Quality Standards for Digital Reference Consortia

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In the emerging field of digital reference—the provision of human-mediated, Internet-based information services—little work has been done to define quality standards. Few research papers on the evaluation of reference services have been published. This article identifies a set of standards by which to assess individual digital reference services and to define membership within a collaborative network of digital reference services.

Measuring the Quality of Digital Reference Services

For the purpose of this article, the term “digital reference service” is used to represent all Internet-based, human-mediated information services, including those based in library settings and other types of organizations. Digital reference services can also be referred to as AskA services, as in “Ask a Scientist” and “Ask a Linguist.” Service staff members responsible for answering user queries are referred to as experts, whether their expertise is in a specific subject area or a process, such as information referral. This article considers digital reference services in a variety of contexts that address different groups of users, including the K–12 education community (e.g., students, parents, educators).

Quality Standards in Reference Service

To some extent, digital reference can borrow from traditional reference in terms of identifying quality characteristics of reference service. The same basic goal applies to both forms of reference—helping users meet information needs—and many of the same processes and characteristics are considered important, including easily accessible service, instruction to users on finding information independently, knowledgeable staff, and interactivity to confirm the user’s needs. However, the nature of the digital reference environment requires new applications and interpretations of quality characteristics. For instance, interactivity in face-to-face reference consists of effective in-person communications, while interactivity in digital reference can include exchange of e-mail messages or capturing of important information through a Web-based query form.


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In reference service, it is difficult to establish quantitative standards for quality characteristics. Therefore, reference standards are mostly general, leaving individual libraries to set their own standards for quality or compare their situations to those of other libraries. Studies that focus on defining quality in reference service offer some characteristics and components that can be generalized across institutions. Schwartz and Eakin identified a number of qualities and standards associated with good reference service and indicators of performance for evaluating the work of reference librarians. Their standards focus on librarian attitude, knowledge, skill, and appropriateness. Mendelsohn identified four dimensions of quality reference service—knowledge, willingness, action, and assessment—as well as two prerequisites for quality service: time and morale. Mendelsohn’s research also indicated the importance of creating a partnership between the librarian and user in assisting the user in meeting the information need.

Digital Reference Studies and Guidelines

Studies in digital reference to this date have been mostly descriptive, focusing on individual services and their constituents. Areas targeted include user demographics; nature of questions and responses; and user and staff behaviors, expectations, and satisfaction with the service.

Sloan provided suggestions for offering e-mail reference specifically for an academic library environment: set an average turnaround time that is communicated to the user, limit the service to those affiliated with the institution, use a Web-based query form, determine a policy for assigning incoming questions to staff members, limit the number of messages exchanged to confirm a user’s query, and offer options for user-librarian communication aside from e-mail. Sloan mentioned the importance of stating service expectations up front to avoid confusion and frustration on the part of the user.

Lankes and Kasowitz provided a comprehensive set of guidelines for developing and operating digital reference services based on experience and research. Their instructional manual presents a six-part model for building and maintaining digital reference services, including establishing the need for service, developing a service plan, training staff, creating a prototype, offering service, and planning and implementing service evaluation. Suggestions are drawn from experiences of exemplary digital reference services and some initially-established characteristics of quality digital reference service (described further in the section “Identifying Digital Reference Service Standards”).

In addition to studies of individual digital reference services and guidelines for developing and improving services, researchers have also begun to establish common frameworks for assessing digital reference services. Lankes conducted an in-depth qualitative study of six exemplary digital reference services to investigate how Internet-based information services are built and maintained. Lankes’s framework, based on Holland’s performance system of agents, is applied to digital reference services geared towards the K−12 education community. This framework considers ways that services gather information from the environment (detectors), their processes and procedures for translating this information into service (rules), and the tools and services provided to users (effectors).

White also offers a framework for analyzing and evaluating digital reference services based on systems analysis. The framework focuses on four areas: purpose of the service; administrative structure and responsibilities to the user; the process of submitting, receiving, and responding to questions; and service quality and effectiveness.

The frameworks Lankes and White offer, while providing guidance for describing and assessing existing services, do not identify quality standards by which to measure individual services or networks of services. The next section outlines a process for defining digital reference standards.

