

K-12 Encounters the Internet*

Working Paper

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INTRODUCTION

In January 2002, the No Child Left Behind Act (NCLB) suddenly instituted new demands on parents, schools, educators, districts, and state policymakers. This law places an especially high premium on detailed information relating to standards, accountability, regulatory compliance, testing, and achievement. The new education law, broadly conceived as a federal accountability system emphasizing academic performance, adds a strict requirement for better understanding the academic inputs and outputs of students, teachers, schools, school districts, and states. There are highly noticeable effects such as rewards and punishments of schools and districts by means of publicity or funding allocation. But there are also more subtle effects such as shifting budgeting and finance scenarios for states and districts, the movement of students or teachers, the quality of data collection, management, and reporting systems, and installation of district technology infrastructure.¹ Because of the new political, economic, and social dynamics in the K-12 universe (K-12), there is increased need for more accessible information and efficient communications.²

The exchange of information among the key K-12 decisionmakers – parents, teachers, principals, superintendents, and elected school officials – is a huge challenge today. Quality information and communications are becoming more valuable as options increase for parents and accountability increases for teachers, schools, districts, and states. The Internet gives people access to nearly infinite content and information, but with all the additional information and choices, there are more decisions to make for website browsers and users. Logistical help is needed for reaching people who can be reference points and explanation givers. Internet savvy alone will not suffice. The

convergence of NCLB realities with the Internet's ever expanding capabilities offers a window of opportunity to build a social network website service that is suited for K-12.

In this working paper, I address three questions:

1. How is K-12 information presented on the Internet?
2. What are the informational needs in K-12?
3. How might a social network website be useful to K-12?

K-12 & THE INTERNET

What is out there?

K-12 websites are mostly static, assumption-driven information delivery systems. These websites often provide only one direction for communications and primarily focus on outputs. Basically, they have a supply-orientation. In March 2005, Google searches on the terms "education" and "k-12" produced what are the twenty-five most popular K-12 websites – popularity as defined by Google.³

The two Google searches list a variety of K-12 websites. (see Tables 1 and 2) Many were developed to support a prior existing organization. For example, long-standing organizations like the U.S. Department of Education, National Education Association, NASA, Education Week, and various state departments of education all have their own websites. Others are start-ups such as Awesome Library, Education World, K12, and Education Index.

In terms of function, the most popular websites serve as a magazine providing content (e.g. Education World), storefront offering products (e.g. Pro Quest), or directory providing website links (e.g. Yahoo! Education Directory). Common among media outlets, government bodies, and nonprofits, "hybrid" websites combine two or three of

these functions (e.g. Education Week, U.S. Department of Education). The magazine, storefront, and directory functions are largely supply-oriented, relying heavily on assumptions about the user.

A search tool is a common feature that supplements magazine, storefront, directory, or hybrid websites. A search utility asks for user input. Depending on the tool's sophistication, it can provide things like school report cards, databases, articles, reports, and website links. SchoolMatters.com, Just for the Kids, GreatSchools.net, the U.S. Department of Education's Common Core and Nation's Report Card, and many of the state departments of education have searchable websites offering plenty of useful education data.⁴ It is still clear however, the main purpose for these websites is to directly provide information and content, not satisfy situation-specific needs or services.

Limitations of Supply-oriented K-12 Websites

The following example is an attempt to demonstrate the problematic learning curves of supply-oriented websites. When it comes to organization, language, and functions, K-12 websites are cumbersome for the average adult Internet user. They make broad assumptions about the user's purpose, interests, and his or her navigational skills and instincts. This characteristic is a severe limitation. The user has limited amount of time and energy. Even with websites like School Matters and Just for the Kids, it takes substantial time to learn how best to use these websites. Consequently, the current generation of K-12 websites unintentionally build barriers to access.

A parent's perspective will be used here. A mother named Ruby has a fourth grade son who has Attention-Deficit/Hyperactivity Disorder (ADHD). He is having difficulty in his math class. Ruby wants to learn what activities can help her son.

