Harnessing the Power of Warrant

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Abstract

Over the last decade a number of writers have encouraged archivists to develop strategies and tactics to redefine their role and to insert themselves into the process of designing recordkeeping systems. This paper urges archivists to exploit the authority inherent in the laws, regulations, standards, and professional best practices that dictate recordkeeping specifications to gain great acceptance for the requirements for electronic evidence. Furthermore, it postulates that this proactive approach could assist in gaining greater respect for the archival profession.

The Warrant for Recordkeeping

The legal, administrative, fiscal, or information value of records is dependent upon the degree of trust society places in records as reliable testimony or evidence of the acts they purport to document. In turn, this trust is dependent on society's faith in the procedures that control the creation and maintenance of the record. Regardless of the intended use of records, individuals must have confidence that records accurately document the events and transactions that caused them to be created. The mere existence of a record does not ensure that it will faithfully represent a transaction or an event; its credibility must be ensured through the establishment of reliable methods and procedures for its creation, maintenance, and use over time. A society or culture endorses certain recordkeeping procedures and endows them with the ability to create trustworthy records. (Other methods are viewed as less credible and therefore are more likely to produce records that provide poor evidence.) In doing so, society bestows some methods of recordkeeping and record creating with an authority or "warrant" for generating reliable records.

Clanchy has studied the development of writing in England and has concluded:

> Documents did not immediately inspire trust. As with other innovations in technology, there was a long and complex period of evolution, particularly

The research reported in this paper was completed as part of the requirements for the author's dissertation. It benefitted immensely from the comments made by her doctoral committee: Richard Cox, Margaret Hedstrom, Edie Rasmussen, and Steven Hirtle. David Bearman first proposed the idea of "literary warrant."

> in the twelfth century in England, before methods of production were developed which proved acceptable both to traditionalists and to experts in literacy. There was no straight and simple line of progress from memory to written record. People had to be persuaded—and it was difficult to do—that documentary proof was a sufficient improvement on existing methods to merit the extra expense and mastery of novel techniques which it demanded.[1]

Over time, society established requirements for records and recordkeeping and promulgated these requirements in its laws, regulations, standards, customs, and best practices. These sources dictate how records must be created and maintained over time. For example, in the law, records are considered hearsay because they cannot be cross-examined in a court of law. However, the Federal Rules of Evidence state that the following are not excluded by the hearsay rule.

> Records of regularly conducted business activity. A memorandum, report, record, or data compilation, in any form, of acts, events, conditions, opinions, or diagnoses, made at or near the time by, or from information transmitted by, a person with knowledge, if kept in the course of a regularly conducted business activity, and if it was the regular practice of that business activity to make the memorandum, report, record, or data compilation, all as shown by the testimony of the custodian or other qualified witness, unless the source of information or the method or circumstances of preparation indicate lack of trustworthiness.[2]

This statement delineates six separate requirements for recordkeeping systems. The record should be dated to prove that it was made near the time of the event. The record should also contain the name of the person who made the record or gave the information so the record can meet the second requirement. Consistency of record creation is important for admissibility, so the recordkeeper should be able to demonstrate that the recordkeeping system was regularly used to carry out the business of the organization and that records were regularly created to document a particular type of transaction or event. The records should be under the care of a qualified custodian who can provide testimony of the recordkeeping procedures. Finally, the method of preparation must be trustworthy. These statements or warrant provide clear instructions on how records should be kept and delineate elements needed for the records to be complete. These statements have authority or warrant for a lawyer or auditor because they emanate from an agency, the law, that lawyers trust and are legally bound to uphold.

Auditors are responsible for verifying the reliability of financial records, and their professional activities and judgments are controlled by a series of standards and principles established by their professional associations. Failure

[1] M. T. Clanchy, *From Memory to Written Record* (Oxford: Blackwell, 1993), 294.

