Big Skies and Lone Eagles:
Lending Wings to Others, Online - A Rural Perspective

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Prelude

If asked to condense to a single sound byte the most important lesson I've learned about successful online interaction I'd have to say that it is all about trust. One begins with a simple game of catch. I trust that if I send you a message you'll respond back and you trust I'll do likewise. That if I support you with fair and honest communications, you'll return this same level of support back to me.

With this trust relationship as the foundational conduit for the transfer of knowledge, the most scalable packaging of knowledge is the mastery learning format of self-directed modules or lessons providing optimal convenience for an unlimited number of learners. If properly structured, this leaves precious interaction time reserved for general encouragement and specific questions to sustain the essential motivation and self-confidence.

As self-confidence with online learning builds, the door opens for more advanced tools and pedagogies ultimately resulting in a motivated self-directed Internet learner fully aware of one's own potential as dramatically enhanced by the historically unprecedented power of the Internet and related technologies. Human potential has never had such powerful enablers as we find at our fingertips today, but the art of developing social acceptance and best practices for leveraging these tools is still in its infancy.

The global impact one creative individual can make applying these new capabilities is unlimited. The potential impact of empowering the majority of the world's population with such abilities is literally the task at hand.

In 1983, as the visions for the Big Sky Telegraph project first began to form – from my rural perspective, the challenge was to create opportunities for participatory action research to learn how quickly rural citizens, and educators in particular, could embrace the full dimension of the unlimited potential for online learning, teaching, and purposeful collaboration to effect positive community and global change.

20 Years and a Million Miles

During the past 20 years since I first came online, I've traveled over a million miles presenting on online learning and the potential for community networking. This year I've presented keynotes for the Jamaican and Australian Governments and visited remote Aboriginal communities slated to receive broadband. Seven weeks were spent in Alaskan Native village schools who received their first satellite Internet systems five years ago. Major challenges still exist and it appears the devil is in the details and that good intentions alone won't deliver the hoped-for benefits. To my chagrin the rural economic decline has accelerated despite local access to the Internet as an educational and economic tool.

In short, the vision I'd hoped the world would embrace two decades ago is still largely missing; that by combining caring and connectivity with common sense we'll all have access to all our knowledge. Yet there are signs that awareness is indeed growing that there is indeed something more to being online than solo surfing and

simple email.

The Big Picture

In our world today, half the population lives in dire poverty and has yet to make their first phone call. In the next few decades, over 15,000 cultures and most of the planet's population will receive high speed Internet due to advances in satellite and wireless technologies. For the first time in human history we have the tools to literally change the world though low-cost ubiquitous online education. But, before I attempt to detail the possibilities of the near future, I've a story to tell about my quest to earn my own wings of freedom and to learn how best to lend these wings to others. It bears reasons for the telling.

A Sense of Community

Born in 1952 in Cody, Wyoming, the close knit community ties of the 50's made a deep impression regarding my sense of belonging. Suddenly having to move away at age seven, my growing up was a long wait seeking to return to this lost sense of community. For the decade of the sixties I lived in what was to become Silicon Valley, the bay area south of San Francisco, California.

Upon graduating in 1974 from University of California, Davis, with a BA in Psychology I had the choice of becoming a computer programmer or moving back to Wyoming to work as a roughneck on oil rigs. The starting wages were the same for both jobs. My perception of computers after learning about punch cards and the Fortran programming language was that there is nothing more lifeless than sitting at a computer all day long. My choice was easy, I headed home to the Rocky Mountains, soon to be spending the nights working outdoors at 40 below zero - and I was wildly happy to be there.

A Vision for the Ultimate Freedom

When I read Alvin Toffler's book *Future Shock* it shared the vision that someday, personal computers would be small enough and cheap enough we each could afford one, and that someday, telecommunications would allow us to live and work anywhere we pleased. I immediately made the decision to watch for the

emergence of these opportunities for extreme freedom! It could be a potential solution for my long-term repatriation to Cody, Wyoming. All I had to do was wait for these promises to become reality. Over much of the next decade (1974-1982) I worked as an oilfield roughneck, carpenter/painter, and enjoyed three years as a dude ranch manager - waiting.

Finally, finally, in 1982, IBM announced their first personal computer and the Apple IIe enhanced version had just come out. Modems had just been dramatically upgraded from 300 to 1200 baud. Online communications using microcomputers was opening doors to unknown possibilities. It was time to pursue Toffler's vision, urged on by the 1981 recession and being once again unemployed. In 1982, I enrolled at the University of Wyoming as one of the first four students for a new masters program in Instructional Technology.

Two years later, in 1984, with my new Master Degree in hand, I was caretaking a ranch near Walden, Colorado, teaching "Microcomputers in Agriculture" for Colorado Mountain College while looking for fulltime work to leverage my new Degree. At that time microcomputers were still so new that most people were frightened of them and there was little demand for expertise in instructional technology.

I was online via $18/hr toll lines at 2400 baud with a bulletin board system called "The Little Red Electronic Schoolhouse" run by a retired army colonel, David R. Hughes. Tentatively, I called Dave from my isolated ranch house hoping to learn more. Two hours later, I pried the phone from my ear having received my first passionate tutorial from the Cursor Cowboy. Here was a man with a vision! This would become a weekly ritual for the next ten years.

The Bull Colonel Online Mentoring Model

In addition to providing my first online learning experience, Dave provided me with an unfailing mentoring model. His bull colonel tenacity was not about to let me fail and I learned to implicitly trust in his ongoing support. Today, when I mentor educators in my online graduate courses my role is based on the mastery learning guaranteed level of support I learned from Dave Hughes. Failure is not an option!

One Up Dialogs

In person, we'd often both be talking at once, each interrupting the other frequently without either of us taking offense and I imagined we looked like two buffalos clawing the ground and huffing. Our ideas would build upon one another in rapid-fire fashion, each idea suggesting the next logical possibility. It was exciting to be inventing, discovering, and exploring all at once – the potential future of the world.

We began imagining what the high end educational applications of microcomputer telecommunications might be. We'd each try to top the other's imaginings by going one better as an exercise to develop a vision for the best possible working model to try out in an actual project. Eventually we evolved the idea of creating the Big Sky Telegraph to connect the 100 one-room schools across Montana. But it was to be four years before we'd finally win the funding.

