Hundreds of programs are being developed to promote safe and responsible online behavior among youth. They are being successfully marketed and eagerly adopted because of their appealing content, exciting graphics, engaging games, catchy phrases and cool characters. But that is not enough. The bottom line for everyone to remember -- funders, program developers, communities, schools, and families -- is that these programs need to actually work. They need to change youth attitudes and inspire youth to make smart and ethical choices about how they behave online. If programs are not doing this, then no matter how beautiful the graphics or sophisticated the video production, time and money are being wasted. Children are not safer and parents and teachers may wrongly conclude that they have successfully addressed the problems.

Unfortunately, right now, we have no information that Internet safety programs work. Or which ones are most likely to work. We see parents and schools excited about the material. We hear stories about kids who did something important after seeing a program. But prevention and education experts know that “feelings” and stories can be very misleading. We’ve made such mistakes before—particularly in trying to prevent youth drug and alcohol abuse. There are striking parallels in our eagerness to educate youth about Internet safety and the rushed and ultimately disastrous efforts to prevent drug problems in the 1970s and 80s (see Box 1). It is critical that we avoid making the same mistakes.

Rigorous, scientific evaluation is necessary to tell us what works. And it is crucial to have this information before programs are disseminated widely. Those unfamiliar with program evaluation might be unsure about why it is so necessary or worry that it will stifle innovation. There can be confusion about how to organize an evaluation. Evaluation can be expensive and it does take time to complete. But lower costs and speedy dissemination are questionable benefits when there is no evidence whatsoever that a program is helping youth.

With this paper, we hope to inspire the Internet safety field to make evaluation an integral part of program development, and consumers to insist on information about effectiveness. We make a case for evaluation, try to de-mystify the process, respond to common concerns or questions about evaluation, and propose some steps to ensure that our programs help youth stay safe online.

**Box 1: What We Should Learn From 1970S/1980S Drug Abuse Prevention Efforts**

Rising drug use among youth in the 1960s and 1970s prompted a slew of prevention education programs to respond to what was seen as an emergency at that time. Much of it focused on warnings about the dire effects of drug use. The most popular of these programs, DARE, quickly got adopted by as many as 80% of school systems around the country, particularly because it brought respected law enforcement officials into schools to warn kids about the dangers of drugs.

When researchers began to evaluate DARE, well after it had become the program of choice, it was found to be ineffective in 6 large scale, long term evaluations summarized in a U.S. General Accounting Office report in 2003 (GAO-03-172R). The report found “no significant differences in illicit drug use between students who received DARE... and ...students who did not.” It took a second generation of programs and evaluations before more effective approaches were developed – approaches that emphasized resistance skills, and changing peer group norms.

Unfortunately, twenty years, millions of dollars, and hours of education time were wasted on ineffective prevention. A key lesson is that programs that excite people and that “feel” right are not necessarily working. Moreover, once ineffective programs become widespread, they become very hard to replace. It is better to start off on the right foot.
Why Can’t We Trust Our Judgment About Whether A Program Is A Good One?

Years of experience in evaluation has clearly shown that people’s intuitive judgments about programs are often wrong. Here are a few examples of feelings and experiences that seem to suggest a program is good and why they can be misleading:

People react very positively to the program. But positive reactions can often come from the youth or parents who did not need the programs in the first place. Also, programs can be interesting and entertaining without being effective. Participants, particularly youth, like doing something different and may rate a program highly even if it did not change anything about their attitudes and behaviors.

People pay attention and are clearly moved. Research has demonstrated that being moved by dramatic stories doesn’t automatically translate into learning and better behavior. In fact, these can backfire, with serious consequences. For example, a suicide prevention program may inspire a depressed youth, who hadn’t thought about it before, to think about suicide as a real option. Research has demonstrated that programs can have the opposite effect than intended, a so-called “boomerang effect” (see Box 2). I have examples of how my program helped a particular youth. Anecdotes are compelling but they are not evidence that a program is effective for youth in general. It isn’t enough that one or two youth were helped. The goal should be to find the program that helps the most youth. I know from my experience and knowledge that this program is a good one. You may be right—so test it. But it is also critical to stay aware of your own biases and blind-spots. Program developers and funders have a big investment in their programs. We all have a strong inclination to want our efforts to succeed, and we may discount information that suggests otherwise.