[2] Federal Rules of Evidence, Rule 803.

to comply with any of these standards could result in substandard work and lead to legal liability against the auditor.[3] "Auditing standards are audit quality guides that remain the same through time and for all audits, including audits of computerized accounting systems."[4] The accounting and auditing practices are guided by eleven separate sets of standards, each one consisting of numerous different statements, many related to records and recordkeeping. For example, the American Institute of Certified Public Accountants' Statement on Auditing Standards No. 65, *Analytic Procedures*, states "The following factors influence the auditor's consideration of the reliability of data for purposes of achieving audit objectives:...Whether the data was developed under a reliable system with adequate controls." This statement informs the auditor that if he/she ensures that the recordkeeping system has adequate controls that guarantees the system's reliability, the data in the records will also be more accurate and reliable.

The information technology field promulgates standards, but in North America adherence to them is voluntary rather than obligatory. Economic advantages and increased market share are the major benefits that motivate organizations to comply with standards endorsed by standards boards concerned with information technology. Information technology standards are completely voluntary, and industry will often promote competing standards. For example, Open Document Architecture (ODA) and Standard Generalized Markup Language (SGML) are two separate standards that dictate different methods for formatting a document. As compliance to these standards is voluntary, certain standards are more powerful than others. For example, organizations wishing to transmit orders or invoices electronically to another organization follow the Electronic Data Interchange (EDI) standard. This standard establishes requirements for ensuring that the records are accurate. It states that the "integrity of the information is extremely important in EDI because the same data is used many times in the interchange process. EDI is at its best when data is validated at the front-end of the process so it is correct for the rest of the steps in the process."[5] This statement suggests that organizations institute methods and procedures for controlling the input of data.

Industries also have many standards and regulations that control their practices and recordkeeping procedures. For example, industries wishing to be certified as an ISO9000 organization must follow the ISO9000 set of standards, many of which relate to keeping adequate records documenting the design and production of products. These specifications require that an or-

[3] Laurie S. Swinney, "Expert Systems in Auditing: Decision Aid or Decision Subjugation," (Ph.D. diss., University of Nebraska, 1993), 17.

[4] Jack C. Robertson, *Auditing*, 7th ed. (Homewood, Ill.: Irwin, 1993), 39.

[5] Electronic Industry Data Exchange, *ASC 12 Convention : Version 3 : Electronic Industry Data Guidelines.* (Washington, D.C.: Washington Publishing Co., 1994).

ganization's recordkeeping systems capture and maintain the context of records. Furthermore, some industries, such as the pharmaceutical industry, are heavily regulated by the government and have very specific requirements for the keeping of records that relate to their services and products. For example, laboratory books which document all steps of drug development and testing must be kept under tight control for many decades. An organization must be able to prove the authenticity and reliability of these records if it is to defend itself against any lawsuits. Clearly, it is essential that archivists become fully cognizant of all such standards, laws, customs, and best practices that regulate the recordkeeping systems of the organizations they serve.

Uses of Warrant

The University of Pittsburgh Electronic Recordkeeping Project suggested that requirements for electronic recordkeeping should derive from authoritative sources, such as the law, customs, standards, and professional best practices accepted by society and codified in the literature of different professions concerned with records and recordkeeping rather than developed in isolation. As a member of the Pittsburgh Project, the author conducted an extensive search of these sources and compiled a compendium of statements that described or explained the requirements for records or recordkeeping systems.[6] These statements, or "literary warrant" as the project named them, delineate the requirements for capturing, maintaining, and using records over time.

From legal, auditing, information technology, and other sources, the author created a database of statements that relate to the requirements for recordkeeping. The project used the statements to refine the functional requirements for evidence which were originally developed by a small group of professionals and consultants working with electronic records.[7] Authoritative statements that supported the functional requirements were located in the laws, regulations, case law, auditing standards, and information technology standards.[8] This literature review provided evidence that the requirements were consistent with the specifications for keeping reliable records.