Becoming an Assistant Professor

A one-inch ad from Western Montana College, a hundred-year-old teachers'

college in Dillon, Montana was run once in the Chronicle of Higher Education. Frustrated from years of underemployment, I bought a pinstripe suit, shaved my beard and drove 1000 miles to put in a face-to-face appearance and was soon hired as their first Microcomputer Applications instructor. Upon arrival they ushered me down a narrow stairway to an unfinished basement room with cement walls and ceiling. Twenty-five boxed Apple IIes received through a grant sat unopened. The future of the world was before me.

High Tech- High Touch

Microcomputers were not considered important or even desirable by the administration and faculty, but as we opened the doors to the public many older returning students hoping to gain new employment skills signed up for my microcomputer applications classes. White footprints were common in the computer lab as workers from the nearby talc plant became regular students.

It was not uncommon for some female students to be near tears in apprehension before we'd even turned the computers on. Fearing their inadequacy to learn computers, many students soon taught me that emotional encouragement was essential to being an effective microcomputer applications instructor. John Naisbett's book *Megatrends* stated that high touch is needed to balance high tech if people are to accept the technologies. This has since proved to be all too true, amplified by the foreign nature of the online medium.

Big Sky Telegraph (BST)

This name was intended in invoke an image of an expansive imagination, unlimited possibilities, and of an old-timey non-threatening communications technology metaphor.

In 1987, I won a small grant for $37,000 from the M.J. Murdoch Foundation, to engage Dave Hughes' expertise in creating one of the first Internet hosts running on a microcomputer to offer online courses. The new 386 computer was just fast enough to run SCO Unix and the Big Sky Telegraph went online, January 1st, 1988. Without compensation for my time, throughout the next year the BST offered free 2400 baud modems to a pilot group of two dozen one-room school teachers along with an online course with ten one-hour mastery learning lessons titled "Microcomputer Telecommunications Basics." As most educators and rural citizens had no idea of the "online" possibilities, our challenge was to bring to them their first experiences of online learning, <u>one at a time.</u>

Social Engineering to Create the Greatest Potential Impacts for Online Learning

Given the unique ubiquitous nature of online learning and teaching, the challenge of how to motivate engagement with the best and broadest educational applications the medium allows suggested that designing a scalable train-the-trainers model with social recognition incentives might be profoundly powerful.

With this goal specifically in mind, the social role of Big Sky <u>Telegrapher</u> was created and those completing the online course "Microcomputer Telecommunications Basics" would be authorized to teach the lessons to others,

ideally for a fee. Though many teachers were quite proud of having completed the online course very few took advantage of their potential to train others, online. Perhaps the transition from mentee to mentor was too big a conceptual leap. Still, the potential was there for scalable use of high quality online lessons mentored by an unlimited number of people encouraging and supporting the online learning of anyone, anywhere, anytime. It was the right idea, but not the right time for the idea to catch fire in the popular imagination. In contrast, our peer circuit riders providing face-to-face training proved to be appropriate for the time.

As educators completed the online course they received an embroidered patch (see Figure 1) and diploma signifying that they were among "the first educational pioneers to blaze the trail on the electronic frontier that others might follow." As the years went by we trained over 900 educators in 19 states, and Finland. Our 700 collected lesson plans eventually (in 1995) became one of the very first educational resources to be posted by the U.S. Department of Education on their new website.

In 1989, US West granted $280,000 for an expansion of Big Sky Telegraph to 100 one-room schools. With the additional technical expertise of David Hughes JR, (Dave's son), we began creating the first of 29 local dial-up community bulletin boards using an elegant cost-effective Fidonet system which collected emails bound for distant systems and the Internet for automated exchange during the low-cost nightly phone rates. As a representative application Junior High School

students in Montana and Wyoming rural schools used these systems to learn Chaos Theory Mathematics online - direct from Dr. George Johnston of the MIT Plasma Fusion Lab.

We'd created affordable local community networks (bulletin board systems) with an economical option for global email allowing rural educators, students, and citizens opportunities for their first global collaborations. Our greatest challenge was sharing the vision for how these tools could be used to generate collaborative capacity. But the technologies changed faster than we could thoroughly demonstrate their capabilities and engage citizens in understanding their full potential.

Several BBSCON conferences were held during the late 1980's and early 1990's bringing together hundreds of electronic bulletin board systems (BBS) operators from all over the country. After the World Wide Web hit, these became ISPCON conferences (for Internet Service Providers) and somehow the emphasis for building collaborative capacity disappeared and was replaced by the goals of profit from selling Internet access.

Native American Share-art

In 1989, Dave and I held a workshop on the Crow Reservation for Native American

artists from five Montana reservations. They learned to use computers to create original artwork in the NAPLPS format for sale online using the shareware model – thus creating share-art that while shareable online, was intended to be paid for if anyone were to keep or use the artwork. A photograph of the artists appeared in a congressional report on the future potential of the online world. The NAPLPS format turned out to soon be preempted by other formats, but the idea of digital art as a culturally reinforcing economic activity would survive.

The Telecom Trappers Rendezvous

The era of the first white trappers lasted only twenty years before the settlers followed them and ended their era. Dave and I decided to hold a special conference in Cody, Wyoming to recognize the passing nature of the era of the early online pioneers. Our goal for the rendezvous was to acknowledge and celebrate our awareness of the brief nature of the era of the first explorations on this new frontier, knowing that the pristine online landscapes would soon change forever as the dust clouds of the advancing settlers were already on the horizon.

Twenty-five persons attended coming from both coasts and we sat in a Rocky Mountain meadow of wildflowers on a spring day with a microcomputer at the end of a couple hundred feet of extension cords to view some of the first Native American digital Share-art in history and to talk about themes such as "with power comes responsibility" and how online communication was unlocking profound potential for global education, community empowerment, cultural sovereignty, and more, much more.

It was this visioning that was special to our group and we intuitively knew the future would be limited only by our imaginations. This was to prove all too true in the coming years. Our key concern and topic for discussion was the question of whether our vision would become widespread or somehow be lost. As we spoke of the potential for a true electronic democracy, there was another online project gearing up in California, called America Online.

The Reach for the Sky Project

In 1993, a grant was written and promptly won $880,000 for the Reach for the Sky project. The Annenberg Science and Math Initiative and U.S. West co-funded a three-year project to create three online classes for 20 master science and math teachers to receive online via their new laptops with the intent they would use these classes to mentor science and math educators across a five-state region. My chosen role was creating and teaching the online courses. The Reach for the Sky Lessons are still quite viable and are available online at

http://www.learner.org/courses/rfts/ .