Approach #1. Ruby uses a search engine like Google or Yahoo!, on any combination of the following terms: ADHD, fourth grade, reading exercises. What are some challenges with this approach? One is time. This time-pressed mom has to sift through at least one or two search results pages just to see what website links may be most relevant. When Ruby believes some websites to be germane and reliable, it will also be worth her time to compare websites with one another based on the quality of the displayed information. This process can take at least 10-15 minutes upwards to hours. Google and Yahoo! may offer wonderful and extremely powerful search technologies, but they do not address a second difficulty which is Ruby's limited knowledge of ADHD. Her knowledge base affects how she judges these websites. Search engines give limited context and insight for the choices they list, and they offer little help for when it comes time for Ruby to make website selections. Their search precision power decreases as the specificity or complexity of questions increase. Unless people have lots of time on their hands, or they have very simple or general questions, a search engine approach is often not very effective.

Approach #2. Ruby goes to a well-known comprehensive education website provided by the U.S. Department of Education (www.ed.gov). This website is elaborate and highly organized, offering loads of useful information through publications and database search tools. Like so many K-12 websites today, however, ed.gov can puzzle the novice user. After starting with more than twenty link choices on the home page, Ruby narrows her options down to four: (1) a specific portal for parents to enter; (2) Quick Click to "Math"; (3) a search tool; and (4) a research and statistics center link. Option 1 leads to six more choices, with three seemingly viable sources for information: (a) "Parents' Guide"; (b) "More Options for Parents"; and (c) "Publications for Parents".

Ruby goes to the Parent's Guide, a single PDF document, and it is limited in scope by only relating to the new NCLB law. No help for Ruby's question – she has dug a dry well. Ruby goes back to Option b – called More Options for Parents – and she views all the resources it offers, giving her more than fifteen choices for further browsing. Nothing is targeted about this approach, and it is easy to get frustrated. The number of choices generated and multiple rounds of decisions become staggering. Today's K-12 websites frequently cause some hair-pulling for those researching specific situations.

Approach #3. Ruby tries Education Week's website (www.edweek.com) as a possible secondary source for information. Serving as a weekly print medium and as an Internet medium, Education Week is widely regarded as the leading comprehensive news organization for K-12 education. When Ruby gets to the Ed Week home page, she is presented more than forty link choices. This does not include any of the advertisements or solicitations. Some links have brief explanations, such as for news stories, while others have none. At a minimum, there are more than ten very broad categories or links. Ruby goes to "Special Education" under the "News" heading. This leads to eight story links about special education. One happens to be related to ADHD. This story is a human interest one and is intriguing, but not at all related to Ruby's parental needs, and specifically addressing her son's math problems. Another dry well. Using the article search tool, she finds some other website resources, but a new process of trial and error will begin again. How long will it be before the Ed Week website specifically gives precise information for Ruby's situation? Like most websites, content is updated daily, but searching for the content specific to this mother's question will continue to be a low probability game.

Approach #4. Ruby clicks toward a general ADHD website, called SchwabLearning.org (www.schwablearning.org), which she discovered previously on Google. With little context information about this website, she has to make assumptions about the website's credibility and completeness. Ruby clicks on a tab/section called "Resources", and she is presented a smattering of information and links. The quantity of available information is impressive, and the intentions behind this website are obviously sincere and noble. Even though plentiful content is a necessary condition for a highly effective website, it is not sufficient by itself. Website functionality (from the user's perspective) should be treated with as much regard as the availability of content. The haphazard display of so many supply-oriented websites deter further action because they are confusing and take too much time to figure out. Adults are strategic with their time and energy. How to get where you want to go should be obvious on a website, and it should take no more than a few mouse-clicks to get desired information.

These are anecdotal experiences, but considered together they suggest calls for simplicity, precision, timing, context, and insight. Even while using the most powerful website-based search tools and search engines today, there are still huge efficiency problems for getting people their situational information when they need it.

Perspectives, Timing, Situational Questions, and the Value of Sharing Human Experience

Despite all of the recent website innovations on the Internet, two critical questions are not adequately addressed by today's K-12 websites – what is the perspective of the user? and what is the experience of the user? K-12 websites make assumptions about what their users would like to know. This places a large burden on the user to locate his or her desired information through a series of trials and errors.