Box 2: The boomerang effect

The history of prevention education is riddled with unanticipated “boomerang effects” – messages that ended up having the opposite result to what was intended. Many of them are in the substance abuse area, where warnings about using drugs, cigarettes or alcohol, actually made the substances more attractive to young people. Boomerang effects have also been found from warnings about violent television programming and unhealthy foods (Jones-Ringold, 2002).

There may be a couple of mechanisms at work. Some reactive young people bridle at being told what to do, and seek to adopt oppositional attitudes and behaviors. Other young people may actually have a course of behavior suggested to them by the mention of the option, even if the behavior is being disapproved.

The presence of these boomerang effects means that untested prevention messages and warnings are not necessarily harmless. The assumption “it may not work, but it can’t make things worse” may in fact be wrong. This highlights another reason why it is important to evaluate the effects of prevention education in a new field.
What Are Some Mistakes We May Already Be Making?

Many of the safety messages we want to impart to young people seem almost self-evident. Be careful who you talk to online. Don’t attack or demean other people. Don’t give out personal information.

But programs organized around these messages may fail to achieve their goals for many reasons:

- A message or slogan may be so general that youth do not recognize the circumstances where they should implement it.
- The young people who most need the message may distrust the source or see it as not credible.
- The message may contradict the actual experience of young people who have given out personal information and not seen bad consequences.
- The message may be couched in terms that make the young people feel insulted or infantilized.

We need to remember that online behavior is a relatively new interactional context, and we do not have a long history of studying and trying to influence it. We have an enormous amount that we need to learn about how to do this. It is courting a disaster and much wasted time, effort and money to initiate a widespread dissemination of programs whose effectiveness is currently not established.

What Are “Evidence-Based” Programs?

Funders of education, prevention and treatment programs of all sorts are beginning to insist on evidence-based programs. “Evidence-based” means several things. The most important meaning is that well-designed evaluations have demonstrated that this program achieved at least some of the goals for which it was designed (see Box 3).

Evidence-based also can mean that a program has a “logic model” or rationale that is clearly grounded in research evidence about the nature of the problem and its causes. For example, if a program tries to promote safety by teaching children not to give out personal information, it should be able to cite evidence that giving out personal information increases risk of harm.

Evidence-based can also mean that a program is designed to be similar to other programs with solid evidence of effectiveness. Prevention efforts in other fields have produced a number of research based principles of effective prevention or intervention. For example, it is generally recognized that single shot lectures or assemblies have little effect. On the other hand, active, skill-based learning sessions with group exercises and role-plays are examples of educational strategies that do have evidence of effectiveness. One Internet safety program that has incorporated these kinds of strategies is a cyber-bullying prevention module created by the Seattle-based Committee for Children. The module, created as an add-on to their evidence-based bullying prevention program, has not yet been evaluated but uses proven strategies that have been found effective in their other programs (see Box 4 for more information on the Steps to Respect anti-bullying program).

When a program claims to be evidence-based, the basis for this should be specified. If the program has been evaluated, then details should be provided and the study report should be easily accessible. If the program has not yet been evaluated, the program objectives should be defined, and the “logic” between the program material, education strategy and objectives should be specified. Research supporting the materials, the program logic and the educational strategy should be explained and the citations clearly listed.
Box 3: Evaluation 101: What is needed for a well-designed evaluation?

The kind of study that evaluators most trust is one that has 5 key elements. First, students who get the program are compared to a “control” group who did not get the program. Second, the youth are “randomly” assigned: the decision about which groups or individuals get the program or do not is based on a random process not under the evaluators’ control. Third, program delivery is administered and monitored in a way that evaluators can be certain that it was implemented as intended. Fourth, the outcomes of the program group (and the comparison group) are studied not just right after the program is administered but at later points as well to make sure that any effects are sustained. And fifth, the evaluation looks not only at changes in knowledge and attitude, but behavior. Other kinds of designs short of this ideal are accepted as evidence. For example, often it is not possible to “randomize” assignment, so other techniques are used to try to make the program and comparison group as equivalent as possible. Sometimes, follow-ups are also not possible, so the results are interpreted as meaning that the programs is effective “initially” but it is not known whether the effects are sustained. While behavior change is the ultimate goal, evidence of sustained change in knowledge and attitudes can be signs of program impact as long as the limitations are made clear.