Within the first few weeks of the first online course it became clear that despite each of the teachers being a master teacher, their readiness to embrace the online learning mode differed wildly. We quickly adjusted to an individualized learning format as a few were already way out ahead, and a few just couldn't seem to get their minds around the simplest concepts of online interaction. Concrete linear "left brain" thinkers seemed to have a much harder time than spatial "right brain" thinkers particularly with global concepts.

National and Global Impacts of Big Sky Telegraph (BST)

Over time it became clearer that the biggest impacts of the BST project were not on those who participated directly, but were on those in other states and countries who read the colorful stories written by Dave Hughes on the pioneering teachers in remote one-room schools sharing curriculum online and beginning to communicate with educators globally. Many people became inspired that "if they can do it in rural Montana, why can't we do this in our state?" Larger than life stories created major motivation for grassroots champions in other states to imagine what's possible and to generate dozens of projects that ultimately went beyond the scope and scale of the Big Sky Telegraph.

As there were few rural online learning projects during the late 1980s and early 1990's, I enjoyed being a frequent presenter at national educational technology and community networking conferences. Online learning and collaboration naturally supported building both virtual and geographical communities. Some weeks I'd fly coast to coast twice. From 1988 to 1998 I averaged roughly 50,000 miles a year.[1]

The Community Networking Movement

Participating in online discussions on electronic democracy in 1987 was very exciting as national experts articulately built upon each others' ideas to create exciting new possibilities which evolved daily. In 1994, I was asked to serve as Senior Advisor for Community Networking for the newly formed Morino Institute (http://www.morino.org) lead by Mario Morino. Partnering with Apple computer, the Morino Institute co-hosted two national community networking conferences titled "The Ties That Bind." One was held in Cupertino in 1994. The following year another as held in Taos, New Mexico, home of the La Plaza Telecommunity.

National Public Telecomputing Network

In 1986, I met Tom Grundner, who created an online community network called the St. Joe's Silicon Hospital, which evolved into the Cleveland Freenet. Eventually over 120 Freenets were created in the U.S. and Canada and the National Public Telecomputing Network (NPTN) was formed. These text-only bulletin boards were the first to offer free Internet access with intuitive recognition of the importance of ubiquitous Internet access.

In retrospect there really wasn't much you could do with the Internet at that time other than email. However, information retrieval systems were rapidly evolving with systems like gopher, veronica, and others. To the best of my knowledge, the Big Sky Telegraph was the only educational community network/freenet offering online instruction and as such was something of an anomaly. We were grateful to be generously included despite our educational emphasis. At that time the two worlds of online learning and community networking were quite separate.

It was becoming clear that indeed the potential for community benefits from online knowledge sharing was also limited only by our imaginations and surely everyone would soon see the wonderful possibilities. It seemed obvious that a community networking movement had begun and that the ascent would be rapid. But, what happened next was unexpected. The web happened.

The Graphical WWW Preempts the Community Networking Movement

In 1994, the world wide web appeared and suddenly the power and purity of text-only communications was viewed by most as inadequate and suddenly obsolete. The reading and writing medium emphasis was displaced with a point-and-click graphical emphasis and entertainment displaced purposeful collaboration much to the chagrin of the early pioneers who understood the power of online written interaction.

Originally, the Big Sky Telegraph offered dial-up Internet access for only $10/month, but now local Internet services were becoming available. They were certainly more affordable than long distance calls to BST, offering unlimited local access for a flat fee. This new option caused people to leave the collaborative Big Sky Telegraph to become solo-basement browsers. When the IRS announced that institutions of higher education could no longer charge for providing dial-up Internet access the economic sustainability of the Big Sky Telegraph disappeared and US West ended their funding support.

The NPTN Freenets rapidly lost their paid clients and their sustainability eventually disappeared along with the visions for online community-building and the power of collaboration for building collaborative capacity. It would be another decade before the vision for purposeful collaboration would again begin to regain prominence.

Instead of the community networking movement growing to match the potential the new technologies, the passionate vision almost flickered out. The Association for Community Networking (http://www.afcn.org) was formed in 1995 by a small cadre of dedicated community-builders, destined to be keepers of the flame for the next

eight years without significant support or funding.

Up to the current day, hundreds of community networking projects were created by grassroots champions with a vision for what could be, and all but a precious few failed to find sustained funding support. A vast boneyard of failed projects marks the brief history of the community networking movement. Yet these were not failures as much as they were the evolutionary first steps forward demonstrating to the world fundamentally powerful new ways of building local and global collaborative capacity.

After 1994, as the bell curve of the community networking movement took a nosedive, the community technology center movement was on the upswing. While non-technology oriented foundations found the concepts of online interaction and community networking daunting, the tangibility of a community technology center won approval and computer labs sprung up in housing projects and communities nationally. A national Community Technology Center (CTC) organization was formed (http://www.ctcnet.org) and after ten years of operation has over 1200 CTC's as members and holds an annual conference.

But, most CTC's do not emphasize teaching online collaboration and online learning skills or prepare citizens for online participation in community networks to build collaborative capacity. Most centers have only a vague idea of what curriculum will be most empowering. As an initial practical strategy they tend to focus on teaching employability skills often limited to word processing and computer basics.

My own experience suggests that community technology centers need to prioritize teaching self-directed Internet learning skills and online collaboration skills, ideally generating local community networks as the hub for local online capacity building focusing on collaborative local problem-solving. Short learning modules should be sequenced in a progression of empowering capabilities with certification for specific skills achieved. Civic participation and mentoring others would be inherent as part of the essential skill-building activities. My challenge was emerging as to how best to articulate the full vision for an ideal empowerment curriculum.

Lone Eagle Consulting: Attaining the Ultimate Freedom

After a full ten years of teaching rural teachers online through the Big Sky

Telegraph, Western Montana College told me if I didn't win another grant soon, they'd discontinue my position. My last grant didn't come through so after 1.4 million dollars of funding and ten years of championing the cause of online learning and community networking, they showed me the door and pulled the plug on the Big Sky Telegraph (January 1, 1988 to January, 1, 1998.) The only tenure I was awarded was a ten-year certificate as I held only a Masters Degree. I left to seek a higher education.

It was actually something of a mutual decision. If they didn't wish to back my online support of rural educators, the college was no longer where I needed to be. I'd become weary of the grant-writing carousel, the passive institutional resistance to innovation, and believed it would be more important to model how one can become independent of grant-writing and institutions.