First of all, a major problem for even the most experienced researcher is time. K-12 websites tend to display as much information on as few web pages as possible with little regard for best functionality or user time constraints. This clutter of information contributes to additional searching and increased time costs. As a result, time can be a critical barrier and even deterrent for getting online information. There is a lot of useful K-12 information on the Internet, but the average user needs help with locating, judging credibility, accuracy, and completeness, and ultimately understanding that information.

Secondly, as people get more involved and invested in a situation, they have more complex questions. Automated telephone customer service is a useful analogy. Say a person would like to ask a situational question for using his or her frequent flyer miles on a particular airline. This person wants to see what is possible for a number of different cities at various times of the year. This is a large question domain that begins with “frequent flyer miles”, and it is likely to have lots of twists and turns in a phone dialogue. When initially making telephone contact with the airline, the customer is offered a number of options, many times without the chance of speaking to a human being. The options are usually broad-sweeping and unlikely to lead to the specific answers needed. After selecting a number for the first round, another round of options are presented. This merry-go-round can go for three or four rounds before the option of actually speaking to a customer service agent. Many people have felt this frustration before, and some may actually hang up before getting full answers. K-12 website users are likely to have similar experiences online. One key difference is that a website does not usually have an obvious contact to offer good guidance for a particular situation.

Do people often have multi-layered situational questions? This is a critical consideration for providing a service. Situational questions are common in life. There is value for sharing human experience and knowledge, especially among those who are loosely acquainted but have met some threshold for trust. Informal information exchanges are important when it comes to people's personal and professional lives. Networking with casual contacts is an effective way to gather new and varied information in a relatively quick manner. An Internet website that empowers social networking and possesses a core competence in K-12 matters could be useful in this way. Such a website would serve as an intermediary, providing useful contacts to satisfy people's needs for timely, relevant sources of information.⁵

What is a social networking website?

A social networking website (SNW) provides a model for creating a demand-oriented service that allows the user to effectively search for people who share mutual interests, or who may have valuable information, experience, or insight. They have the capacity to develop limitless online social exchanges. SNWs bring efficiency to social interactions, and as a result, they have created countless online communities in the last decade.⁶

SNWs have various kinds of search, communications, and transactional functions, but the basic idea is that these websites bring two or more people together in a convenient manner. A person can look for others by targeting online profiles either through mutual contacts ("friends") or customized search parameters. These are methods of networking and matching. Another method is customizing a search on one or more preference categories, specifying what is desired within a given category. Depending on the level of detail, a person can search for others based on one category (e.g. zip code) or multiple

categories (e.g. gender, favorite sports, favorite movies, likes to cook, etc.). SNW networking, matching, and searching utilities have improved and become more powerful over the years while still remaining relatively simple. As a result, SNWs construct online communities in very quick fashion.⁷

The SNW has two important roles affecting user behavior within its online community. First, a SNW *functionally* serves as an intermediary, providing users as contacts, content as specialized information, and reputation/accountability systems to aid value judgments. In this role, the website points a user toward timely and relevant sources for information and other goods. Secondly, the SNW *structurally* creates free markets of human intermediaries – revealing those users whose experiences and judgments may lead to important sources for information (online or offline) and other goods. A successful SNW taps into a previously underserved supply and demand market, and as a result, mediates frequent social exchanges within the online community.⁸

How could social networking serve Ruby?

How could a social networking website serve Ruby in the previous hypothetical example? It should be pretty straight-forward and intuitive. Ruby clicks on a K-12 SNW with its standard preference matching service, and she is exposed to a community of engaged adults. Ruby customizes her parameters on the search tool, and she finds others who are knowledgeable of ADHD issues – those who have ADHD children, teach ADHD children, and do ADHD research. If she desires, Ruby can be very specific and customize for her son's age and math issue, but that may not be necessary. After she gets her search results and judiciously glances over the online profiles of SNW members, Ruby sends a few people very brief emails asking for help (created, sent, and stored all on this website). It is likely she will get some response within a couple days. The time to do

this can take as little as ten minutes, much swifter and more straight-forward than other website approaches, and the results are likely to be much more precise and on target for answers. At the least, Ruby should hear about another's experience similar to her own with the possibility of building one or more informal contacts. A friendship or professional relationship may build, and as Ruby gets more comfortable with the correspondence, she may begin emailing by using her regular email address rather than using the SNW's third party email system.

