Frames play a central role in how parties to a conflict make sense of their situation and how they interact. How they interact in turn affects possible outcomes. This article addresses a set of challenges to teaching about frames, framing, and their link to conflict assessment, and offers a web-based solution that addresses some of these challenges. The training material incorporates aspects of simulation exercises and case studies to create a realistic environment in which students conduct assessments of conflict dynamics and frames. This free, publicly-available product can be integrated into in-class training modules, assigned as an out-of-class project, or explored through individual study. The materials allow for self-pacing, backtracking, review, and repeated tries, made possible by the web medium.

In Silver County, a web-based hypothetical location that provides the basis for this exercise, people are mostly decent and hard-working. Historically rural, Silver County grew slowly from a mining outpost in the 1860s into two small towns. With the coming of a university and several research and development firms in the 1950s,

Note: The web-based training builds upon research conducted by the Inter-University Consortium on the Framing of Intractable Environmental Disputes (Environmental Framing Consortium) and was constructed with the financial support of The William and Flora Hewlett Foundation. The research underlying this training is presented in Lewicki, Gray, and Elliott (2003).
the rate of growth began to increase rapidly. Newcomers—attracted to the traditional lifestyle, close-knit community, and natural beauty of the region—soon found that growth and urban sprawl threatened that way of life. Old-timers also recognized rifts in the community, some with very old roots. While the County’s wealth had been built on silver ore extraction, mining tailings have begun to cause extensive contamination along Slippery Creek and in Trout Lake. Finally, management of the County’s extensive forests is proving to be particularly controversial.

Not surprisingly, County residents see the growing contentiousness in very different terms. Each resident frames the sources and the dynamics of the conflict based on his or her unique interests and mindset. As a result, residents find it difficult to converse about their differences. The conflicts are escalating. With each decision, disputants’ frames are becoming increasingly divergent. People’s conceptions of identity, characterization, conflict mode, risk, loss/gain, and views of nature are polarizing along rather predictable fault lines, as for example between Latino residents who live along Slippery Creek and the elite families who own homes on Trout Lake; and between newcomers who build homes in forested lands, old-timers who still log those forests, and environmentalists who want to protect the forest as an intact ecosystem.

In public disputes, such richly variegated and nuanced communities are the norm. An observer or participant devising an approach for resolving any of the various disputes would need to assess the situation, making sense of the frames and perspectives of the various stakeholders, as well as their own. Yet few tools exist for teaching basic conflict assessment, especially regarding the frames that stakeholders and interveners use to interpret their situation.

This article presents one such tool. Silver County is a web-based, simulated community designed to promote learning about sense-making in environmental and land use conflicts. The web platform allows for parallel sources of information. Newspaper articles, public hearings, newsletters and other information sources (both fictitious and real) present a multitude of stakeholder perspectives. Students are invited to make sense of the various implicit frames, and to design strategies for coping with the consequences of the differences they discover. Tools and supporting discussion are presented to assist not only students and teachers in traditional classroom settings, but also individuals who seek a better understanding of conflict dynamics, perhaps because they are currently involved in a conflict that they do not fully understand. In this article, we discuss the importance of framing, the pedagogical concerns raised in teaching frame analysis, characteristics of the website, and practical details for using this web-based simulation to teach frame analysis.

The Importance of Framing to Conflict Management

Framing is a process of making sense of the world around us, whereby we simplify it, giving meaning to what we perceive. We create interpretive frames or heuristics to name a situation in which we find ourselves, to identify and interpret specific aspects that seem to us key to understanding the situation, and to communicate that
interpretation to others (Buechler, 2000). Framing entails both the construction of the interpretive frames and their representation to others.

Frames are therefore highly relevant to negotiation and conflict management. We create frames to help us understand why the conflict exists, what actions are of importance to the conflict, why the parties act as they do, and how we should act in response (Gray, 2003). Under conditions of conflict or divergent interests, disputants often develop interpretive frames that differ from those of others in significant ways. Some examples from our web-based case follow.

In Silver County, loggers see forests as a source of raw material while environmentalists see them as a natural system with intrinsic value, independent of human consumptive uses. Consequently, each group would prefer to manage the forest differently, but neither can make unilateral decisions. Latinos living on Slippery Creek demand immediate protection from groundwater contamination based on a claimed right to a healthy environment, while scientists in the Department of Public Health base decisions on technical benefit/risk assessments. What seems a matter of urgency and justice to one group may be a matter of resource prioritization to the other. Old-timers may see proposed growth management legislation as an effort by ex-urbanites to undercut traditional values (i.e., rugged individualism embedded in private property rights) through imposition of urban values onto a rural community. Newcomers may see the same action as an effort to protect traditional values (i.e., a rural landscape) by directing development into more dense urban centers, thereby preventing displacement of rural land uses.