On their own, archival requirements for recordkeeping have very little authority as no authoritative agencies such as standards boards or professional associations have yet to endorse them and few archivists have the authority to insist that their organizations follow them. The Pittsburgh requirements

[6] See <http://www.sis.pitt.edu/~nhprc>.

[7] For a description of the functional requirements and a history of the project, see Wendy Duff, "Preserving Electronic Evidence: A Research Study Funded by the NHPRC," *Archivaria* 42 (Fall 1996): 28–45.

[8] The authority of all sources was evaluated by experts practicing or teaching in law, auditing, or information science.

derive from a research project, but they are unlikely to obtain unilateral support when first presented to lawyers, auditors, program managers, and information technologists. Their importance and authority must be demonstrated in order to increase the likelihood of their acceptance and subsequent implementation. The requirements themselves may lack authority, but the sources upon which they are based are viewed as being extremely credible by professions that archivists need to influence. The project team suggested that archivists could use these statements as "literary warrant," that is, as proof or justification that organizations and individuals must adhere to the requirements because they are based on practices established by their own profession or industry. They posited that "if professionals in our society were made more aware of the functional requirements for recordkeeping as expressed in recommended practices of their own profession (which are themselves grounded in law), they would be more inclined to take responsibility for the adequacy of their recordkeeping practices."[9]

The authority and importance of legislation that recognizes electronic records as evidence has been highlighted by research projects concerned with the management of electronic records. For example:

- A survey of New York state agencies' information practices undertaken by the Building Partnerships Project found that "program managers were more likely to establish effective recordkeeping systems and practices if...a clear legal requirement for record retention" existed;[10]
- Bikson and Frinking found that the major obstacle to improving electronic recordkeeping practices in the Dutch government was legislation that did not recognize electronic records as evidence;[11]
- The International Council on Archives, Committee on Electronic Records' guidelines point out that "many archival institutions are finding that the options available to them for dealing with electronic records are constrained by basic archival legislation. Some issues that are particularly problematic include: the legal definition of a record...[and] laws that do not accept electronic records as legitimate evidence in legal proceedings;"[12]

[9] David Bearman et al., "The Warrant for Recordkeeping Requirements," in *University of Pittsburgh Recordkeeping Functional Requirements Project: Reports and Working Papers, LIS055/LS94001* (Pittsburgh: School of Library and Information Science, University of Pittsburgh, September 1994), [1].

[10] New York State Archives and Records Administration, Center for Electronic Records, *Building Partnerships for Electronic Recordkeeping: Final Report and Working Papers* (Albany: New York State Archives and Records Administration, Center for Electronic Records, 1995), 10.

[11] T.K. Bikson and E.J. Frinking, *Preserving the Present: Toward Viable Electronic Records* (The Hague: Sdu Publishers, 1993), 15.

[12] International Council on Archives, Committee on Electronic Records, *Guide for Managing Electronic Records from an Archival Perspective* (Ottawa: International Council on Archives, 1997), 21.

- The University of British Columbia Project identified the juridical system as one of four factors that control an organization's records and recordkeeping systems;[13]
- The University of Pittsburgh Project stressed that "Organizations must comply with the legal and administrative requirements for recordkeeping within the jurisdictions in which they operate, and they must demonstrate awareness of best practices for the industry or business sector to which they belong and the business functions in which they are engaged."[14]

These research projects demonstrate the link between a sound legal foundation and good electronic records programs. These previous projects lent credibility to the suggestion made by the Pittsburgh Project that warrant can increase the acceptance of electronic recordkeeping requirements. The author decided to test this hypothesis to discover if it was, in fact, true. This hypothesis raised four specific questions:

1. Does a functional requirement accompanied by literary warrant receive a rating of importance that is significantly different from the rating given a functional requirement by itself?
2. Is one type of warrant, that is, warrant drawn from legal, auditing, or information technology literature, more influential than others?
3. Are there significant differences in the rating of importance of the functional requirements assigned by different professional groups?
4. Do functional requirements accompanied by literary warrant from a subject's professional literature receive significantly higher ratings of importance than functional requirements accompanied by warrant from another profession?