Identifying Digital Reference Service Standards

In 1997 Lankes convened an expert panel of representatives from subject-specific and information referral digital reference services to identify quality criteria of K−12-related AskA services and to select existing AskA services that fit the criteria. This six-month electronic discussion resulted in a list of twelve quality characteristics of digital reference service:

1. Authoritative
2. Accessible
3. Fast (turnaround of response)
4. Private (protects user information)
5. Consistent with good reference practice
6. Clear in user expectations
7. Reviewed regularly
8. Provides access to related information
9. Noncommercial
10. Publicized
11. Instructive
12. Offers training to experts

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This list, based upon panel members' experiences in managing and coordinating exemplary digital reference services for the K–12 education community and other audiences, was later adapted into the document "Facets of Quality for K–12 Digital Reference Services." This document was then revised to include input from a second expert panel as well as results of a quality standards discussion at an October 15, 1999 meeting of expert panel members and other digital reference service representatives.\textsuperscript{12}

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Revising Standards for a Reference Service Consortium

The Virtual Reference Desk (VRD) is building a collaborative network of digital reference services collectively referred to as the AskA Consortium.\textsuperscript{13} The Consortium serves as a support mechanism for AskA services through a model of question-sharing and opportunities to set standards for service quality and network cooperation. The primary benefit of participation for AskA services is the ability to off-load out-of-scope and overflow questions (those that exceed the service's capacity for response) to the network for redistribution. Sixteen services have participated in the pilot test of the collaborative network, including subject-specific and information referral services. The standards discussed in this article will help define membership requirements for current and future participants, including newly-created AskA services.

The revised standards, based on the "Facets of Quality," is a working document designed to maintain consistency and control in VRD's collaborative network of AskA services and provide quality digital reference service to the K–12 education community. The document will be revised as needed with input from consortium members.

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Varying Levels of Membership

Digital reference services differ from each other in many aspects, including policy and procedure, expertise, and available resources. It is important that quality criteria accommodate the wide range of possibilities of various services and their readiness to meet certain expectations. Therefore, each standard is presented at three different levels:

- **Base**—Required for network membership
- **Current Practice**—State of membership
- **Goal**—Objective of membership

Services that wish to participate in the network must fulfill the base level of requirements for each facet of quality. The current practice level represents a wide range of possibilities and reflects the current state of services in the network. The goal provides an optimal level to which all AskA services in the network will strive to achieve over time. In some cases, there is little or no variance between the current practice and goal levels, indicating that some network members are already achieving what is currently considered high quality service in certain areas.

The standards are divided into two main categories: user transaction and service development/management. The user transaction category includes those components that occur during the question-answering process (i.e., accessibility, prompt turnaround, clear response policy, interactive, and instructive); these features are generally visible to the user. The service development/management category involves decisions made in creating and maintaining the services that affect overall quality and user satisfaction (i.e., authoritative, trained experts, private, reviewed, provides access to related information, and publicized).

The following section presents each facet of quality, its definition, and its three levels of participation. The standards are presented in the context of AskA services that provide responses to the K–12 education community; however, they can be applied to digital reference services in all contexts.

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User Transaction Standards

**Accessible**

Digital reference services for the K–12 community should be easily reachable and navigable by any Internet user regardless of equipment sophistication, physical disability, or language barrier.

**Base:** Ensure that the service is reachable and navigable by either e-mail or Web-based query forms.

**Current Practice:**

- Allow users to contact the service via a Web-based query form.
- Make reference service information easy to locate on the service's Web site.
- Maintain compliance with the Americans with Disabilities Act (ADA).\textsuperscript{14}
- Include access to the service for non-English speakers by identifying people within the organization who are able to translate non-English user questions.

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Goal:

- Ensure that the service is easily reachable and navigable.
- Maintain compliance with the ADA.
- Include access to English as well as non-English speakers.

Prompt Turnaround

Questions should be addressed as quickly as possible. Actual turnaround time depends on a service’s question-answer policy and available resources (e.g., staffing, funds, etc.).

Base: Respond to at least 10 percent of incoming questions within two business days.

Current Practice:

- Answer at least 10 percent to 50 percent of questions within two to five days of receipt.
- Acknowledge user questions within two to five days of receipt and notify users if they will not receive a response.
- Allow users to indicate urgency of their requests on a Web-based query form.