Some kinds of “evaluation,” however, are viewed as inadequate and not counted as evidence:

1. Surveys of customer opinion about a program: (Did the students, parents or teachers “like” the program or “find it helpful.”) These can provide useful information for program developers, but they are not counted as evidence of program effectiveness.

2. Questionnaires given at the end of a program: (Do youth who got the program answer follow-up questions “correctly.”) If they don’t get the right answers, it is certainly a bad sign. But if youth do get the right answers, it doesn’t mean that the program is working. The answers may be obvious or easy to guess, recipients may have known the right answers before the program, or they may have gotten them from some other source. Furthermore, students’ ability to provide “right” answers does not necessarily mean they will behave differently once they are back in front of their computers.
Guidelines By The U.S. Department Of Education

In part because of the evaluation failures of D.A.R.E. and other popular drug prevention programs, the Department of Education promulgated some “Principles of Effectiveness” that would govern the use of federal funds under the Safe and Drug Free Schools and Communities Act (“Safe and Drug-Free Schools Program”, Federal Register, 62 (136), 38072-38073, July 16, 1997). These principles are relevant to Internet safety education.

These principles required that programs:
1) Be based on a needs assessment using “objective data”
2) Design their activities to meet measurable goals
3) Use programs with scientifically based research
4) Undergo periodic evaluation to assess their progress

What would constitute a needs assessment using objective data for Internet Safety programs?
Example: a school survey that showed that 25% of students had received harassing online communications.

What would measurable goals for a safety program be?
Examples: 1) A reduction by half in the percentage of children sending or receiving harassing communication; 2) A doubling in the percentage of students who reported a problematic online situation to parents, school authorities or a web monitoring location.

What are programs with scientifically based research?
This would mean programs with good evidence from evaluation that they accomplish their intended goals.

What is periodic evaluation?
Example: that programs be systematically reviewed every 3-5 years to make sure they are being implemented as designed.

What are the goals of Internet safety education?

A first step in moving to a culture of evidence is to be clear about our goals. When it comes to helping youth, some prevention goals are clear. Cigarette smoking, illegal drug use, or binge drinking are behaviors that science and public opinion agree cause harm.

In the Internet safety domain, there are some equally apparent and agreed upon goals. For example, reducing the number of youth who receive harassing messages online or who develop online sexual relationships with adults.

But other commonly cited goals in Internet safety may lack a similar consensus and scientific basis. We may think it is a good idea to encourage young people not to talk with strangers online and not to give out personal information. But these are not established harms in and of themselves. They are risk behaviors that some people think may be related to harm.

In evaluating safety programs, ultimately we want to demonstrate that programs reduce harms and increase benefits, not that they just change “risk behavior”. Thus education programs need to target and measure the ultimate behaviors and conditions of concern.
Common Concerns About Evaluation

Even if the benefits of evaluation are appreciated, stakeholders often have reservations about undertaking the process of evaluation. Below we respond to some of the most common concerns:

**We don’t have time for evaluation!**

One frequent complaint about evaluation is the time it takes to do it well. Carefully constructed evaluation can take a year or more to complete. This timeframe can seem discouraging when the goal is to get information to parents, schools, and youth quickly. Public concern about youth internet safety is very high and media reports imply the problem is growing. Schools and communities are looking for something they can put in place immediately. Technology companies and program developers also want to be able to demonstrate that they are doing something creative and helpful now.

But the costs of proceeding without evaluation are also high, maybe higher. These costs include: wasted money on ineffective programs, frustrated schools and communities, kids who get in trouble that could have been prevented, and disenchanted policy makers.

Creating, developing, and disseminating a new program is usually a lengthy process. If piloting and evaluation are built in from the beginning, the delays may be minimal. And as the field of Internet safety expands, and expectations about effectiveness become more common, there are strong advantages to being one of the first to claim that your program is taking the time to do it right—collecting the evidence that will show it works. These programs stand the greatest chance of being around for the long-term.

**Does evaluation stifle innovation?**

Innovation is necessary and brings creative strategies onto the field. But innovation without evaluation leads to exciting-looking ideas showing up on the market, with no confirmation of what, if anything is effective. The problem is that consumers pick capriciously, looking at which program is the flashiest or the quickest and easiest to put in place.

