reported anti-social behaviour for Tonypanyd 2008-10 Source: SW Police Overall (4 beats 1507/1505/1506/1509)



Obviously for complete analysis we would need corresponding statistics for Aberdare as a control group. Unfortunately these were unavailable at the time of publication.

South Wales
Fire and Rescue Service



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