Goal:

- Respond to 100 percent of appropriate (in scope) incoming questions within one to two business days.
- Acknowledge user questions within two to five days of receipt and notify users if they will not receive a response.
- Allow users to indicate urgency of their requests on a Web-based query form.

Clear Response Policy

Clear communication should occur either before or at the start of every digital reference transaction in order to reduce opportunities for user confusion and inappropriate inquiries.

Base: Create and adhere to a clear response policy.

Current Practice: State question-answering procedures and services clearly in an accessible place on the service’s Web site or in an acknowledgment message to the user. The statement should indicate question scope, types of answers provided, and expected turnaround time.

Goal: State question-answering procedures and services clearly in an accessible place on the service’s Web site or in an acknowledgment message to the user. The statement should indicate question scope, types of answers provided, and expected turnaround time.

Interactive

Digital reference services should provide opportunities for an effective reference interview, so that users can communicate necessary information to experts and to clarify vague user questions.

Base: Encourage sharing of important user information such as grade level and question subject-area either through a Web-based query form or follow-up e-mail communication.

Current Practice:

- Capture important information such as the user’s age or grade level, other sources checked, and contact information through Web-based query forms or other interactive communication tools, without compromising user privacy.
- Provide opportunities for clarification of user questions through follow-up e-mail messages or conversations using interactive communications tools.
- Incorporate a follow-up method, such as assigning tracking numbers to questions, in order to identify related messages.

Goal:

- Offer real-time reference interviews or very thorough Web forms to gather as much information as possible without compromising user privacy.
- Allow users the ability to return to a service for further information to clarify a question if the answer is insufficient within the policy guidelines of each service.
- Link related question-answer sets using a common protocol to identify related messages to facilitate follow-up.¹⁵

Instructive

Digital reference services can play an important role in a user’s learning process by providing access to current information and expertise. Quality digital reference services offer more to users than straight, factual answers; they guide them in subject knowledge as well as information literacy.

Base: Offer answers or pointers to information in responses to users. When unable to provide an answer, provide the user with appropriate notification.
Current Practice:

- Offer pointers and paths used to find the best resources, so users can learn to answer similar questions on their own. For example, responses can include the tools used to find resources (e.g., search engines, indexes, bibliographies, catalogs), specific search terms and processes used, and series of steps taken. (Subject experts who draw upon their own backgrounds and knowledge of a particular topic should describe problem-solving processes and provide additional pointers when possible.)
- When an answer or resources cannot be found, provide the user with a notice of paths, keywords, and processes that were attempted.

Goal: Promote information literacy by responding with detailed search paths and sets of resources who either provide the answer or allow users to investigate on their own. Subject experts will provide answers drawing upon their own backgrounds and knowledge of a particular topic, and will provide additional pointers when appropriate.

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Service Development and Management Standards

Authoritative

Experts of a digital reference service should have the necessary knowledge and educational background in the service's given subject area or skill in order to qualify as an expert. Specific levels of knowledge, skill, and experience are determined by each service and its related discipline or field.

Base: Ensure that the service staff includes at least one qualified expert who can oversee the quality and accuracy of staff responses.

Current Practice:

- Communicate to users the authority of the service in general as well as individual experts through an e-mailed acknowledgment or on a Web site.
- Communicate any possible perspectives that may be reflected in responses to questions.

Goal:

- Staff the service with professionals (paid or volunteer) in the subject specialty of the AskA service. In information referral services, staff should consist of professional librarians.
- Indicate on the Web site qualifications of those who answer questions. Participating organizations will provide evidence of certification for professionals who answer questions.
- Communicate any possible perspectives that could be reflected in responses to questions.

Trained Experts

Services should offer effective orientation or training processes to prepare information specialists to respond to inquiries using clear and effective language and following service response policies and procedures. Training of information specialists is one of the most important aspects of planning and operating a digital reference service.

Base: Provide some training procedure for all AskA service staff, even if informal.

Current Practice:

- Provide a training component such as written documents containing response guidelines, opportunities for information specialists to practice responding to inquiries accompanied by feedback on performance, or mentoring by more experienced staff.
- Ensure that trainees achieve mastery of training objectives.
- Document each trainee's participation in the training program for organizations providing academic credit or professional advancement.
- Document each trainee's performance during and after training.
- Communicate to users that experts are trained in the service's question-answer policies and procedures.