Unfortunately, this creates incentive for innovators to focus on developing showy or convenient programs and reduces incentive to spend time to figure out what may work best. This is not a recipe for success.

Innovation and evaluation are necessary partners if the goal is to help youth stay safe and make better decisions when interacting with others online.

**Evaluation can’t take into account all the different ways that people want to use my program**

Parents, schools and communities are looking for education programs that won’t be too expensive or take too much time. Internet safety is just one of many areas of concern they have for youth. Schools in particular are under enormous strain to provide a lot of information to their students in a short amount of time. There can be a strong inclination to respond to that pressure with the sentiment: “It may not be perfect, but a one-time 10-minute education video is better than nothing.”

But it may NOT be better than nothing—an untested 10 minute video may waste students’ and teachers’ time, and may lull the community into a false confidence that they have addressed the problem.

One responsibility of program designers is to define how programs should be used and what consumers lose if they are not used as recommended. This doesn’t mean developers can’t tweak or update programs with information on the latest websites, or the latest concern about safety. But if designers don’t provide manuals, or if they openly encourage people to shorten programs and pick and choose different pieces, programs will not be properly implemented and will be less likely to help kids.

Using expert opinion, past research and pilot testing, program developers should determine the most efficient delivery method that is substantial enough to be effective. Then they should evaluate that procedure, recommend it to consumers and make it clear that proper implementation is required for the program to be effective.
What if evaluation shows my program doesn’t work?

One reason people may avoid evaluation is a fear of negative results. But negative results don’t mean complete failure. Usually evaluation results give clues about where the problems might be, information that can be fed back into program development to improve on the effectiveness. Programs that engage in evaluation can often advertise how much they learned from what did and didn’t work and what they are now doing to improve the program. In a culture of respect for evidence, they still come out ahead.

My materials are web-based educational videos, public service announcements, and fact-sheets — not a “program.” Is evaluation relevant?

Internet safety education efforts have expanded in last several years, and prevention materials now include web sites, videos, public service announcements (PSAs), as well as more comprehensive prevention curricula. However, the need for formal evaluation applies to all forms of education. Most prevention research has been conducted on structured curricula designed for schools or agencies, and we know the most about what works best in that type of program. However, most of the lessons learned from that body of evaluation research also apply to any kind of education material.

The need for evaluation is critical regardless of the material being disseminated. The questions that should always be asked are: How do I want the materials used? What impact do I intend them to have? What does previous research suggest is the best way to achieve that impact? Is it being used as designed and having the intended impact? For example, PSAs are usually employed as a component of a public awareness campaign. While the body of research on effective public awareness campaigns is smaller, there are nonetheless some valuable suggestions in the literature for what elements are needed (see Box 5).

We can’t afford to wait. Kids are being hurt.

There is no doubt that some young people are getting into trouble online, forming inappropriate relationships with adults, being bullied and harassed. Police and school authorities are encountering an increasing number of these situations. We owe it to our children, however, to provide the best help we can. We know from other domains – for example, public health – that this means scientifically tested solutions. Cod liver oil to ward off the flu felt good to generations of parents, but a flu vaccine is far better because we know from scientific evaluation that it works.

We also do no service to children and parents by creating an exaggerated sense of emergency. There are a lot of scary statistics about predators and online bullying, but many of those statistics have been criticized as overly alarmist. It is not clear that the online environment is any more dangerous than any of the other environments children generally inhabit – home or school -- and much research shows considerable amounts of prudent online behavior among the vast majority of children. Adding unnecessary fears to the burden of parenting and growing up is a danger that needs to be taken as seriously as the danger of not doing enough to protect children. So does the danger of providing a false sense of security by disseminating ineffective programs.
Box 4: A case study of an evidence-based program: Steps to Respect Anti-Bullying curriculum

While you may have heard a lot about the need for evaluation, what does it actually look like for a program to undergo an evaluation? Does evaluation ever show a program has been successful? What do program developers do with the information?