Fifteen years after I'd returned to earn my Masters Degree to fulfill Alvin Toffler's promise of independence, I left Western to found Lone Eagle Consulting. A $500 office visit to a lawyer secured the creation of an S-corporation. A visit to an accountant secured the payroll and financial expertise for payroll deductions for the corporation's president and sole employee. As a fledgling Lone Eagle about to spread my wings for the first time, my opportunity was now to demonstrate how to win and sustain the ultimate freedom as online learner, teacher, and instructional entrepreneur. I've never looked back.

Lone Eagle Consulting's mission is to provide the very best fast track online Internet training possible for rural, remote, and indigenous learners (http://lone-eagles.com):

"The greatest freedom one can give to another is how to become a self-sufficient learner and earner, via the Internet. This site is dedicated to those who lend their

wings to others."

My first contract was with the Agency for International Development to create a cross-cultural self-directed online learning Internet guide intended for use in Jamaica. I'd also received an invitation to provide the first Internet workshops for 11 Alaskan Native villages that were soon to receive satellite Internet systems. I began adapting this resource guide for use by Alaskan Natives and Native Americans. Materials created for these projects include:

Common Ground: A Cross-Cultural Self-Directed Learner's Internet Guide http://lone-eagles.com/guide.htm Created for USAID, AT&T, and the ERIC clearinghouse. An instructional brokerage resource with emphasis on pointing to the best online tutorials, and educational resources on the Internet for self-directed learning. This is the text for the online course "Making the Best Use of Internet for K-12 Instruction" http://lone-eagles.com/asdn1.htm

Echoes in the Electronic Wind - A Native American Cross-cultural Internet Guide http://lone-eagles.com/nativeguide.htm A hands-on self-directed learner's Internet skills

training guide with over 20 pages of Native American and Alaskan Native web sites. Available in printed form; 177 pages.

Realizing Cultural and Community Sustainability Through Internet Innovations
in Alaskan Native Villages

http://lone-eagles.com/village-sustainability.htm

A detailed review of strategies for cultural sovereignty to produce measurable outcomes. Many grant templates and online self-directed resources are included.

Indigenous Internet Empowerment Resources
http://lone-eagles.com/alaskan-resources.htm

The master listing of Lone Eagle's Indigenous empowerment resources.

Sharing the Vision with Alaskan Bush Villages

During 1998-2000, the first Internet satellite systems were installed in the 11 bush villages of the Yukon-Koyukuk School District (YKSD). Three one-day Internet workshops were held in these 11 bush villages over a two-year period (see Figure 2).

My first workshop was in Nulato, 250 miles west of Fairbanks on the Yukon River. The small eight-seat Cessna plane had duct tape holding the windows and seats together. I'd been advised to dress for subzero temperatures in order to survive any unscheduled landings. I was led to the school library and shown where I could roll out my sleeping bag between the bookcases. Looking out the window, the snow was blowing sideways and I could see the wide white expanse of the frozen Yukon river. Just outside the window was an iron post where the Internet satellite dish was supposed to have been installed prior to my arrival. I had just begun to learn about organizational capacity issues in bush villages.   I was keenly aware I was experiencing one of the last days ever that this village would be as it always had been – without Internet – without a direct conduit to the world's knowledge base.

That night I thought hard about my past ten years of teaching rural teachers online and was full of eager anticipation for the wonderful empowering capabilities I had the opportunity to impart to the bush teachers the next day. I was fully prepared to lend my wings to the village teachers and was eager to do so. I'd come prepared with Internet sites on CD-ROMs, and with dozens of web sites captured on my laptop using an offline browser. I had a digital camera, a digital art tablet, a MIDI musical keyboard. The next day I taught both teachers and students how to create web pages, to browse and search, to create digital art, and to manipulate digital photos. My first challenge was to create motivation for future learning and to begin to help overcome their adversity to technology.

After leaving, and once the Internet satellite dish had finally been installed, the teachers were invited to join my online class to continue their learning and in particular to become comfortable with learning and communicating online. The results were significant but not nearly as exciting as I'd hoped for.

Inconsistent local technical support, weak district support for learning technologies, and other factors combined to create few incentives for ongoing learning and most of the busy teachers exercised their option to maintain their status quo by doing as little as possible. There were cultural tensions resisting the continual pressure of the dominant white culture, of which technology was initially perceived to represent. Over time, the technology would take on a Native voice as the benefits of family communications between villages was embraced using Hotmail. I

returned for one-day workshops twice more over the next two years and found that due to a 49% annual turnover in teachers and administrators, I had to begin anew each time.

There were of course many significant successes, such as the innovative principal in Koyukuk who helped his students post community web pages and Athabascan language web pages on the school web site (http://kyu.yksd.com).   And the teacher in Allakaket who modified my Rural Ecommerce lessons to help her sixteen teenage students in becoming the first Athabascan youth to ever complete online Ecommerce lessons. But, she's gone now. Cultural shifts take time and there were also political limitations which prohibited wireless home access for Ecommerce using E-rate funded Internet dedicated for school use, only.

Making the Best Use of Internet for K12 Instruction

In 1998, Lone Eagle Consulting created two online courses for Alaska Pacific University. The first course "Making the Best Use of Internet for K12 Instruction" proved to be very effective by providing immediate practical benefits and motivation for bush educators. With effusive emotional support teachers became self-directed learners able to find and utilize vast archives of educational resources as well as creating their own web-based project-based learning units. Seeing the explosive motivation of these teachers has clearly and powerfully validated the value of online learning and friendly online mentoring in my own experience. Expectations increase with experience.

This course integrates standard K12 education with the development of self-directed Internet learning as basic skills, project-based learning in a service learning context to generate meaningful content for local community networks, and relating ecommerce and entrepreneurship to youth retention and relevancy to elementary education.

The course and resulting first web-based curriculum created by participants are at http://lone-eagles.com/teachercreated.htm

The Invisibility of a Few Key Rural Inevitable Truths

The significance of the fact that rural citizens typically isolated from information resources and learning opportunities could suddenly have unlimited learning opportunities was unprecedented in its implications. What would it take for rural citizens to see their dramatically enhanced potential? If "We are what we know," then the opportunities for human potential development in rural areas has suddenly increased many orders of magnitude – IF people can understand and embrace their new opportunities.

A fact of rural reality is too often we don't know what need to know unless someone makes a point of telling us directly. For example, there is an invisible relocation drama taking place in rural America where those who resist or are denied learning how to use information technology to be able to live and work in rural areas are being forced to relocate to the cities to find work. Conversely, those in the cities who do learn these skills find themselves able to relocate to sublime rural areas often buying the homes of displaced rural workers. The Internet can be an ongoing solution to staying current on knowing what we didn't know we needed to know IF we are able to connect with the right relationships and expertise.