In all likelihood, these differences over what the disputes are about will be associated with a complex and reinforcing set of frames about oneself, the others, environmental risks, what information should apply, and how decisions should be made. Each party constructs identity frames in ways that exclude other stakeholders, such as the old-timers’ place-based identity, or the loggers’ identity rooted in a community of interests. Parties may construct characterization frames for others that probably differ from how the other parties view themselves, and often undermine the others’ legitimacy, cast doubt on their motivations, or exploit their sensitivity. Their conflict frames may impel parties to seek very different remedies in response to common problems, ranging from actions as disparate as civil disobedience, litigation, fact-finding, or mediation. It is not uncommon for disputants to hold divergent perceptions of risks and of “facts” (risk/information frames), with scientists and experts construing risk frames based on expected outcomes, as opposed to lay persons exposed to the risk, who may construe risk based on extreme outcomes or anecdotal extrapolation. People tend to react differently to a proposed action when its expected consequences are framed in terms of gains as opposed to losses (gain/loss frames), where preventing a perceived loss is often more salient and more highly valued than capturing a commensurate gain (Kahneman & Tverski, 1979). In environmental situations, disputants are likely to hold highly disparate views of nature, framing it either as highly resilient or as fragile, and either as a resource to be used or a living system to be nurtured. Many other types of frames can be constructed, but these six categories—identity, characterization, conflict management, risk/information, loss/gain and views of nature—stand out particularly in

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assessments of environmental and development conflicts (Lewicki, Kaufman, Wiethoff, & Davis, 2003; Elliott & Hanke, 2003; Gardner & Burgess, 2003). It is on these frame categories that the Silver County simulation focuses.

We propose that those who seek to intervene effectively in conflicts need several frame-related skills. First, they must recognize the role that various frames play in making conflicts either more or less tractable, and the manner in which frames reinforce each other and the conflict dynamics over time. Second, they must be able to identify their own frames and those held by the various disputants. Third, they must develop skills for managing frames and for promoting reframing when such shifts might contribute to more constructive management of conflict (Elliott, Gray, & Lewicki, 2003).

**Pedagogical Challenges and Opportunities**

In any situation, interpretive processes contribute to making meaning through interaction (Cobb, 2000). Framing is a component of these processes. Everyone has recourse to frames when confronted with a new situation, or when dealing with an ongoing one. However, the construction of frames to promote sense making generally is not a consciously undertaken activity. Individuals are usually neither aware of, nor reflective on, how they are framing a situation.

Most often, framing becomes conscious when performed actively for the benefit of others during negotiations, in the process of crafting arguments to persuade others to one’s own point of view. Active framing is perhaps easier to scrutinize or to incorporate into a communication or negotiation strategy, and therefore easier to address in training. Similarly, training to examine others’ frames based on communication and behavior is often easier than self-reflection, though it too is subject to the distorting prism of one’s own frames. Given the state of our knowledge about frames and the expected benefits of making this knowledge more widely available, how might we teach students to assess their own frames and those of the other parties involved, and to incorporate this information in their decision making?

Challenges to the design of such training include: conveying a concept whose instantiation is highly situational; overcoming naïve theories (Lowenstein & Thompson, 2000) that may have an even greater effect in trainings where the real stakes do not loom large enough to act as correctives; and equipping students with cost-effective practical skills of detection and introspection. Teaching about frames—detection, self-reflection, and active crafting of frames as part of a strategy—requires focus on framing as a subset of negotiation topics, but also its integration in the “big picture” of negotiations. On the upside, the authors’ classroom experiences suggest that frames-related training tends to resonate with students’ interests and experiences, and they quickly learn to spot others’ characterization frames and attempts to shape people’s perspectives within a dispute. They are, however, more resistant to recognizing their

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1Here we call students those who might benefit from or be interested in the proposed web-based framing training.
own frames, viewing their own interpretations as reasonably objective assessments of contingent situations, while others’ interpretations are seen as biased and predicated from their character, style, culture, or other personal characteristic. Perhaps the most difficult task is that of introspection, of recognizing the color of one’s own lenses.

Motivating students to become aware of their own and others’ frames is also challenging because, although we have made great strides in understanding the effects of frames on stakeholders’ interactions and on negotiated outcomes, prescriptions are still few, tentative and context-dependent. A significant challenge is posed by the fact that no generalizable statements can be made at this point regarding the consequences of specific frames. Frames are useful in accounting for observed behavior, but not yet equally useful for predicting behavior. Although understanding the prevailing frames in a conflict is critical for short- and long-term communication and interactions, the consequences in any specific situation have to be left to the stakeholders to derive. Framing training therefore aims at helping students ferret out their own and others’ frames, but cannot offer definitive “if-then” statements based on such information. Instead, the training seeks to enable students to understand the various ways in which this information can be put to use.