In July 2004, I conducted an Internet-based survey asking about themes and ideas important to people, like a Ruby, who are actively involved in K-12 matters. I present the survey's main findings in the next section.

K-12 FOCUS GROUP

The original purpose of the 2004 online survey was to gather information on how best to craft an interactive website that might provide users with K-12-related contacts or references of mutual interest.⁹ The survey sample was not random and should not be considered representative of any defined population. This was a focus group effort, not a scientific survey. There were 158 questionnaire respondents. From the outset I tried to classify the perspective (or multiple perspectives) of each respondent. Seven "perspective groups" emerged. Perspective groups are not mutually exclusive – a focus group respondent was permitted to indicate as having more than one perspective on K-12 education matters (e.g. some researchers were also teachers and parents) – so summing the percentages of the groups do not total 100%. Due to constraints of the questionnaire construction, interactions of perspectives can not be analyzed.

The focus group was fairly diverse in life experience. (see Table 3) More than forty parents and fifty researchers answered the questionnaire, representing the two largest perspective groups. Nearly a third of the sample indicated experience as a parent; a third also indicated experience as an academic researcher; 22% as a journalist; 18% have taught; 14% have worked in government as a policymaker; 11% as an administrator; and 5% as a grantmaker for a philanthropy.

It was important to see what perspective groups were considered most desirable as resources for information. (see Table 4) No surprise that people wanted to correspond with other members *within* their own perspective group, their peers, at least 45% for each perspective. Represented by the shaded green cells, researchers and policymakers stood out as being very attractive to all perspective groups. Apparently the people in this sample wanted access to expert knowledge and the public's decision makers.

Unfortunately there are obstacles to accessing experts and policymakers – high demand and low supply erect barriers for communication. Large bureaucracies impede information channels. The traditional means of communication – postal mail, telephone, fax, and even email – are often times not effective, and tend to be labor and time intensive. Experts and policymakers have very low incentives to respond to requests from unknown persons. These intimidating barriers can eventually deter the efforts of ordinary parents or teachers.

Finally, the last multiple choice item in the survey provides a clue for the potential in an information sharing service. (see Table 5) Overwhelmingly respondents (with the exception of journalists) would like to use a system of matching up website users by their online interests and preferences as a desirable way to contact people

regarding their K-12 questions. This kind of social networking technology an integral part of most SNWs.

The survey's findings suggest three general informational needs among K-12 perspective groups. First, the green shaded cells in Table 4 illustrate a demand for expert or specialized knowledge. People desire lines of communication with researchers and school officials. Ranging from parents to researchers, people want to have fairly conclusive evidence to support their decisions. Such expert access may help determine what class difficulty level is appropriate for a son or daughter, or maybe choosing the best research design to start a new project. A second need appears to be peer support. This seems most apparent among teachers, but other groups also expressed at least 45% or greater interest in connecting to others within their perspective groups. A third need is an efficient means to obtain valuable information. Simplicity is important. The overwhelming support for a social networking website tool is an indicator – the first column in Table 5. As stated earlier, time is a major cost to adults. Not only must information be relevant to the given situation, but it should be fairly easy and quick to get.

On the Internet, existing K-12 websites tend to assume people's needs, rather than allowing them to develop and communicate their own priorities. Supply-oriented websites are the norm in K-12, and unique perspectives are not sufficiently taken into account. As a result when a person is actively engaged in a particular K-12 issue (personal or professional), he or she must go through a trial and error method to discover what part of a website may actually provide useful answers to questions. To compound the efficiency problems, many K-12 websites reflect some kind of ideology whether related to instruction, curriculum, governance, finance, school choice, special education

programs, or a wealth of other topics. The bottom line is that people currently have limited access to a range of K-12 perspectives and experiences.