Another major invisible issue related to rural relocation is that generational turnover requiring decades may prove necessary before a new generation of rural leaders emerge who are willing to allow necessary change to occur. Rural citizens may eventually understand and regret what they could have done today UNLESS a dramatic surge in self-awareness and proactive leadership takes place soon. The downside risk is displacement of a majority of rural citizens and the pain that goes with losing one's cherished rural lifestyle.

While state governments talk about E-government and using Internet for Ecommerce to adjust to a changing economy, the real innovation is taking place at the citizen level in lieu of any real governmental leadership. The top-down governments and telecommunications corporations need to learn from the bottom-up innovators about the dynamics of adapting to a changing world.

As the pace of technological advancement intensifies, there is a corresponding increase in the rate of change in the global economy and societies. The pressure is on to learn how E-governments can learn to adjust more quickly. At the same time

those creative individuals who have learned how to upgrade themselves are quietly setting an example for the attitudes, skills, and behaviors required for successful adaptation and harmonic survival.

While it is becoming widely accepted that something has to change and that education; learning something new, is necessary, no one has yet owned the responsibility, not local or state government, or K12 schools, or higher education institutions. This is ultimately everyone's responsibility. New forms of community learning are badly needed.

Synergies Between the Online Learning and Community Networking Movements

Language has inherent limitations as words are but block sculptures of reality. Often the terms we use can be unwittingly self-limiting. For example, the terms "online learning" and "community networking." In my mind the two mean the same thing: "knowledge sharing to build individual and community capacity using the best technology tools." Over the last 20 years I've had a foot in both camps and have seen a steady merging of both movements.

Simply stated, this synergy is tantamount to defining e-life recognizing that there are progressive stages based on the truism "expectations increase with experience." Inherent in this progression is the potential for an ideal curriculum begging to be validated and widely taught.

As one learns to use search engines well one develops self-directed learning skills able to teach oneself on any topic as necessary. Collaborative problem-solving taught through project-based learning activities builds knowledge worker skills. As favorite sites on topics of interest are cut and pasted and posted as community resources a civic contribution is realized. Such action reveals a potential social role as mentor and local expert. In addition to creating free community resources and peer mentoring, service learning activities lead toward potentially offering knowledge-based services on a for-profit basis. In a knowledge and service economy instructional entrepreneurship emerges as a way to simultaneously create both social and economic value.

Ultimately, as both social and economic value are created there is a maturing of self-esteem, self-confidence, self-worth, personal identity, and defining a contributing role within the community. As such meaning and identity are developed the awareness grows for potential impacts well beyond the community – limited only by one's imagination. The highest stages attainable through e-learning are marked by taking action regarding e-democracy and transnational activism - through leadership teaching others.

This broader perception of e-learning grows in significance when one realizes the potential of the Internet for creating "The New Gold Rush - Mining Raw Human Potential Using Web Tools" (http://lone-eagles.com/mining.htm) and is fundamental in "The War Against Ignorance" (http://lone-eagles.com/hope.htm).

The past history of rural life is marked by severely limited access to information and learning – fundamentally "doing without." But, the future of rural life has more to do with managing and balancing information overload through mutual collaboration to sustain communities while sculpting a lifestyle; literally making a life while making a living.

The Milkstool Theory and Implications

The milk stool theory says that communities stand on the four legs of government, business, education, and health care. Each of these now begins with an "E" – representing the best uses of information technology. If we add to this the inevitable emergence of best practices for e-citizenship and e-community, the issue become defining the best replicable process and exactly what this all means. Does this mean simply we all learn how to browse the web and use email, or is there more?

We dream that information and communications technologies (ICT's) will be well used, but the devil is in the details. How well we use ICT's depends on the quality of the education we each receive.

E-government, e-business, e-education, and e-health all require citizens to be able to access essential information and to become self-directed Internet learners able to collaborate effectively both online and offline. E-citizenship, e-communities, and e-democracy require an informed and participatory populace. Our shared challenge is to harness the inherent human potential of each of us. What's the best a rural community can do for itself morphing into a vital learning community? This has become the big question. The future of America's rural communities hangs in the balance.

Creating Smarter Rural Communities

This process begins with imparting a realistic vision for collaborative participation to citizens and organizations regarding their specific roles, ongoing activities, and highest value applications. Specific short-term action agendas are required to validate the potential of Internet infrastructure for building collaborative capacity in support of the social and economic sustainability of the community.

Within the greater community, the need exists to bring together the specific sub-communities around a common culturally-oriented purpose: the educational community, the economic development community, the healthcare community, the faith-based and community-based organizations - as examples. As the community vision becomes initially tangible and the first measurable outcomes win positive approval, the process of growing a more and more robust community vision accelerates.

This process requires social mechanisms for encouraging and sustaining citizen participation. Social recognition is important and justified for those who contribute their time and content. Strategies such as friendly competitions can focus the community on identifying the highest quality resources and Internet applications that produce local benefit. Ongoing community goal-setting and self-assessment are fundamentally necessary if forward progress is to be achieved.

In addition, strategies will be proven which provide the highest citizen motivation to

generate the highest levels of community benefit, requiring the least investment of time, money, and prerequisite literacy. Public metrics of success can be identified as competitive measures validating those communities that most effectively combine caring and connectivity with common sense.

The Clarity of Common Sense

The common view of rural communities is: "We've yet to see a rural community benefit significantly from use of the Internet." There's an important missing link here between the glowing promises of the telecommunications companies and the government that broadband is essential and indisputably beneficial, and the opposite perception of rural citizens based on their very practical experience that there are no proven benefits.

An Inevitable Reality for Communities Hoping to be Competitive

As broadband becomes increasingly commonplace, communities are beginning to understand that they will compete on the demonstrated talents of an inspired and motivated citizenry. Visible demonstrations of advanced telecommunications and technology

applications are a selling point for communities seeking to showcase their ability to learn, innovate, and grow.

An Issue of National Competitiveness
The vigor of our communities, our nation, and all other nations, will depend on creating motivated lifelong learners, proactive citizens who are value-driven, innovative entrepreneurs, skilled collaborators, and citizens who are both consumers and producers - both learners and teachers, all the time.

Those communities first to show true widespread participation in realizing tangible benefits may well enjoy a cottage industry for decades to come teaching other communities how to replicate their success, online. It is just a matter of who and when.