One anti-bullying program, “Steps to Respect” developed by the Committee for Children in Seattle, Washington (http://www.cfchildren.org/programs/str/overview/), is a good example of how a program can be developed on research-based principles and then tested with rigorous evaluation. Steps to Respect is an 11-lesson curriculum designed for grades 3-6. The program has recently developed a cyberbullying module that can be included as an add-on to the original program. Steps to Respect incorporates many of the features recommended by prevention research as most effective: Multiple skill-based lessons, active discussion and role-playing, a structured curriculum in which each lesson builds logically on knowledge and skills developed in previous lessons, and detailed and specific manuals. A report outlines the learning objectives of the program and lists the research supporting why the skill-based lessons used in the program are critical to reducing bullying behavior and victimization (http://www.cfchildren.org/media/files/str_research_foundations.pdf).

Evaluation research then examined the effectiveness of the Steps to Respect program. The program was implemented in 3 schools, but not in 3 others (the control group). Independent observers recorded playground behaviors, and students were also given surveys before and after the program. In the schools implementing the programs, there was 25% less playground bullying, and bystanders were less encouraging of such behavior (Frey et al., 2005). A longitudinal extension of the evaluation further supported results (Frey et al., 2009). Additional evaluation findings for the Steps to Respect program are featured on the website (http://www.cfchildren.org/programs/str/research/).

More rigorous evaluation research with a larger sample of schools will be published soon providing additional positive evidence for the Steps to Respect program. Committee for Children indicates that as a “mission-driven” organization it is critical to know their programs are effective. It is an added benefit that they are now regularly included in lists of evidence-based programs recommended to schools by the Department of Education.
**Box 5: Effective Public Awareness Campaigns**

One approach to internet safety and online citizenship is the public awareness campaign. Both public awareness campaigns and more intensive curriculum-based programs have behavior change as their goal but the approach is somewhat different. Good curriculum based programs are designed to help youth think actively about an issue and develop new skills. Public awareness campaigns, on the other hand, are designed to impart information to large numbers of youth with the hope that the information will lead to changes in youth behavior. This is not easy to do. Experience from other fields tells us that it is hard to change behavior by providing information alone.

Making a hard job tougher, many Internet safety slogans or strategies have fuzzy or unconfirmed logic models. For example, “Think before you post” and similar messages assumes that online harassment is caused by youthful impulsivity. But do we know this to be true? We don’t. “Don’t give out personal information online!” is based on the hope that without personal information, youth will be protected from predators and unscrupulous marketers. But is it realistic to believe that someone online can never give out personal information? The message may be so generalized that it is not useful. We want children not to give out personal information in some risky situations, but we do not yet know how to specify what those situations are.

There are some successful examples of public awareness campaigns that we can learn from. The VERB campaign launched in 2002 by the Centers for Disease Control (CDC), sought to increase physical activity among “tweens.” The initiative was a well-designed partnership between advertising agencies, media organizations, CDC staff and an evaluation team. The goal was to portray physical activity as “fun and cool,” to keep the messages positive instead of negative (no “don’t do this” lectures), and to use a wide range of creative marketing strategies. The design team incorporated a prospective, longitudinal rigorous evaluation from the beginning. The one-year follow up evaluation found that youth awareness of the campaign was high and levels of free-time physical activity rates were 34% higher for 9-10 year olds exposed to the public awareness messages. (For more information, see http://www.cdc.gov/youthcampaign/index.htm)

Research on effective public awareness campaigns suggest that they should:
- Define the target audience well
- Have a clear and specific message
- Use credible sources
- Employ novel methods, widespread dissemination, and high saturation using multiple channels
- Offer new information
- Give specific behavioral strategies and solutions
The E-rate mandate

As part of the Children’s Internet Protection Act (CIPA), the Federal Communications Commission (FCC) is poised to promulgate rules that require schools to adopt programs that educate students about appropriate online behavior, including “interacting with other individuals on social networking websites and in chat rooms and cyberbullying awareness and response” in order to be eligible for funding. School officials will be furiously looking for programs that can fulfill their FCC mandate. How can they ensure that the program they adopt will be evidence-based?

There are two problems. One is that there are very few or no Internet safety or cyber-bullying prevention programs with the kind of strong positive evaluation results that would merit them a designation as an evidence-based program under most rating systems. Second, when evaluation results begin to appear, there are currently no organized ways of communicating this information quickly to school authorities.