**Pedagogical Goals and Format**

In light of these challenges, we set for ourselves three primary goals. First, the training module should help the student understand the theoretical foundations of framing, its psychological functions, and its impact on conflict dynamics. Second, the module should assist the student with practical knowledge as well as ways in which this knowledge can inform the practice of frame recognition and analysis. Third, the module should be accessible to a wide range of audiences, ranging from traditional class and workshop settings to individuals involved in a dispute who seek to better understand the conflict dynamics in which they find themselves.

On the theory side, students need to learn to identify frames, their impacts, and their likely consequences. At a minimum, the student should learn to recognize and classify framing statements made in a negotiation or dispute. With more practice, the student should be able to articulate the impact of frames on the dispute dynamics and the manner in which frames interact, both within a single person and between individuals and groups. Finally, with more experience, the student should understand the basis for reframing and be able to envision strategies for managing the impact of frames on disputes (Elliott, Gray, & Lewicki, 2003).

On the practice side, students need to learn about frame elicitation, reflecting on frames, crafting goal-oriented frames, and reframing. Frame elicitation skills focus on how to identify frames within a disputing system. Introspection/reflective focuses on questioning the source of one’s own frames, testing them against external information to avoid the trap of working on the wrong problem, and exploring consequences of holding on to them or adopting others. Crafting goal-oriented frames focuses on developing arguments based on frames and assessing when others are using frames to
bolster their own arguments. Finally, reframing focuses on skills for developing common frames or for better communicating frames to enable resolution.

Wide and rapid dissemination of both the theoretical and practical aspects of this training requires that the training module accommodate a variety of audiences with information that is clear, relevant, applicable and accessible, even to users who may have little time or resources to devote to training. Content and material format should elicit active involvement in analysis and decision-making. Feedback must be provided in a context where right and wrong are not obvious. The training module must also provide flexible access, allowing teachers to use it as a framework for a college course, a guided training experience or as part of a richer menu of topics in a classroom or training program setting, while also enabling individuals to access the material independently to improve their negotiating or dispute management skills on their own.

**Interactive Web-Based Case Studies as a Method for Teaching Framing**

Judging by the widespread use of experiential devices in teaching negotiation and conflict resolution, broad consensus exists on the importance and utility of “hands-on” training (Susskind & Coburn, 2000). These range from simple to complex simulations (Druckman, 2000; Patton, 2000; Lewicki, 2000), games, role plays, filmed interactions, fish-bowls and more. In particular, negotiation courses in professional degree curricula such as law, planning, public administration, business administration, and international relations incorporate simulations and case studies to give students an opportunity to practice various negotiation skills, as well as to show how others use them in real situations (Fortgang, 2000). The web-based training discussed in this article is an attempt to combine the strengths of simulations and case studies, by creating a simulated case that allows for interactive assessments.

**Simulations and Case Studies in Teaching Negotiation**

Both simulations and case studies have strengths and weaknesses as pedagogical tools for teaching negotiation and conflict resolution. Simulated negotiations are useful in honing communication skills, in understanding basic negotiation mechanics (e.g., offers and counter-offers, strategizing, coalition building) and in persuading students of the importance of preparing for negotiations (e.g., understanding BATNAs, generating options, knowing about the other parties at the table). Simulations are often inspired from real disputes and are constructed to focus on specific skills or to enable students to experience the many dimensions of complicated, multi-stakeholders and multi-issue situations (Susskind, 2000).

However, simulations are weak in several respects, including the limited duration of class interactions, lack of adequate student identification with roles (due to lack of true stakes, experience or affect, or strong preferences differing from those dictated by the role, etc.), and artificiality (power relations are absent or negated, cultural differences simplified, information limited). Of necessity students interact with each other, making it especially difficult to realistically simulate power relations, the effects of language, cultural and social differences, of specialized knowledge, and of past
experiences and long-term relationships that in reality play a key role in people’s choices. In this sense, arguably what students learn very well in classroom simulations is how to deal with their fellow students, which is valuable but falls far short of goals.

Moreover, simulations rarely model activities that are very important in contexts such as public and environmental disputes, including conflict assessment, convening, process design, or meeting design. Case materials may be more helpful here, but cases lack the interactivity that is one of the primary strengths of simulations. Case studies are virtually unrestricted in the depth of detail they can provide, but they necessarily set the student in the position of observer/evaluator, and lack the hands-on quality deemed so important for teaching negotiation skills.

Creating a Simulated Case Using Web Technology

To create a teaching system that combines some of the strengths of simulations with those of case studies, to provide a realistically simulated environment, and to enable broad accessibility, we have developed a module of web-based materials for teaching concepts about dispute framing. The module offers students the opportunity to test these concepts in the context of a realistically complex environmental situation. We have titled this website Understanding Environmental Disputes. In structuring these materials, we aimed to provide through both content and delivery a learning experience that relates the specifics of frame theory to practice, while overcoming some of the problems associated with other types of simulations and cases. We do so by creating an interactive, simulated case, combining the interactivity of simulations with the contextual realism of case studies.