In order to address these research questions the author conducted the following experiment.

Testing the Effect of Warrant: Methodology

Subjects. Sixty subjects (twenty lawyers, twenty auditors, and twenty information specialists) were recruited to take part in the study. In order to recruit subjects, local professional associations (representing lawyers, auditors, and information specialists) were contacted and asked to assist in promoting this research. The author placed advertisements in these associations' newsletters,

[13] Luciana Duranti and Terry Eastwood, "Protecting Electronic Evidence: A Progress Report on a Research Study and Methodology," *Archivi & Computers* 5 (Fasc 3, 1995): 213–50. Luciana Duranti, Heather McNeil, and William E. Underwood, "Protecting Electronic Evidence: A Second Progress Report on a Research Study and Methodology," *Archivi & Computers* 6 (Fasc 1, 1996): 37–69 or see their website <http://www.slais.ubc.ca/users/duranti/>.

[14] "Functional Requirements for Recordkeeping," in *University of Pittsburgh Recordkeeping Functional Requirements Project*, 2, or see the project's website <http://www.sis.pitt.edu/~nhprc/>.

and then spoke at their meetings. She briefly explained the research and solicited volunteers.

Research Instrument. Four research instruments were created to test the effect of the functional requirements. The investigator compiled four lists (L1-L4) each containing functional requirements augmented by different types of warrant. 1) L1 had the twenty functional requirements developed by the University of Pittsburgh; 2) L2 had the functional requirements augmented with statements of auditing warrant; 3) L3 had the functional requirements augmented with statements of legal warrant; and 4) L4 had the functional requirements augmented with statements of information technology warrant.

To create the research instruments, a functional requirement was randomly selected from L1 and assigned to the first research instrument (RI1). A functional requirement and its accompanying auditing warrant were randomly chosen from L2 and assigned to the RI1. If the functional requirement already existed in RI1 (having been taken from another list), a new requirement was selected from the list. A functional requirement and its accompanying legal warrant were randomly chosen from L3 and assigned to RI1. If the functional requirement already existed in RI1 (having been taken from another list), a new requirement was selected from the list. A functional requirement and its accompanying information technology warrant were randomly chosen from L4 and assigned to RI1. If the functional requirement already existed in RI1 (having been taken from another list), a new requirement was selected from the list. This process continued until RI1 had a complete set of functional requirements (1-20), with five functional requirements (FR) being presented on their own, five being accompanied by auditing warrant (FRA), five being accompanied by legal warrant (FRL), and five being accompanied by information technology warrant (FRIT). The second set of functional requirements accompanied by literary warrant (RI2) was created following the same procedure, except that warrants selected for RI1 were not included in the selection for RI2. The same procedure was followed to create research instruments 3 and 4. In accordance with this procedure, the following table was created.

Table 1. The Research Instruments

Functional Requirement Number	RI 1	RI 2	RI 3	RI 4
1	FR	FRA	FRIT	FRL
2	FRA	FRL	FR	FRIT
3	FRIT	FRA	FRL	FR
4	FRL	FRIT	FRA	FR
5	FRA	FR	FRIT	FRL
6	FRIT	FR	FRL	FRA
7	FR	FRIT	FRA	FRL
8	FRA	FR	FRIT	FRL
9	FRL	FRA	FR	FRIT
10	FR	FRL	FRIT	FRA
11	FR	FRA	FRL	FRIT
12	FRIT	FRL	FRA	FR
13	FRA	FRIT	FR	FRL
14	FRL	FRIT	FRA	FR
15	FRIT	FRA	FRL	FR
16	FRL	FRIT	FR	FRA
17	FRA	FR	FRL	FRIT
18	FR	FRL	FRIT	FRA
19	FRL	FR	FRA	FRIT
20	FRIT	FRL	FR	FRA

The participants were randomly assigned to one of four groups. Each group of participants had five lawyers, five auditors, and five information specialists. Groups were designated A, B, C and D.