Goal:

- Create training materials and procedures that are well-documented, pilot tested, and revised as needed.
- Ensure that trainees achieve mastery of training objectives.
- Recognize trained experts in some way for their successful completion of the process.
- Offer credit for successful completion of the training session, whether it is for continuing education, basic coursework, or professional advancement (e.g., through the workplace, the certifying organization, etc.).
- Document each trainee's performance during and after training.
Communicate to users that experts are trained in the service's question-answer policies and procedures.

Private

All communications between users and information specialists should be held in complete privacy.

Base: Deny public access to user names, e-mail or mailing addresses, and questions unless there is written notice prior to the information being made available, such as on a Web-based query form.

Current Practice:

- Receive consent from users before sharing transaction data or identifying information (e.g., e-mail address) with a third party (e.g., questions and answers posted in a Web-based archive).
- Post privacy policies on the Web site, especially the page with the Web-based query form.

Goal:

- Establish appropriate privacy policies and make them readily accessible on the Web site.
- Remove all identifying information from question-answer sets before posting in a public archive.
- Receive consent from users before sharing transaction data or identifying information (e.g., e-mail address) with a third party (e.g., questions and answers posted in a Web-based archive).
- Obtain parental permission for children under eighteen if identifying information is posted publicly.

Reviewed

Digital reference services should regularly evaluate their processes and services. Ongoing review and assessment help ensure quality, efficiency, and reliability of transactions as well as overall user satisfaction.

Base: Periodically monitor experts' responses to users for quality, accuracy, and adherence to service policy.

Current Practice:

- Evaluate user and staff satisfaction with service.
- Monitor responses either before sending to users or at some point afterwards on a periodic basis. (Provide corrections to responses if needed.)
- Provide formative feedback to trained experts to remind, teach, and encourage them to adhere to service policies and procedures.

Goal:

- Evaluate user and staff satisfaction with service.
- Monitor all responses and online resources on an ongoing basis.
- Provide formative feedback to trained experts to remind, teach, and encourage them to adhere to service policies and procedures.
- Collaborate with other AskA services to offer peer review.
- Run responses against a link-checking application to assure suggested Web sites are valid for the user.

Provides Access to Related Information

Besides offering direct response to user questions, digital reference services should offer access to supporting resources and information. Services can reuse results from question-answer exchanges in resources such as archives and frequently-asked questions (FAQs).

Base: Include basic resources on the Web site to supplement the question-answering component.

Current Practice:

- Provide access to information on the service's content area including access to a knowledge base of previously asked questions and answers, or links or references to external resources.
- Post selection policies on the Web site to indicate criteria for selection of external resources.
- Review and update Web sites regularly to ensure that content is correct and links and references are active.

Goal:

- Provide access to information on the service's content area, including access to a knowledge base of previously asked questions and answers, or links or references to external resources.
- Post criteria for Web resource selection.
- Evaluate Web-based resources such as lists of links, FAQs, and other resources before posting and check resources periodically for accuracy and reliability.

Publicize

Services providing information to the K–12 education community are responsible for informing potential users of the value that can be gained from use of the service. A well-defined public relations plan can ensure that services are well-publicized and promoted.
on a regular basis. Publicity should not create more demand than the service has capacity to handle.

**Base:** Create and post publicly a description of the purpose and practices of the service.

**Current Practice:** Create a publicity plan that may include some of the following methods: promotional messages to appropriate electronic discussion groups (e.g., listservs) and on service Web site; links to the service from related Web sites; direct postal mailings to potential users; articles in print publications and press releases; and presentations at conferences, meetings, etc. Publicity should not create an inundation of questions to the point of overwhelming the service.

**Goal:** Develop a publicity plan and publicize service to potential constituents to the degree with which they can manage the resultant traffic to the service (see Current Practice level for suggested publicity methods). Publicity should not create an inundation of questions to the point of overwhelming the service.

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**Discussion**

Several important themes are apparent in the standards as previously described, indicating some general areas of quality standards for digital reference services. Common themes include communicating service policies in order to set expectations for the user, the value of individual service policies (as opposed to one network policy), accommodation of users' information needs, and the constant evaluation of the service and its components.