Struggling to Share the Vision

If you were to ask Montanans the definitions of ignorance and apathy? You might well hear: "I don't know and I don't care." While they'd be correct in this instance, you might get the same answer if you asked about the Internet, ecommerce or online collaborative capacity-building. Can the significant cultural shift take place

while there's still time?

Lending one's wings to others requires the right approach and the right timing. One can only give to people that which they're ready to receive.

Community success stories giving tangible examples are needed to change attitudes about what's possible regarding online learning, successful online collaboration, and ecommerce. (Two Years of Successes in Montpelier, Idaho http://lone-eagles.com/montpelier-story.htm)

Citizenship, Community-building, and Entrepreneurship in the Knowledge Age

Needed is a specific curriculum for educators and those who work with youth which presents a hands-on review of Internet resources and curriculum templates integrating K12 curriculum with online collaboration and the essential skills related to growing successful citizens in the "knowledge age." Emphasis is needed on developing both local, and global, citizenship concepts, skills, and practices.

Success creating knowledge workers prepared for work in a global knowledge economy requires a K12 emphasis on developing the social value and self-worth of students and requires they become skilled at creating and maintaining meaningful relationships both offline and online.

There is an immediate need to bridge the gap between K12 education and the ability to use the Internet for economic development. The accelerating pace of change requires that students learn how to think innovatively and to maintain awareness of successful innovations related to emerging vocational and entrepreneurial opportunities in their communities. A service learning project creating local web-based content for their communities showcasing local and regional Ecommerce and entrepreneurial Internet innovations would be an example of the trend necessary for students to become involved with their communities' economic development and sustainability issues.

Teaching Students Global Citizenship in the Knowledge Age – Hands-on

Many realistic student-driven community activities can be presented for students to initiate community interaction. Examples include gathering content for local web display to raise community awareness about the genuine opportunities the Internet represents, as detailed in the Bootstrap Academy (http://lone-eagles.com/academy.htm).

Citizenship education needs to include values development in the form of character education and service learning. A knowledge society and an electronic democracy require educated citizens with skills in both offline, and online, articulation, and collaboration. Internet skills for self-directed learning and web self-publishing are required for competent citizens in a knowledge society. Character Education Web Tour (http://lone-eagles.com/chared.htm).

There are many models for using project-based learning methodologies to stimulate student creation of web-based content to benefit the local community which could be consolidated into a course for educators. As awareness grows through the use of existing curricular models, educators will learn to use existing templates to begin to create their own innovative curriculum. Students will also learn to use templates to create instructional experiences for both other students and adults in the local community.

Here are a few project examples related to community content created by students:

- At the Global Schoolhouse, http://www.gsh.org , is a projects directory where teachers can post multi-classroom collaborative projects to find international partners. Collaborative tools and pedagogies are listed as well.
- The International Cyberfair competition, http://www.gsh.org , has elementary students create web pages celebrating eight categories of local achievement.
- At Thinkquest, http://www.thinkquest.org/library/ , students internationally have created over 5,000 instructional web sites to help others learn online.

- At Camp Internet, http://www.campinternet.net , are family learning expeditions to engage families with learning together how to use the Internet for learning.
- 4-H youth Tech Teams train rural adults in Internet skills. http://www.4-h.org (Click on technology.)
- Webquest curriculum templates are available for both teachers and students to learn to create online project-based learning units, often based on real-world problem-solving. http://webquest.sdsu.edu/
- Integrating all the above innovations is discussed at

http://lone-eagles.com/capacity.htm

Project-based learning curriculum directories and resources can be found at http://lone-eagles.com/projects_tour.htm and http://lone-eagles.com/pbl.htm.

Entrepreneurship sites and cooperatives for youth and women are listed along with Ecommerce Start-up training resources and sites offering free Ecommerce web sites at http://lone-eagles.com/entrelinks.htm.

For Mentoring Models, Guides, and Resources, see http://lone-eagles.com/mentor.htm.

Changing Perceptions for Online Learning
After 20 years and a million miles: What's the same and what's different

The original essays and vision of the Big Sky Telegraph are as relevant to the modern day as they were in the late 1980's. The technologies are a thousand times more powerful, but somehow the ability to imagine what's possible has stalled. Tired of corporate hype and overwhelmed with too much useless information, many have turned away from believing in the power of thoughtful online learning and interaction.

In 1988, my license plate read "Online" and at that time "online" meant

bibliographic searches by a university librarian. Over the years the popular perception of the word "online" kept changing, soon it suggested use of electronic bulletin board systems, then it was the world wide web as an esoteric activity and the arena of billionaire geniuses from Silicon Valley, then it was mainstream AOL chat and shopping, and after the stock bust it was the tired activity of the failed dreams of dot.com businesses.   Today "Online" represents a rather confused mix of spam, scams, hoaxes, pornography, lurking pedophiles, malicious viruses, pop-up ads, and hyped promises of valueless corporations vying for control over the world view of hapless consumers.

Bringing back the Vision

Many teachers still view online learning as direct competition with traditional classroom learning, and as a potential threat to their jobs. On the brighter side, as more teachers get hands-on experience with online learning they realize their challenge is really how to bring the best of both mediums to their students such that they can use the Internet for self-directed Internet learning as well as purposeful collaboration and self-expression.

Traditionally, online degrees were considered inferior, but this attitude is also changing. The validity of quality online learning and the integrity of using the Internet wisely are growing. Today one U.S. worker out of ten engages in telework, able to live and work anywhere, anytime. Companies are beginning to recognize their most talented workers are increasingly demanding the flexibility that comes with telework. Truly skilled knowledge workers have no limits on the specific information and assistance of peers worldwide they can call to their fingertips at a moment's notice.

We're Limited Only by Our Imaginations

Recently, I received an online tutorial, "live" using voice over the Internet, remote application-sharing, co-browsing, and two-way PC-based video conferencing in preparation for a project training disabled workers in rural ecommerce and telework skills over the next five years. I've developed a rural ecommerce non-credit online class offered for rural citizens to learn what's working online for others like them, as their first online learning experience.

I'm in touch with helping planners regarding Jamaican and Australian indigenous training projects by articulating the new role of education and Internet as related to rural workforce development, and all the while mentoring teachers and citizens in online classes taught through three universities; Alaska Pacific University, Seattle Pacific University, and Idaho State University. I'm also advising government leaders for the States of Idaho and Montana on e-learning and community networking while continuing model work with Montpelier, Idaho aimed at producing the first rural community success story in Idaho. (Ecommerce curriculum and success stories: http://lone-eagles.com/connect-idaho.htm).