CONCLUSION

Today people require a new kind of website service to meet their K-12 needs. The federal No Child Left Behind Act increases the demand for better K-12 information and communications. Even the most prominent K-12 websites are limited due to their inherent functional constraints. They are supply-oriented, not effectively addressing the informational demands of the NCLB era. Such common limitations motivated the research and writing for this paper. In this exercise I had four objectives: (1) Argue that information, communication, and transactional needs are increasingly complex and frequent; (2) Illustrate how K-12 websites are generally assumption-driven and supply-oriented; (3) Demonstrate that a supply-orientation is not effective for the complex situational questions people face in K-12; and (4) Explain why social networking is functional for satisfying logistical goals of access and efficiency.

Why go with the social networking website model?

The advantages of SNWs are five-fold. First, they are more likely to save time and energy than supply-oriented websites. Instead of spending a couple hours doing trial and error website excavations, the user may take 10-20 minutes doing a few custom matching searches, type a few emails, and then logoff. Secondly, SNWs lead to more precise results than using a search engine or some supply-oriented website. Human beings have the capacity to reason and share human experience, which are the stuff of practical value. These aspects are inherent to the SNW model. Reasoning and shared experience allow for customization and tackling situational questions. Third, the social networking website fosters the environment for people to informally learn from each

other in different ways. While expanding knowledge bases, social networking websites facilitate contacts to help bridge understanding and enhance judgment. Research has shown that casual acquaintances, sustained by “weak ties”, are more likely than strong relationships to offer pathways to new and varied information.¹⁰ Fourth, rather than posing as direct competition, social networking will complement supply-oriented websites. The simplest use of a social networking website is to find reference information. As relations develop, users may be pointed to primary sources, whether they are other people, K-12 supply-oriented websites, or offline K-12 organizations. Finally, to some degree, relationships should prosper. This would be beneficial at the individual level in terms of resources, peer support, elaboration, corroboration, collaboration, mobilization, or organization. Communities should also benefit as SNWs foster social exchanges and carry potential for K-12 civic-building.

Social networking websites are capable of addressing some of K-12’s inefficiencies when it comes to communications and transactions. The social networking website is a mechanism that could allow parents, teachers, researchers, and others to get timely and relevant information serving their needs, interests, and priorities.

NOTES

¹ A recent Education Week survey of state education officials suggests a number of NCLB influences. For the story and results, see David J. Hoff, "NCLB Focuses on Data Tools," *Technology Counts 2005: Electronic Transfer*, *Education Week* May 5, 2005, pp. 12-17.

² In a new era of educational accountability, the quality of information about students, schools, and districts is very important. Regarding the role of information in the politics of educational accountability, see Terry M. Moe, "Politics, Control, and the Future of School Accountability," in *No Child Left Behind? The Politics of School Accountability*, edited by Paul E. Peterson and Martin R. West, (Washington DC: Brookings Institution Press, 2003), pp. 80 – 106. For a theoretical discussion on the importance of information for parents when it comes to choosing their child's school, see Julian R. Betts, "Does Economic Theory Hold Lessons on Why and How to Implement School Choice?" in *Implications of School Choice for Equity and Efficiency*, edited by Julian R. Betts and Tom Loveless, (Washington DC: Brookings Institution Press, forthcoming).

³ Google is the most popular search engine on the Internet. The search engine company employs its famour24 fam

Governance, Vol. 8, (2004), pp. 149-171. Odorici and Corrado cite earlier research on intermediaries: Paul Hirsch, "Organizational Effectiveness and the Institutional Environment," *Administrative Science Quarterly*, Vol. 20, (1975), pp. 327-344; Paul Hirsch, Processing Fads and Fashions: An Organization-Set Analysis of Cultural Industry Systems," *American Journal of Sociology*, Vol. 77, (1977), pp. 639-659; Ronald S. Burt, "The Social Capital of Opinion Leaders," *The Annals of the American Academy of Political and Social Science*, (November 1999), pp. 37-54; Ezra Zuckerman, "The Categorical Imperative: Securities Analysts and the Illegitimacy Discount," *American Journal of Sociology*, Vol. 104, pp. 1398-1438.