The first research instrument (RI1) was shown to members of group A, the second research instrument (RI2) was shown to members of group B, the third research instrument (RI3) was shown to members of group C, and the fourth research instrument (RI4) was shown to group D. The assignment of groups to research instruments is displayed in Table 2:

Table 2. Groups of Subjects

Groups of Subjects	Research Instruments
Group A	RI 1
Group B	RI 2
Group C	RI 3
Group D	RI 4

The research design and all research instruments were pretested on fifteen students.

Semi-structured interviews were conducted at the subject's workplace. Each of the research instruments was presented to one of the four groups of participants in semi-structured interviews. The interviews began with the collection of data about the subject's knowledge of computers and electronic

records. Then the investigator presented the functional requirements in the following manner:

- The subjects were given the piece of paper with the first item from their set.
- Using a script, the investigator briefly described the functional requirement.
- Where warrant existed, the investigator began by stating that the functional requirement was based on the particular statement. The source of the statement was mentioned, but not emphasized.
- The participants were asked to rate, on a scale of one to nine (with one being not important at all, five being of average importance, and nine being extremely important) the importance of designing systems that meet this requirement.
- The participants recorded the answers on a worksheet.
- The investigator recorded the number of questions the participants asked during the interview, but did not keep track of the actual questions or answers given. All answers were kept very brief to minimize the variability of the information given the subjects.

Testing the Effect of Warrant: Results

Does a functional requirement accompanied by literary warrant receive a rating of importance that is significantly different from the rating given a functional requirement by itself? The evaluations of the functional requirements were compiled and their means were analyzed. These scores included all the evaluations of the functional requirements with and without warrant. Table 3 presents the mean scores and their standard deviations for each functional requirement. Table 3 also contains the minimum and maximum scores given to each requirement. The evaluations of the individual functional requirements varied, with the average score given to *Accurate* being a high of 8.55 with a standard deviation of 1.00, and the average score given to *Removable* being a low of 6.45 with a standard deviation of 1.97.

Is one type of warrant, that is, warrant drawn from legal, auditing, or information technology literature, more influential than others? To obtain a comprehensive overview of the average scores given to all the functional requirements without warrant and with legal, auditing, and information technology warrant, the means of each functional requirement under each condition were computed. Table 4 contains the average scores given to each requirement divided into the type of warrant that accompanied it. The condition that received the highest average rating for each functional requirement is marked with a plus sign (+).

Table 3. Average Scores and Standard Deviations of the Evaluations of the Functional Requirements

Functional Requirements	FR Number	Mean	St Dev	Minimum	Maximum
Accurate	FR8	8.55	1.00	5	9
Available	FR17	8.45	1.21	3	9
Consistent	FR5	8.05	1.36	3	9
Inviolate	FR12	8.02	1.44	3	9
Compliant	FR1	7.97	1.35	3	9
Authorized	FR11	7.95	1.38	4	9
Documented	FR2	7.87	1.20	4	9
Identifiable	FR7	7.60	1.40	4	9
Redactable	FR20	7.48	1.75	3	9
Coherent	FR13	7.42	1.59	3	9
Meaningful	FR10	7.35	1.35	4	9
Renderable	FR18	7.28	1.42	4	9
Implemented	FR4	7.23	1.69	2	9
Auditable	FR14	7.17	1.78	3	9
Comprehensive	FR6	7.15	1.68	3	9
Exportable	FR16	7.13	2.01	2	9
Evidential	FR19	6.98	1.68	4	9
Assigned	FR3	6.93	1.81	1	9
Understandable	FR9	6.72	1.68	1	9
Removable	FR15	6.45	1.97	1	9