We would make several recommendations:

- We think it would be wise for the FCC to delay or phase in the program adoption requirement to give a chance for evaluation findings to develop and guide school authorities.
- We also believe that the FCC should fund or help to facilitate the funding of comprehensive evaluation of programs.
- It would also be good for the FCC to fund or help facilitate the funding of a clearinghouse that would archive and update information about the evaluation status of available programs.
- In the interim, when adoption is being required in the absence of evaluation results, school authorities need to turn to programs that at least: 1) use known successful prevention strategies in their program design (see Box 6); 2) have grounded their program in the available knowledge base about the problem; 3) are attempting to evaluate their programs; and 4) do not use methods shown to be ineffective or contain information about the problem that has been deemed incorrect or controversial by current research.

Where Do We Start?

1. **Raise the expectations:** Everyone in the field should begin to look for and expect evaluation evidence. Funders should make this a requirement. Federal funding in particular should write this into its standards. Adopters should ask for the evidence-basis. Program developers should include this information in promotional brochures and on websites.

2. **Make the general knowledge base more available:** There is extensive literature on what works in education and prevention from fields like drug abuse, healthy eating, and sex education. The books and articles that summarize the conclusions from these fields need to be better publicized and made more accessible to the people engaged in Internet safety (see references below).

3. **Provide training in evaluation:** Manuals, webinars, and workshops should cover such topics as: 1) the important elements of good evaluation; 2) pros and cons of different evaluation approaches; 3) guidelines for how to set up an evaluation study and get information from your data; and 4) the types of collaborations that can facilitate evaluation research.

4. **Bring in the experts:** Most universities and contract research firms have experts in evaluation. Program developers need to partner with these experts, and bring them in as consultants. Names can usually be found by checking with local schools of education, public health or social work.

5. **Build on successful existing programs:** Internet safety education does not have to be a stand-alone effort. In fact, it may be more durable if it gets incorporated into already well-established educational efforts. Internet safety advocates should identify evidence-based programs about bullying, personal safety, socio-emotional skills, and sex education and collaborate to graft Internet safety skills on to these proven approaches.

6. **Cite the evidence base:** Even without formal evaluations, programs should begin to provide evidence that prevention approaches and structures similar to theirs have proven to be effective. It is not enough to just say the materials are “research based”—the specific sources and comparisons need to be cited.
Box 6: Do’s and Don’ts in Prevention Education

While the field needs to begin the process of testing the most promising Internet safety programs with evaluation, there is still much we can do to improve what is already in place. Prevention research has provided us with excellent guidelines about what to do and not do:

1. **Don’t** use scare tactics. **Do** show examples of successful solutions and helpful actions by victims and bystanders. **Do** show adults who are being helpful.

2. **Don’t** rely on one-shot assemblies. **Do** find ways to incorporate materials into a curriculum that includes small group discussion, group activities and role-plays.

3. **Don’t** promote misleading, exaggerated or unsupported information. **Do** provide information on rates, risk factors, and consequences that are based on the best and most current research.

4. **Don’t** use stereotyped impersonations of teenagers. **Don’t** over-simplify or over-dramatize Internet safety problems and risks. **Do** depict typical situations, typical outcomes, and typical teenagers. **Do** illustrate the complexity of the problems youth run into using new technology.

5. **Don’t** rely on gimmicks alone to get your message across. **Do** help youth build needed skills. **Do** draw from what other evidence based programs are doing.
Summary

The field of Internet safety should have high aspirations: to provide truly high quality and effective education that improves young people’s experience with technology. It is sophisticated science that has brought us the marvels of the Internet. We should be relying on sophisticated science to improve and safeguard the quality of the interactions young people have there.

This is not an impossible standard. Many related educational and child welfare fields have moved toward such a standard and expectation with substantial success. Moreover, establishing high standards is not optional. Evidence-based practice is the standard that is moving inexorably to encompass all educational and social policy domains. The question for the Internet safety field is whether to do it sooner or later. “Sooner” has many advantages: the sooner we do it, the sooner we can have confidence about our solutions and the sooner that programs may be eligible for strong funding support. Sooner may also avoid the pitfalls and acrimony of a big and embarrassing do-over. But the best argument is simply that it is the right thing to do.

Disclaimer: The views expressed in this paper are those of the author and do not necessarily reflect the positions of the FOSI Board of Directors or staff.
References and Recommended Reading


For additional resources and links on program evaluation see: http://www.ojp.usdoj.gov/BJA/evaluation/guide/index.htm

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