⁹ SchoolParentNet (<http://www.schoolparentnet.com>) is the closest prototype for this kind of website.

¹⁰ See Mark Granovetter, "The Strength of Weak Ties," *American Journal of Sociology*, Vol. 78, No. 6, (1973), pp. 1360-1380. This article is also included in the early comprehensive volume on social network analysis: Samuel Leinhardt, ed., *Social Networks: A Developing Paradigm*, (New York: Academic Press, 1977). Granovetter used social networking theory to explain how people find employment: Mark Granovetter, *Getting a Job: A Study of Contacts and Careers*, (Cambridge, MA: Harvard University Press, 1974). Evidence for the strength of weak ties in family planning decisions is given in William t. Liu and Robert W. Duff, "The Strength in Weak Ties," *Public Opinion Quarterly*, Vol. 36, (1972), pp. 361-366. Granovetter updates his social networking model in Mark Granovetter, "The Strength of Weak Ties: A Network Theory Revisited," *Sociological Theory*, Vol. 1, (1983), pp. 201 – 233. The weak ties model has been recently supported by experimental research reported in Peter Sheridan Dodds, Roby Muhamad, and Duncan J. Watts, "An Experimental Study of Search in Global Social Networks," *Science*, Vol. 301, (August 8, 2003), pp. 827-829. For a good review of the academic literature, see Laura Garton, Caroline Haythornwaite, and Barry Wellman, "Studying Online Social Networks," *Journal of Computer Mediated Communications*, Vol. 3, No. 1, (June 1997). IBM suggests business applications using social network analysis in Kate Ehrlich, "It's Who You Know: Inside Social Network Analysis," *IBM Think Research* article, available online at: http://www.research.ibm.com/thinkresearch/pages/2005/20050706_think.shtml .

TABLE 1 **Google Search on “k-12”, March 2005**
Top 25 Websites

Name	Website Address	Basic Function	General Purpose
Awesome Library	www.awesomelibrary.org	Directory	Website link provider
k12	www.k12.com	Storefront	Commercial product provider
NASA Quest	quest.arc.nasa.gov	Magazine	Free content provider
ProQuest K-12*	www.proquestk12.com	Storefront	Commercial product provider
K-12 Resources For Music Educators	www.isd77.k12.mn.us/resources/staffpages/shirk/k12.music.html	Directory	Website link provider
History/Social Studies Website for K-12 Teachers	my.execpc.com/~dboals/boals.html	Directory	Website link provider
Busy Teachers' Website	www.ceismc.gatech.edu/busyt	Directory	Website link provider
Eisenhower National Clearinghouse (ENC)	www.enc.org	Magazine	Free content provider
Yahoo! Education Directory	dir.yahoo.com/Education/K_12	Directory	Website link provider
K-12Jobs.com	www.k12jobs.com	Storefront	Career resource center
Mathematics Archives - K12 Internet Sites	archives.math.utk.edu/k12.html	Directory	Website link provider
EduHound.com	http://www.eduhound.com	Directory	Website link provider
SCORE CyberGuides	www.sdcoe.k12.ca.us/score/cyberguide.html	Directory	Free content provider
American School Directory	www.asd.com	Directory	Subscription content provider
Virginia Department of Education	www.pen.k12.va.us	Magazine	Free content provider
Washington Department of Education	www.k12.wa.us	Magazine	Free content provider
Georgia Department of Education	www.doe.k12.ga.us	Magazine	Free content provider
Bureau of Labor Statistics, Career Information	www.bls.gov/k12	Magazine	Free content provider
Tenet Web: The Texas Education Network	www.tenet.edu	Directory	Website link provider
University of Pennsylvania - African Studies Center	www.africa.upenn.edu/K-12/AFR_GIDE.html	Directory	Website link provider
SchoolGrants	www.schoolgrants.org	Storefront/Directory	Hybrid
A Guide to Medieval and Renaissance Instruments	www.s-hamilton.k12.ia.us/antiqua/instrumt.html	Storefront	Free content provider
California Learning Resource Network	www.clrn.org/home	Storefront/Directory	Hybrid
K-12 Science Education Resources	www.eskimo.com/~billb/edu.html	Directory	Website link provider
Utah State Office of Education	www.usoe.k12.ut.us	Magazine	Free content provider

NOTE: A “Hybrid” website serves any purpose and functional combinations that include access to links, content, or commercial products.