Table 4. The Average Ratings Given to the Functional Requirements Accompanied by Different Types of Warrant

Functional Requirement	Without Warrant	With Legal Warrant	With Auditing Warrant	With IT Warrant
Compliant	8.13+	8.07	7.93	7.73
Documented	8.20+	7.40	7.93	7.93
Assigned	6.87	8.07+	5.93	6.87
Implemented	7.00	7.53	7.80+	6.60
Consistent	7.27	8.47+	8.27	8.20
Comprehensive	7.00	7.87+	6.40	7.33
Identifiable	7.53	7.93+	7.87	7.07
Accurate	8.33	8.73+	8.60	8.53
Understandable	6.87+	6.80	6.60	6.60
Meaningful	6.67	7.47	7.47	7.80+
Authorized	7.90	8.87+	7.60	7.50
Inviolate	8.20+	7.47	8.20+	8.20+
Coherent	7.93+	7.33	7.60	6.80
Auditable	6.40	8.00+	7.40	6.87
Removable	5.93	6.73	6.80+	6.33
Exportable	6.87	6.93	8.13+	6.60
Available	8.53	8.73+	8.13	8.40
Renderable	7.07	7.20	7.33	7.53+
Evidential	6.20	7.47+	7.00	7.27
Redactable	7.27	7.20	8.20+	7.27

Of the twenty functional requirements, the highest average score for nine of the functional requirements was attained when they were accompa-

nied by legal warrant. Four functional requirements received their highest average scores when they were accompanied by auditing warrant and another four requirements received the highest average scores when they were accompanied by no warrant. Only two functional requirements received their highest average scores when they were accompanied by information technology warrant. There was one tie among the highest average scores that one functional requirement received. *Inviolate* received the same score when it was accompanied by auditing warrant, when it was accompanied by information technology warrant, and when it was presented without warrant.

An Analysis of Variance was performed including the Scheffe test.[15] This test provided information on the degree to which differences in the evaluations of each functional requirement accompanied by different types of warrant (legal, information technology, and auditing warrant as well as the requirement without warrant) were statistically significant. For the population as a whole, the ratings of only two functional requirements (*Assigned* and *Authorized*) accompanied by different types of warrant were significantly different.

Analysis of Variance with repeated measures was performed to discover if the warrant had an overall effect when measured across the evaluations of all the requirements and to test for any relationship between the functional requirements and the warrant. Analysis of Variance with repeated measures analyzes data that include more than one observation per subject, as in this study. Analysis of Variance with repeated measures has the advantage of providing a within-subject analysis of the scores given to the requirements, and analyzing the overall interaction between the warrant and the functional requirements. The ratings that the subjects in each group gave to the functional requirements all demonstrated a strong relationship between the functional requirements and the warrant.

It would appear from these findings that functional requirements receive higher scores when they are accompanied by legal warrant. The two requirements that had significant differences in their ratings of importance, *Assigned* and *Authorized*, received their highest mean ratings when they were accompanied by legal warrant. It appears that legal warrant was more influential than auditing warrant or information technology warrant, and that the presence of information technology warrant had the least effect.

Are there significant differences in the rating of importance of the functional requirements assigned by different professional groups? To obtain a comprehensive overview of the average scores provided by the different professional groups, the means of each functional requirement given by each professional group

[15] Analysis of Variance is a statistical procedure for testing the hypothesis that several means are significantly different. Scheffe tests perform simultaneous joint pairwise combinations of the means.

were computed. Table 5 contains the average scores given to each requirement divided into the professional group that provided it. The professional group(s) that received the highest average rating for each functional requirement is marked with a plus sign (+).

Of the twenty functional requirements, ten received their highest mean scores from information specialists, while seven received their highest mean scores from auditors. Lawyers provided the highest mean scores for only two functional requirements. There was one tie between the highest average scores that a functional requirement received when it was evaluated by lawyers and when it was evaluated by auditors.