Once an isolated rural citizen struggling for manual labor employment, I've expanded my creative capacity a hundred fold by learning to develop my own self-directed Internet learning and teaching skills. And my impact on others to date can be counted in the thousands, and will soon grow exponentially once again.

Constructivism Yagga Yagga –Style

The essence of constructivism to build one's own knowledge is "learning by doing." The literacy levels worldwide are an issue. Recently I was in the Aboriginal community of Yagga Yagga in Western Australia showing an Aboriginal woman how to use a digital camera to become instantly a digital author and storyteller. The Sony CD-550 camera records audio with photographs and can save video on the 3-inch CD, ready to pop into a computer and play. Then she learned to use a digital art tablet and within minutes was smiling broadly as she swirled together one of the first examples of digital Aboriginal artwork.

With the obvious motivation from these first experiences comes the question of what the best ongoing training program might look like. While reading and writing might be an initial barrier, email using voice files and digital storytelling and art could allow language-based Internet interaction at many levels, seeding the confidence and motivation for further learning as a fun social culturally-relevant activity rather than a Victorian colonializing regime; empowering rather than dominating.

Recommended reading is "Authenticating Rural Broadband Benefits – A Reality Check" (http://lone-eagles.com/wings.htm) written for the Australian government regarding their national plan to deploy broadband to rural and remote areas. The Lone Eagle keynote for a national broadband conference, Oct. 6th, 2003, focused on the advice to avoid the U.S. dilemma of a "lose-lose" situation where government and telecommunications corporations have failed to communicate to citizens the benefits of broadband and as a result have a severely weakened business case. And on the other hand citizens are not benefiting from existing broadband as intended and are not creating a vibrant market for additional broadband deployment. This situation can and must be reversed!

As I finish this writing I'm bringing online an open source content management system with the technical assistance of David Hughes JR at http://lone-eagles.oldcolo.com which will integrate online learning and community networking with advanced broadband distance learning technologies and unique social engineering methodologies. In conclusion; this is where the real story will begin.

You're invited to continue to follow the adventure and to join in directly at http://lone-eagles.com/new.htm

Appendix: My Early Work With Distance Learning, 1980-1998

by David R Hughes

From the time I started using the earliest personal computers - Radio Shack Model I - with the first text processor for such a computer, Electric Pencil, in 1977, and then with a 300 Baud Acoustic Cat Novation Modem in 1979, running the simplest terminal programs and Xmodem invented to support a new medium called a 'Bulletin Board' by Ward Christiansen about the time when the earliest commercial, online dialup Service emerged - The Source, which predated Compuserve, America Online, much less the Internet - it was clear to me that this medium could and should be used for Education. K-99.

Having, as a West Point graduate (1950) taught English at the Military Academy in the late 50s. And then, as a senior advisor to the then Secretary of Defense Robert McNamara in 1966, I saw the 'miniaturization' of technology and

global, affordable telecommunications coming. So I was fully ready in 1977, after having retired in 1973 from 27 years active military service, for the first microcomputers which emerged from Apple and Radio Shack. They were tools for general and universal 'communications.'

I have been working in advanced Telecommunications the 30 years since then. And implicit in all that work, is teaching and learning, online. Above all, I understood by 1979 that the two basic subjects which were declining in mastery by American school children – written English and Math - could be taught via such instruments. And I saw by closely observing one of my own children who had mild dyslexia, that English could not only be taught, but in my opinion better, more comprehensively and faster via personal computers and modem communications. And as a lifelong writer and poet, I saw that 'back space and blot out' would be a revolution in the reading and writing of text.

I also was aware that it would be rural schools which would be left behind, not because personal - classroom - computers would be unaffordable -

but that the government regulated costs of rural voice telephone communications used for modem connection could make 'online' instruction prohibitively expensive.

So I set about exploring this medium, connecting with every public-access online service in the US, and several in foreign countries (Japan and England especially) spending freely for the connectivity until I understood just how revolutionary it was, and why and how, students from a young age should be exposed and tutored in its. As a quite successful writer, I was paid liberally for my short pieces I wrote from the Korean War battlefield. My literary genes descended from 13 generations of Welsh preachers from that land that so celebrates language, story telling, the bardic tradition and the mysteries of poetry. I even began to see - feel - subtle characteristics in both online, and onscreen text that went beyond Gutenberg and the printed page.

In fact, while still on the Source, and later on Compuserve I began to experiment with modes of written expression that took account of the

number of characters across the computer screen -80- and the number of lines per screen -25- and the phenomenon of 'scrolling' text, and the effect on 'meaning' of the motion of letters or punctuation on the screen, as they moved. Today I write almost entirely for screens. Rarely for paper.

Over time I developed a wholly new literary form which I called 'Word Dance' that recognized that words in the form of light, on a computer screen had the added - to words on fixed surfaces, property of Time. I - and anyone else could - using the computer processor with appropriate software, present text anywhere on the screen - not, ala traditional upper left to lower right while the eyes moved over the text - cause it to move, blink, change slowly - giving it 'meaning' more akin to variations in voice - a kind of visual speech, even to the point of holding the eye fixed on the center of the screen while the text came at one in a digital stream. Only text.

And I concluded the most 'natural' and effective form of writing in the constrained, but dynamic space online was poetry - not prose. And began

to write pieces, such as 'The Dance of the Red Leds' which could not be reduced to paper, or read aloud, but could only exist on dynamic computer screens. I observed that the only place this was done in our culture was in Television advertising - dynamic words. Visual speech. But very costly to produce on specialized machines. Not for Everybody - yet.

Now all of this would have just been academic and arcane research, and the experiments of an artist, except I was aware that youngsters growing up looking at text and blinking numbers on LCDs on their watches, their school and home computer screen, ATM machines - dynamic digital displays. That they were going to use 'language' differently from their parents who grew up watching television, or their grandparents who grew up reading text on paper.. That if children were to be taught properly in school how to deal with language in the future via computer networks - which everyone would eventually have - they needed to be taught differently from the emerging trend in some colleges and even schools in just putting Lessons on computer screens which were

indistinguishable from the same text in a book or on paper.