An Asterisk (*) indicates the website appeared more than once in the Top 25.

TABLE 2 Google Search on “education”, March 2005
Top 25 Websites

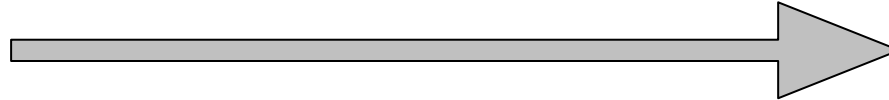
Name	Website Address	Basic Function	General Purpose
Education World	www.education-world.com	Magazine	Free content provider
U.S. Department of Education	www.ed.gov/index.jhtml	Storefront/Directory	Hybrid
EDUCATION Index	www.educationindex.com	Directory	Website link provider
Education Week	www.edweek.org/ew/index.html	Magazine/Directory	Hybrid
National Education Association	www.nea.org/index.html	Magazine/Directory	Hybrid
Education Place	www.eduplace.com	Storefront	Commercial product provider
Family Education	www.familyeducation.com/home	Magazine/Directory	Free content provider
Education Planet	www.educationplanet.com	Storefront	Commercial product provider
Yahoo! Education Directory	dir.yahoo.com/Education	Directory	Website link provider
The Chronicle of Higher Education	chronicle.com	Magazine	Subscription content provider
Peterson's	www.petersons.com	Storefront	Commercial product provider
Department for Education and Skills [UK] formerly Ask Eric Service [dead link]	www.dfes.gov.uk www.askeric.org	Storefront/Directory NA	Free content provider NA
The EnviroLink Network	www.envirolink.org	Magazine/Directory	Hybrid
Texas State Education Agency	www.tea.state.tx.us	Storefront/Directory	Hybrid
K-8 Kids' Place	www.eduplace.com/kids	Storefront	Hybrid
BBC Learning	www.bbc.co.uk/learning	Storefront	Hybrid
ivillage - Pregnancy and Parenting	parenting.ivillage.com	Magazine/Directory	Free content provider
International Society for Technology in Education	www.iste.org	Magazine	Free content provider
California Department of Education	www.cde.ca.gov	Storefront/Directory	Hybrid
The Gateway to Educational Materials	www.thegateway.org	Magazine/Directory	Hybrid
CNN.com - Education	www.cnn.com/EDUCATION	Magazine	Free content provider
ProQuest K-12	www.proquestk12.com	Storefront	Commercial product provider
NASA Education	education.nasa.gov/home/index.html	Storefront	Free content provider
National Association for the Education of Young Children	www.naeyc.org	Magazine	Free content provider

NOTE: A “Hybrid” website serves any purpose and functional combinations that include access to links, content, or commercial products.

TABLE 3

**Snapshot of K-12 Focus Group
By Perspective Group
(N=158)**

	Percent of Sample
Parent (n=46)	29%
Teacher (n=29)	18%
Administrator (n=17)	11%
Policymaker (n=22)	14%
Researcher (n=54)	34%
Journalist (n=35)	22%
Grantmaker (n=8)	5%

TABLE 4**K-12 Contacts or References
Ranked Across by Most Desirable Perspective Group**

Parent	63% Researcher	59% Policymaker	50% Teacher	50% Administrator	46% Parent	39% Grantmaker	22% Journalist
Teacher	72% Researcher	69% Teacher	59% Policymaker	52% Administrator	45% Parent	38% Grantmaker	14% Journalist
Administrator	76% Researcher	76% Policymaker	53% Grantmaker	47% Administrator	42% Parent	42% Teacher	35% Journalist
Policymaker	82% Policymaker	77% Researcher	59% Journalist	59% Grantmaker	55% Teacher	50% Administrator	45% Parent
Researcher	76% Researcher	72% Policymaker	50% Administrator	46% Teacher	46% Journalist	43% Grantmaker	33% Parent
Journalist	54% Researcher	54% Policymaker	51% Teacher	49% Parent	49% Administrator	46% Journalist	31% Grantmaker
Grantmaker	88% Researcher	88% Policymaker	63% Journalist	63% Grantmaker	50% Teacher	50% Administrator	38% Parent