AskA Consortium members considered it crucial to communicate policies and other decisions to users as a way to reduce confusion throughout the process. Information to be shared includes response turnaround time, authority of experts, response policy (e.g., scope of accepted questions, type of answers provided), inability to provide a response to a particular question, and any possible perspectives that may be reflected in response. In a digital reference environment, communicating such information to users is more deliberate and standardized than in a face-to-face environment, demanding more of an effort in the beginning but ensuring well-documented, consistent policies in the future.

In creating this set of standards for network participants, it was important to preserve the individuality of AskA services. Using the standards as guidelines, services are encouraged to create and uphold their own policies for responding to questions, assessing resources for inclusion on their Web sites, maintaining user privacy, determining expert authority and preparedness for participation, and publicizing the service. The AskA Consortium is a body to support existing and new services as opposed to assimilating them into one larger service.

A focus on meeting users' information needs is critical to any reference service. The standards accommodate information needs in many ways, including facilitating access to the service itself, providing opportunities for clarification of information problems, instructing users on finding information as well as developing skills, and providing access to related information.

Finally, the standards stress the importance of evaluating the overall digital reference service as well as its components such as staff training programs, staff performance, and service-created resources (e.g., archives, FAQs, links to external sites). In addition, the existence of three levels of standards allows services to revise their current policies and expectations and constantly strive towards improvement.

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**Application**

While the VRD standards were developed with K–12 AskA services in mind, they are applicable to digital reference consortia in general. Developing digital reference consortia, such as the Cooperative Digital Reference Service effort headed by the Library of Congress, can use the quality criteria outlined in this proposal as either a standards document to be modified, or as a model on which to build new criteria.17

The standards as discussed in this article are applicable to most library situations. While the specific definitions of baseline and goal activities might be modified to fit a collection of services, the general criteria are easily generalized. This is not surprising when one considers the range of organizations that took part in the construction of the standards.

Library-based digital reference services may note the absence of "unbiased" as a standard. This absence is not an oversight; rather, it reflects the nature of cross-domain reference. In developing the standards, the AskA Consortium acknowledged the importance of presenting all sides of an issue but expressed that in some contexts the point of view of a given service is also a value (see the standard "Authoritative"). It is the assumption of the AskA Consortium that bias is handled at a level above the individual services in the form of disclosure. That is to say, the AskA Consortium may seek to balance views in its aggregation of services, will seek to inform users of other viewpoints, and thus leave
individual services to add value to the Consortium by sharing their distinct vantage points.

The cross-domain nature of the AskA Consortium (incorporating views from nonprofit, commercial, government, academic, and other settings) and its criteria also accounts for the flexibility in conformance to the standards. Different domains require different levels of service. In fact, one of the purposes behind the document is to create a base of service-level agreements that can be raised over time. In contexts where service levels are commonly understood and shared (such as the help desk environment), these standards might be more tightly defined. For example, the standard "Trained Experts" could easily be translated into "ALA-accredited librarians" in a library context (or some percentage of degree holders).

Aside from a library context, the standards can be applied further to the government arena. As the federal government emphasizes customer service and the Internet, agencies and cross-agency working groups need to create standards for their digital reference applications. The authors assume that as customer service and reference functions migrate to the Internet, they will become increasingly cross-domain. As reference agencies expand, standards of interoperability (both technical and qualitative) will become increasingly important.

The Future of Digital Reference Standards

The standards described in this article are considered fluid and evolving. There is much work to be done as the AskA Consortium grows. Much of this work revolves around process. What are the processes to identify new standards or changes to current standards? How frequently are changes made? Who provides input in revisions? What impact will the standards have on consortium governance? These standards and the processes will be finalized in the coming year.

It is clear that there is a need for standards as digital reference evolves from a handful of so-called AskA services and a set of experiments in libraries to a common means of interacting with users. While there has been some work in technical standards for digital reference, there is an equal need for standards of operation. The AskA Consortium standards are one example of how such standards can be constructed in a cross-domain environment. It is hoped that these standards will be of use either as facets that can adopted in growing reference consortia, or as a model for the construction of new digital reference standards.

References and Notes

13. The Virtual Reference Desk (VRD) is a project dedicated to the advancement of digital reference and the successful creation and operation of human-mediated, Internet-based information systems. VRD is sponsored by the National Library of Education and the ERIC Clearinghouse on Information and Technology, with support from the White House Office of Science and Technology.

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