What does this interactive web-based experience offer that is either new or an improvement on existing features of classroom experiences? In a web-based environment, students are offered a diversity of communication channels (newspapers, editorials, interest group publications and private communications) between actors in a set of disputes. Students are encouraged to adopt a role that comes closest to their own identities, and to make sense of the conflict from that perspective. Students must search for relevant information to do this, exploring the simulated community in much the same way as they might explore a real world dispute.

Compared to the traditional case study, the materials offered here have more variety and realism, and mimic the information gathering process required in real negotiations. Compared to traditional simulations, it allows choice of a role close to one’s personal inclinations (as opposed to an assigned role) and imbeds interactive learning in a more nuanced simulated world. This format allows for both individual study and interaction with other students. However, the site is primarily designed to promote individual study and analysis. We do not find this to be a disadvantage for teaching about frames and conflict assessment, which involves developing self-reflection skills difficult to convey through more traditional means. As well, the individual quality of the learning experience using the proposed materials allows for self-pacing, backtracking, review, and repeated tries made possible by the web medium. Finally, the medium allows us to provide interactive feedback to students, even in the absence of a teacher to guide the student’s inquiry.

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The program's reliance upon web-based media allows us to take advantage of a broad range of opportunities which previously did not exist. In pursuing these opportunities, we have sought to recognize the shortcomings frequently associated with online training and sought to develop methods for limiting these problems. The advantages and disadvantages are both practical and pedagogical.

For potential students not enrolled in a traditional course or training workshop, the advantages are most obvious. Dispute resolutions professionals, environmental policy makers, interest group representatives, professional trainers, college professors, and grassroots citizens usually have little time to learn the latest conflict resolution theories and tools. Though traditional conflict management training provides rewarding opportunities to those who can participate, they are often time-consuming, expensive, and difficult to schedule. Many people who could benefit from new ideas never have an opportunity to do so.

Funded as a free service by a grant from The William and Flora Hewlett Foundation, and web-hosted by the Conflict Research Consortium at the University of Colorado, Boulder, this project offers an opportunity to surmount these problems by eliminating cost and scheduling constraints while minimizing demands on time. The widespread availability of internet-connected computers and the ease with which written documents can be translated into web-accessible form have effectively reduced the marginal cost of disseminating information online to near zero. The total cost of internet publication for this project, for example, was only a few hundred dollars. Project funds can therefore be focused on producing high quality materials and on maintaining and adapting the materials over time based on user feedback.

Low marginal costs also allow distribution of training materials to teachers and students at no cost to the recipient, thereby increasing accessibility within tight budgetary and time constraints. In addition, the program components can be delivered worldwide almost instantaneously. Increasingly powerful specialized search engines like CRInfo (the Conflict Resolution Information Source found at www.crinfo.org) and general search engines like Google (www.google.com) make finding materials like this relatively easy. Low publication costs and the efficiencies of hypertext documents and dynamic web pages mean that it is possible to create many different versions of the same basic training program—with each version tailored to the specific needs of particular users. Together these factors make online options much more accessible and flexible than conventional education and training programs.

These practical advantages are also of importance to more traditional trainings and class-based courses, since cost, accessibility and flexibility matter in these settings as well. In addition, as discussed above, web-based programs also provide significant pedagogical advantages. Hypertext allows (and encourages) non-linear searches for information, thereby enabling interactive case studies that are more realistic than traditional cases. The web provides information at the request of students, not at the convenience of the educational or training institution. Finally, training programs can be
integrated into the larger web of knowledge with instantly accessible hyperlinks to related resources.

The biggest problem with internet-based training is the loss of the human touch and the social settings which are so central to the learning experience. Many people find it hard to adequately commit themselves to solitary, do-it-yourself learning experiences. This is why our program includes options for using materials in a variety of face-to-face and traditional classroom settings. We also include online discussion and listserv capabilities which permit creation of geographically dispersed user communities with interest in similar environmental dispute resolution problems.

Range of Uses and Time Commitments

Web-based training programs like *Understanding Environmental Disputes* allow users to schedule and pace learning activities in ways that are commensurate with their other responsibilities. The program permits use in a wide range of settings, including do-it-yourself, self-studies, group work associated with formal courses or training programs, and informal community meetings. Time required ranges from less than an hour for a quick overview of the material, three hours for a core review, or several days for a more wide-ranging exploration. Because of its links to external resources and opportunities for extensive discussion and role-playing, the program of study can be expanded into a multi-week course module. The materials can be integrated into classroom instruction, but their strength lies in the possibility of working with the program individually, at one’s own pace, adopting a point of view (a role) that is closest to one’s own inclinations, interests, or real-life role. The advantages of both the classroom setting and individual learning can be obtained by assigning students to conduct a frame analysis or conflict assessment based on materials presented at the site, for later debriefing within the class setting.