So, by 1980 I had developed formal courses which could only be delivered online, and interactively with the students. I called the form 'Electronic English.' And it was aimed far more at the Teachers, than the K-12 students, for I saw that they, even when they were quite computer literate, and getting used to online forms, knew little of how different this form really was. Which courses not only delved into the subtleties some of the subjects above raise but also how the style of email, mail lists, interactive group real-time or computer conferencing 'chats' differed as much from text papers, as delivered speech differed from paper. It would be a major third form of human discourse.

In the fall of 1981 I was asked by local Colorado Technical College - if I would teach for them. I agreed. Using the Source as the link between remote and local classroom students, most but not all adult, I taught the first formal credit college course of Electronic English in July, 1981. Two 'students' were as far away as Australia and

Alaska (the past Lt Governor Red Boucher, who paid by credit card from Anchorage). One of them who took the course was Frank Odasz, from Western Montana College. He had found me via my own Old Colorado City Electronic Cottage Bulletin-Board, and its 'Lil Red Electronic Schoolhouse' section. I had said to him, he should not attempt to teach online courses until he at least had taken my course himself, and knew what it means to be an online student. He did well, and went onto create Big Sky Telegraph.

These efforts were covered widely by the print press and media, starting with technical magazines, then newspapers, and finally by educational journals. I was asked to speak in many venues throughout the 80s. This evolved to courses I then fashioned and taught for Pikes Peak Community College specifically for teachers. I used my own servers by this time, and more advanced software optimized for the purpose.

I was approached by Physicist Dr. George Johnston, MIT in 1990 who stated that MIT was

concerned about the state of math and science education in the nations schools. That MIT professors had been visiting Boston Schools to help teachers, but that was very local, and costly in time. Could I help using distance learning techniques? (The Internet had not arrived yet nationally). I said yes, and very quickly, with my setting up the networks, which included Fidonet links in Montana and Wyoming, UUCP between Unix systems in larger cities, Dr. Johnston taught the first credit high school courses in the Math and Physics of Chaos to a virtual classroom of 40 students, who were in one small school in northern Montana, the High School in Cody, Wyoming, Air Academy High School in Colorado Springs, as well as two Junior High schools whose students were in AP classes. That was September 1990. In several cases the math teachers who did not know the subject of Chaos (which did not exist when they got their degree, or in their refresher training) took the course alongside, collaboratively, with their own students. It worked. And one young woman in Cody, Wyoming whose high school could not

even offer her AP Calculus, took the course, and with Dr. Johnston's help matriculated at MIT.

In 1991 I was asked to submit papers for a study about 'NREN' - National Research and Educational Network - for Senator Al Gore's Staff by the Congressional Office of Technology Assessment on K-12 online education. I did that and was told later that it was the first appearance in Washington of a case for extending the emerging 'Internet' to K-12 distance learning. A paper from that, called "Appropriate and Distributed Networks: A Model for K-12 Educational Telecommunications" was circulated widely in Washington, include being requested by the staff of Congressman Edwin Markey of Massachusetts, who was increasingly interest in the use of networks for education.

About this time also, 1992, I retained the programming expertise of Russians in Moscow, to create a program called 'Troika' which carried out my Word Dance ideas in an OSI protocol called NAPLPS, which, not so incidentally could permit the easy composition on any personal computer, without broadband, in all foreign language fonts,

from Cyrillic and Arabic, to Chinese and Norweigan. It was no longer needed after the World Wide Web came on the scene. But it incorporated many language-teaching techniques.

By this time, in 1994, while 'online learning' was beginning to appear more generally, I was researching alternative ways to get broadband to rural communities and schools - which were falling far behind the Internet extension to urban schools. Broadband was needed for the transmission of graphics and multimedia sufficient enough to support online instruction in any subject. The Fidonet, and Ufgate technologies, based on UUCP protocols of 'Store and Forward' technologies were not enough, in the always-on and long time connected era of TCP/IP and the Internet. The cost over rural telephone lines would be prohibitive. So I was a very early investigator and user of Wireless, including the new unlicensed wireless that has evolved into Wi-Fi (802.11b) connectivity in urban areas.

In 1995, I was approached by the Networking Division of the National Science Foundation some

of whose Project Officers were deeply interested in using advanced Internet in ways beyond what the NSF Educational Division was, and I was asked to accept a grant of $350,000 to experiment with Wireless for Education. I agreed, but only for education in rural and remote areas. So, from 1995 to 1998, as Principal Investigator, I extended wireless Internet links to Schools in such places as the poor, Hispanic San Luis Valley of Colorado (see http://wireless.oldcolo.com/course/reports.htm).

And I retained the services as a CO-PI of Dr. Johnston, MIT who then taught an accredited course in Math and Science to teachers in both rural schools and urban schools linked by wireless broadband - so I could evaluate the adequacy of the tools needed to really support bandwidth-demanding online math and science by extending, wirelessly, the closest fat pipe from a commercial ISP. In the San Luis Valley, I was able to make a 30 mile, zero operating cost link from the small San Luis School, to Alamosa for the $1,000 cost of two digital radios. US West wanted $2,000 a month for the same distance, by

tariffed T-1. US West was not pleased by my legal bypass of their rural wire-monopoly networks.

From the work I did in Lewistown, Montana in 1997 supporting the teaching of Field Science by wirelessly connected data loggers by 7th Grade Science Class students and teachers to field data site miles out of town, the NSF showed a different interest. Finding the wireless technology I developed of direct benefit to university level environmental and biological field scientists, they asked me to accept a 3 year, $1.2 million grant to 'Model' Wireless for fields science projects in Alaska, Puerto Rico, Wisconsin and Virginia. This took most of my efforts from 1998 to 2002, so I did not pursue online formal teaching in the US after that. However, I successfully asked research scientists to incorporate bright science-oriented students from linkable local schools as 'remote lab assistant' in their field work. That begins to open up connectivity between universities and K-12 school kids and their teachers, letting exceptional students advance more rapidly than the resources of the school can support.

Currently I have been taking all I have learned, and applied it to formal school level Distance Education in more remote areas – rural Wales, and very remote Nepal. I trekked up in October 2003, on the route to Mt Everest to 12,000 foot Namche, Nepal donating and installing for the very isolated Sherpa people in Namche, and the very poor school in Thame, wireless Internet connectivity through a satellite IP link. It includes Voice over the Internet SIP technology. In February, 2004, Sherpa Mingma of Pittsburgh, PA will be teaching, by natural voice over the Internet into a speaker VOIP phone in the Sherpa classroom, oral

English, and then written English, which the Nepalese teachers cannot teach properly locally. And finally teach them computer science and the Internet on their linked computers (see http://www.linkingeverest.com/gallery/index.php)