TABLE 5**Percent Saying Website Feature is “Appealing” or “Very Appealing”
By Perspective Group**

	Preference Matching	Webmail	Discussion Board	Chat Room	Instant Messenger
Parent	68%	50%	34%	5%	8%
Teacher	72%	52%	36%	12%	12%
Administrator	47%	29%	29%	7%	14%
Policymaker	67%	39%	22%	11%	17%
Researcher	68%	36%	26%	4%	4%
Journalist	43%	43%	48%	4%	9%
Grantmaker	57%	43%	29%	0%	0%

APPENDIX A

Brief Definitions of Terms (some terms adapted from Wikipedia*)

Chat Room - A chat room is an online forum where people can communicate online by broadcasting messages to people on the same forum in real time. Sometimes these venues are moderated either by limiting who is allowed to speak (though not common), or by having volunteer moderators patrol the venue watching for disruptive or otherwise undesirable behavior.

Chat Session - More structured than a chat room; normally moderated by a host. For example, this format of online chat is often used by for Q & A sessions on news media websites.

Discussion Board (also called Message Board, Bulletin Board) - For the purpose of exchanging information only. A website location where users may post text communication for one another, and it is not time sensitive. It does not intended to be in real time.

Instant Messenger - An online service that alerts users when friends or colleagues are online and allows them to communicate with each other in real time on a private online chat window.

Social Networking - A term describing online process, not purpose. Encapsulates the website technologies that allow users to search and find other people as contacts, fitting closest to their specified preferences and criteria. Contacts can be given a rating of how closely they fit the user criteria. Common to social, dating, and professional websites.

User - One who uses a computer system, software application, or website. Users may need to identify themselves for the purposes of accounting, security, logging and resource management. In order to identify oneself, a user has a *user account* and a *user name*, and in most cases also a *password*. Users employ the user interface for access to a system or website, and the process of identification is often referred to as *log in*.

Webmail - Email received and sent only locally on a particular website. The user's other email accounts remain unaffected.

* Wikipedia is an online encyclopedia found at the following URL: http://en.wikipedia.org/wiki/Main_Page

APPENDIX B

Sketch of K-12 Perspectives

People	Institutions/Organizations
<ul style="list-style-type: none"> • administrators • advocates • business leaders • entrepreneurs • grantmakers • journalists • lobbyists • nonprofit leaders • parents • policymakers • principals • researchers • school board officials • students • superintendents • teachers 	<ul style="list-style-type: none"> • advocacy organizations • consulting firms • colleges and universities • Congress • data service companies • education management organizations • education technology companies • federal courts • foundations • governors' offices • learning service companies • news organizations • professional associations • professional development companies • school boards • school districts • schools • state courts • state departments of education • state legislatures • test preparation companies • test publishers • textbook publishers • think tanks • U.S. Department of Education

* Table represents a classification inferred from the online survey conducted in July 2004.

APPENDIX C

Sketch of K-12 Interests

Values & Goals	Macro Topics	Micro Topics I	Micro Topics II
<ul style="list-style-type: none"> • access • accountability • achievement • choice • communications • diversity • efficiency • equal opportunity • evaluation • implementation • infrastructure • innovation • investment • partnerships • protocol • results • standards 	<ul style="list-style-type: none"> • assessment • facilities • finance • governance • legislation • mass media • research • resources • safety • teaching • technology • transportation 	<ul style="list-style-type: none"> • academic subjects • assessment • basic skills • bilingual education • certification • child development • charter schools • civic education • classroom management • curriculum • gifted education • graduation • homework • instruction • lesson plans • problem-solving skills • professional development • special education • testing • textbooks • vocational education 	<ul style="list-style-type: none"> • after-school programs • college admissions • community service • counseling • entrepreneurship • grants • mentoring • scholarships • summer-school programs • tutoring

* Table represents a classification inferred from the online survey conducted in July 2004.