By design, the content can be tailored to different physical and social settings as well as a variety of time frames (as illustrated in Table 1). The program can even be advertised to entire communities so the citizenry can better understand and respond to conflicts that hit close to home.

Characteristics of the Website

*Understanding Environmental Disputes* is based on the Environmental Framing Consortium's (EFC) investigations into the framing of intractable environmental conflicts (Lewicki, Gray, & Elliott, 2003). The simulation that lies at the core of the online training program is built around the towns of Silver Cliff and Vermillion. The communities comprised in these fictional towns are facing three ongoing environmental policy disputes involving impending decisions on a growth management “comprehensive plan,” a forest management plan, and the Superfund cleanup of toxic mine tailings in an area fraught by environmental justice concerns. The website for the online training, already accessible (and fully functional by September, 2003), is located at http://conflict.colorado.edu/efc/.

Table 1
Activity and Timeframe for the Understanding Environmental Disputes Website

<table>
<thead>
<tr>
<th>Activity/ Event</th>
<th>Expected Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conflict resolution training or classroom programs on framing or conflict assessment</td>
<td>3 hours or spread over several classes</td>
</tr>
<tr>
<td>College term papers or research projects</td>
<td>Spread over several days or weeks</td>
</tr>
<tr>
<td>Labs or hands-on classroom exercises</td>
<td>2–3 hours</td>
</tr>
<tr>
<td>Public workshops on the environment, planning, policy or growth management</td>
<td>2 hours to a full day workshop</td>
</tr>
<tr>
<td>Town or community meetings</td>
<td>1–3 hours</td>
</tr>
<tr>
<td>Individuals exploring the site for personal knowledge</td>
<td>1–4 hours</td>
</tr>
</tbody>
</table>

The site offers extensive and realistic background materials reflecting the history of the current dispute. This material is hyperlinked to both related case materials and to teaching modules designed to clarify the nature of frames, frame analysis, and tools for managing frames in a conflict. The students enter the site either through a “public forum” where they may link to specifics about the dispute, or through a “library” to learn about frames. A student may, for example, explore the perspectives of a particular interest group, then enter a public hearing setting to read about the interaction of that group with other groups, and finally explore the meaning of these perspectives in the library. The student may also reverse the process, or interactively move from the public forum to the library through hypertext links that connect theory and practical advice to specific examples in the case materials.

The story of the conflicts is told through a variety of documents including, for example, newspaper articles, organizational brochures, position papers, private notes, and formal reports. Together, these materials provide a comprehensive view of the positions, interests, and arguments of the major stakeholders concerning each of the issues confronting this environmentally sensitive region. The arguments are reflective of numerous “real world” environmental problems and address key issues in conflict resolution, regional and community planning, forest and ecosystem management, sociology, and social psychology.

As they become familiar with case materials describing the various roles, personalities, and interest groups characterizing the conflicts, users can begin to see how stakeholding parties “frame” possible outcomes, processes, opposing parties, and even their own roles in the dispute. In addition, users develop a more complex understanding of the interconnecting social, economic, legislative, and fiscal variables that influence environmental policy outcomes.
The website takes students through the challenging and complex process of understanding difficult environmental disputes. In the process, students interact with the social context presented, reflect on abstract concepts applicable to other situations, and create knowledge (Susskind & Coburn, 2000). They acquire the ability to test and amend any “naïve” theories they may hold (Lowenstein & Thompson, 2000), by conducting their own assessment, and comparing both the resulting assessment and the frame analysis that underlies it to material presented on the web or to perspectives developed by other students if used in a classroom setting. Individual users are introduced to the key ideas relatively quickly through hypertext links to the library, where key concepts of framing are discussed and applied to the specific conflict situation developed in the case.

Using the Simulated Case Materials to Teach Framing and Conflict Assessment

*Understanding Environmental Disputes* mimics the piecemeal fashion in which citizens and parties to “real world” environmental policy disputes commonly encounter information. The site gives users "the gist" of the dispute up front, with more details as the user continues to explore. Through hypertext links, users can carve multiple paths through the site and read only the information they deem relevant. Different users will spend different amounts of time on the site, just as citizens spend varying amounts of time researching and reading about policy disputes in their locale. Though the site supports multiple exploration paths, we offer a set of recommended steps, described below, to achieve the goals of the site.

**Step One: Introduction to the Website and the EFC Project**

Before users get too far into the site layers, we ask them to examine background information about the EFC project, and a general introduction to the website. The background materials orient the student or user and suggest how the site might be used given the amount of time the user has available.

**Step Two: Explore the Historical Context**

Upon entering the website, users encounter hypothetical Silver County, facing a series of seemingly intractable environmental conflicts (see the Silver County scenario inset). In this segment of the program, users can explore a number of documents that describe the historical context of the current conflict. They learn that after years of boom and bust cycles in mining and mineral extraction, the region is now facing a rapid influx of new residents. The relatively large stock of undeveloped land and open space, coupled with a beautiful natural setting and a vibrant R&D economy, has attracted upwardly mobile ex-urbanites to the County’s wooded, rolling hills. Because of this growth, the county’s cities—Vermillion, Silver Cliff and the surrounding small communities—are faced with three inter-related challenges: reworking their previously lax comprehensive growth plan, rethinking and updating their forest management plan, and removing years of built-up toxic waste and mine tailings. This part of the program offers the basic background information users need to understand the more specific materials (see step three) pertaining to these three regional disputes.

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Silver County encompasses a spectacular region of tall plateaus, rolling hills, and broad canyons. Located on the northern bank of the Wamasana River in the foothills of the Silver Range, the towns of Silver Cliff and Vermillion lie 15 miles apart along the valley floor. Behind the two towns, the range stretches 30 miles, and consists of glorious meadows situated on a series of plateaus separated by red rock cliffs and rugged forested hills. While hardly national park quality, it is the sort of country in which people love to spend time.

Years ago the area was home to some of the richest silver deposits in the country. The period of intense mining from 1890 through 1940 depleted this once rich resource, while also leaving the area with extensive heavy-metal contamination from mine and mill tailings.

Vermillion's modern history began when an early rancher bequeathed his land for construction of Vermillion College. Partly because of its scenic setting, the college thrived and eventually became one of the region's major universities. Over time, Vermillion's economy became less dependent on agriculture, mining, and forestry. University-related businesses emerged, which would later be called high-tech. The economy flourished, boosting the wealth of its citizens.

Without a university, Silver Creek's development followed a very different path. It was the locus of the Climax Mountain silver boom as well as the center of the region's ranching, farming, and timber industries. The mills in downtown Silver Creek converted ore into precious and not-so-precious metals that were then shipped by rail across the country. Following the silver boom, the economy was bolstered by a small military test facility located in the prairies outside of town. Silver Creek attracted a number of modest manufacturing plants that supplied a steady stream of moderate-income jobs.

Recently, however, the town has fallen on harder times, with many of its manufacturing jobs lost to producers in other countries. The timber industry languished because of environmental concerns and the fact that the most profitable stands had already been cut. Still, Silver Cliff has been through hard times before, and its community has always managed to sustain itself. Residents like the traditional, low key, small-town atmosphere and have little desire to join the hectic modern world.

The land between the two communities is a patchwork of private land holdings and Forest Service land (see map, Figure 1). In the 1990's, in the wake of the latest technology boom, highly profitable new tech firms prowled the country, looking for desirable sites for their sprawling new campuses. In the highly competitive environment, the ability to offer employees real quality of life often made the difference between success and failure. Vermillion was just the sort of place these companies sought. In the mid '90s two companies bought, and moved onto, spectacular ranches while countless imitators and spin-offs flooded the area with relatively wealthy citizens.
Figure 1

Map of Silver County

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The Silver County Scenario (continued)

The scenic Silver County Forest covering a large portion of the county has dramatic cliffs and canyons, old-growth woodlands, serene meadows, majestic mountains and a free-flowing river. The Forest’s wildlife, including deer, elk, and goshawks, among others, is thriving. The forestland is federally owned and managed by the United States Forest Service. With the recent development plans in the surrounding areas, some management decisions are needed and will be difficult, as more and more activities and interests are vying for the land and for forest resources.

For example, the increasing risk of forest fire needs attention. Recent events showed that some well-accepted practices led to uncontrollable fires that wreaked widespread destruction of forests and private property. Therefore, the next round of fire hazard decisions is likely to be controversial. The presence of endangered species within the Forest’s boundaries (particularly the yellow-breasted toad), the level of pollution in the Wamasana River and in Trout Lake, and the encroaching development of surrounding communities are among the issues that Silver County Forest is presently confronting. The Forest has not updated its comprehensive plan since the 1980’s, and is in dire need of a plan revision that reflects the present-day environment.

The newcomers tipped Vermillion's local balance of political power toward growth and high technology. Many long-time residents, who did not like these developments, sold out and left as housing prices sky-rocketed. The area is becoming increasingly urbanized with new shopping centers and office parks. Areas within reasonable commuting reach of Vermillion are rapidly filling up. Demand is strong for an expanded airport and new highways needed to open up additional areas for development.

To the residents of Silver Cliff, the surrounding countryside has always been a prized natural playground. Not surprisingly, they came to view Vermillion's sprawl with dismay. Especially alarming to them is the leap-frog nature of development. Everyone seems to want a pristine setting for new homes and businesses. Having left congested and, from their perspective, quite unlivable cities behind, newcomers are thrilled with the opportunity to live in a rural, small-town setting, and to enjoy the kind of lifestyle that Silver Creek and Vermillion residents have led for decades. While congestion is annoying, they see it as a temporary problem, which could be alleviated once infrastructure development catches up.

They are, however, distressed by the hostile reception they have received from the old-timers. They feel that many local institutions are badly in need of modernization. Schools need more challenging curricula, especially in mathematics and science. After all, students need to be trained to compete in the high-tech world. There are also differences in social philosophy, with newcomers tending to be more liberal than the old-timers.
Environmentalists, many of whom live in Vermillion, have initiated a complaint with the US Environmental Protection Agency to force current and previous Silver Cliff property owners to clean up the old Silver Cliff Mining Company's land. Long defunct, the mining company had used 400 acres of land for depositing of mine tailings and for the slurry resulting from their metals operations. Creeks from this area flowing into the Wamasana contaminated the groundwater. Over the past 50 years, the Slippery Creek neighborhood developed on the old, contaminated mining site. The land was quite inexpensive, and the neighborhood developed into a working class and migrant labor community, a mix of Latino, white, and African American neighbors. Recent testing of several wells has indicated that groundwater in the community is contaminated. Moreover, contaminated sediments have spread into Trout Lake, a recreation lake located ten miles downstream.

Tensions have also arisen because of the new environmental community’s proposed limits on relatively free access to the hill country which old-timers enjoyed. Hunting, fishing, and the use of four-wheel-drive roads were facing increasing environmental challenges. Still, for many, the real problem is the rapid urbanization, especially in crucial valley-bottom wetlands. With several major lawsuits now pending, the community is at the point where important environmental decisions will have to be made.

**Step Three: The Current Conflict**

After considering the history, users proceed to explore the immediate situation. The vehicle is a town meeting where interest groups and institutions hand out “literature” describing their role and positions. Related materials are interwoven on the website with information on the three major disputes—around the Superfund site, growth plans and forest management. The interface includes virtual literature distribution tables for the principal interest groups, government agencies, and news sources. Users entering this portion of the site can read through the documents just as concerned citizens would if they wanted to “catch up” on the events and happenings of their home town.

An alternative gateway to the materials features the front page of a special edition of the county’s newspaper, *The Silver Times* (see Figure 2), devoted to the region’s environmental challenges. The newspaper’s articles and guest editorials describe recent efforts to deal with the problems, along with key arguments in favor of and against alternative approaches. Also reprinted in this edition is the full-text of detailed executive summaries describing the proposed comprehensive plan, forest management plan, and toxic material cleanup plan. Older editions of *The Silver Times* provide additional insights into the history of the dispute. Collectively these materials offer a rich and colorful set of perspectives on managing the County’s growth and environmental concerns.
SILVER COUNTY - Fed up with the bickering, mistrust, manipulation, and gridlock Silver County has taken an avowedly fresh, new approach to managing growth related environmental conflicts. Fearing that the latest developments...<full story>

Toxics in Silver County Leave Environmentalists, Residents Feeling Sick

SILVER CLIFF- The State EPA reports that the county is home to multiple sites of soil, water, and air contamination. From years of rampant pollution from the mining industry, the county is finding a million dollar tab to clean up the cities of Vermillion and Silver Cliff. Residents are... <full story>

Forest Management Plan Offers Citizens Three Choices

SILVER NATIONAL FOREST- The National Forest Service has presented the Silver County region with three choices for Silver County. These choices will be presented at an upcoming public forum and will be voted upon in the upcoming elections to be held in... <full story>

Comprehensive Plan Receives Mixed Reviews

VERMILLION- The Silver Region Comprehensive was unveiled by County Administrators late Tuesday in front of a large crowd at the County Court House. Though the Comprehensive Plan offers residents two concrete choices, residents and business leaders alike... <full story>

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The special *Silver Times* issue is supplemented by our virtual town meeting, literature distribution table and mini-websites offered by the various neighborhoods, community associations, minority and special interest groups, business and industry leaders, and environmental advocates. In addition, meeting reports from public hearings and private communications are available for many of the interest groups involved in the dispute.

**Step Four: Real World Links**

It is common for environmental organizations to post links on their websites to similar organizations in other communities. In the same vein, the websites of our simulated interest groups contain links to real sites identified in the course of other EFC project work. The user can examine the fictional conflict in the context of other, real settings, allowing those interested—student, citizens or policy maker—to read up on disputes, trends, and resolution efforts in real communities.

**Step Five: Frames and Framing**

The materials presented in steps 2, 3, and 4 form the core of the program and serve as the basis for analysis of frames and framing. After reading through these materials, users are directed to the theoretical discussions of frames and framing. They are introduced to the concepts of framing and how it applies to real conflict settings. The users are then invited to return to the Silver County materials and examine how the stakeholders characterize themselves and others (*identity* and *characterization* frames), assess factual and risk-based claims (*fact/risk* frames), evaluate conflict management processes or perceived policy options (*conflict process* frames), assess environmental vulnerability (*views of nature* frames), and explore possible outcomes (*gain/loss* frames). To assist user, instructor, or facilitator, the site provides a guide and set of questions that focus attention on frames throughout the site. Direct links to examples drawn from the scenario support this effort.

**Step Six: Reflection, Discussion, and Evaluation of Frames**

The main learning activity of the framing website takes place as users reflect on the Silver County scenario, using it to test the concepts of their own and others’ frames, and framing. The site provides a series of questions to assist the facilitator or instructor with this activity. The questions contain hyperlinks to scenario sections that illustrate each idea. This process aims to equip users with the skills they need to apply frames-based analysis to other parts of our online training scenario. Central to this process is the connection between theoretical framing concepts and a realistic cast of characters, interest groups, and organizations, actively struggling to deal with disputes involving issues such as water rights, deforestation and logging, endangered species, transportation, and environmental justice. The interactive nature of the site allows students to move back and forth between framing theory and the Silver County scenario, and to compare their findings to the interpretations or “answer keys” created by the project team. Beyond this, links to sites involving real environmental conflicts provide a bridge between academic study and application.
Step Seven: Personal Reflection

While the bulk of the program focuses on the skills needed to understand how others frame conflicts, a major component encourages users to reflect upon their own frames. Much framing occurs at a subconscious level with individuals largely unaware of the importance of the decisions they are making. This part of the program attempts to provide strategies that decrease the likelihood that people will come to regret their framing decisions. In our presentation of framing theory, we stress the importance not only of discovering the frames others apply to conflict situations, but also of reflecting on, and analyzing, one’s own framing of issues and characters. This reflection helps develop the much-needed ability to understand and act upon our own framing of a conflict, and to produce thoughtful policy choices. The core of this portion of the program is a questionnaire asking users how much they identify with, or support, particular ways of framing scenario-related issues. Accompanying materials describe the expected advantages and disadvantages of alternative frames. While no effort is made to distinguish “right” from “wrong” answers, we alert users to the importance and implications of their choices.

Step Eight: Further Reading and Research

More opportunity to delve into the framing literature is afforded by links to a wealth of print and web-based resources for reading on framing theory, framing-based interventions, growth and development conflicts, ecosystem management, and toxic material remediation. There is also an extensive listing of resources documenting similar ongoing conflicts in the US and abroad.

This site is linked to a specially tailored page of links from Conflict Resolution Information Source (www.crinfo.org) providing access to resources from the Intractable Conflict Knowledge Base (ICKB) project (www.intractableconflict.org) to enhance the depth of analysis of the complex issues introduced by this training program.

Conclusions

Understanding Environmental Conflicts, the web-based training system for exploring how disputants frame environmental disputes, represents a new, and as of yet relatively unexplored, realm of pedagogical tools. While not a substitute for class-based simulations, it complements what can be done in a classroom setting. It is particularly suited for challenging students to assess and reflect on conflict dynamics, offering a wide array of realistically presented qualitative data with which to work interactively.

This web-based tool is highly accessible and usable in the classroom setting, independently, or interactively as part of a dispute resolution process. We are least clear about how successful the site will be in inviting nontraditional students—such as individuals or groups who may be involved in a dispute or who may simply wish to understand environmental conflicts more fully—but we feel that the opportunity to reach out to nontraditional students is particularly exciting.
The site’s wealth and diversity of materials allows for creative uses beyond what we have programmed into it. Instructors can carve portions of the materials and put together mini-simulations and exercises of their own, on topics other than framing. It is even conceivable that thanks to the web-based platform some instructors will contribute ideas to enhance the materials and their use.

Not all negotiation aspects are amenable to web-based training, but we are interested in exploring which ones could benefit from this approach. Since the training site is just nearing completion at the time of this writing, we do not yet have effective feedback. Does the site facilitate the integration of theory and practice? Is the content presented at an appropriate level, given our audiences? Is the web-based medium used to full advantage? These questions need answers if we are to refine both the concept and its application to this site.

Evaluation and feedback are therefore essential to the long-term development of this and similar projects. The web platform allows for integrated systems of evaluation and feedback. The medium also allows for expansion, updating, and easy improvements and adjustments in response to feedback from users. At the same time, unlike other published materials, the website requires maintenance and upkeep over time, which is different in nature from the changes made from one edition of a textbook to another. The extent of maintenance may become a limiting factor in the useful lifespan of this device.

While acknowledging the difficulties involved in this type of instruction, we believe that teaching tools such as *Understanding Environmental Conflicts* constitute a potentially dramatic advance in the dissemination of new ideas. The site is therefore as much an experiment as a finished product. We will continue to test and refine the content, medium and presentation of the materials in response to user feedback.

**References**


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