Table 5. The Average Ratings Given to the Functional Requirements by the Professional Groups

Functional Requirement	Information Specialists	Lawyers	Auditors
Compliant	8.00	7.70	8.20+
Documented	8.25+	7.65	7.70
Assigned	6.95	6.60	7.25+
Implemented	7.60+	7.05	7.05
Consistent	8.30	7.50	8.35+
Comprehensive	7.05	6.30	8.10+
Identifiable	8.00+	7.30	7.50
Accurate	8.55	8.60+	8.50
Understandable	7.05+	7.00	6.10
Meaningful	7.65+	7.25	7.15
Authorized	8.25+	7.35	8.20
Inviolate	8.15	7.65	8.25+
Coherent	7.40	7.40	7.45+
Auditable	7.25	6.60	7.65+
Removable	6.45	6.50+	6.40
Exportable	7.45+	7.35	6.60
Available	8.15	8.60+	8.60+
Renderable	7.50+	7.15	7.20
Evidential	7.30+	6.50	7.15
Redactable	7.75+	7.60	7.10

Do functional requirements accompanied by literary warrant from a subject's professional literature receive significantly higher ratings of importance than functional requirements accompanied by warrant from another profession? The average rating given to all the functional requirements accompanied by different types of warrant were calculated for each professional group in order to determine how the different professional groups reacted to the different types of warrant. Table 6 contains the average rating given by each professional group to all the functional requirements accompanied by each type of warrant.

Table 6. The Average Rating Given to the Functional Requirements Accompanied by Different Types of Warrant

	Functional Requirements accompanied by No Warrant	Functional Requirements accompanied by Legal Warrant	Functional Requirements accompanied by Auditing Warrant	Functional Requirements accompanied by IT Warrant
Lawyers	7.10	7.78	7.34	6.91
Auditors	7.3	7.56	7.67	7.50
Information Specialists	7.54	7.70	7.67	7.57

Analysis of Variance was conducted including the Scheffe test to discover if the differences were significant. This method of analysis resulted in extremely small samples (only five subjects in each category). With these small sample sizes, only lawyers showed any significant differences in the ratings they assigned the requirements accompanied by different types of warrant. The presence of warrant significantly affected the lawyers' evaluations of four of the twenty requirements (*Assigned, Implemented, Authorized,* and *Auditable.*) The presence of warrant did not cause any statistically significant differences in the evaluations of the auditors or information specialists.

The differences in the ratings given by the three professional groups may be due to differences in professional perspective, or they may have arisen from differences in the subjects' backgrounds.

To discover if there was a relationship between these variables and the evaluations given to the functional requirements, data on the subjects' backgrounds were collected and correlation analysis conducted. Correlations tended to be small and not significant, with the exception of a subject's knowledge of, and experience with, computers. The ratings given to the requirements *Comprehensive, Authorized* and *Auditable* correlated positively with the subjects' computer knowledge, ($r=.3518$, $p.>.01$; $r=.3643$ $p.>.01$; and $r=.3502$, $p.>.01$ respectively). The ratings given to *Documented* correlated positively with the years the subjects had used computers, ($r=.37$, $p.>.01$). Figures 1, 2, and 3 show the correlation between the scores given to the functional requirements *Comprehensive, Authorized* and *Auditable,* and the computer knowledge of the subjects. Figure 4 shows the correlation between the scores given to the functional requirement *Documented* and the number of years the subjects had used computers. The scores given by the different professional groups are identified by distinguishing symbols.

As a subject's computer knowledge increased, the evaluations he/she gave to the requirements *Authorized, Auditable,* and *Comprehensive* also increased slightly. Subjects with more experience using computers tended to evaluate the requirement *Documented* higher than subjects with fewer years of computer use. However, as the scatter plots demonstrate, lawyers tended to give lower scores to these four requirements, and they also had less knowl-

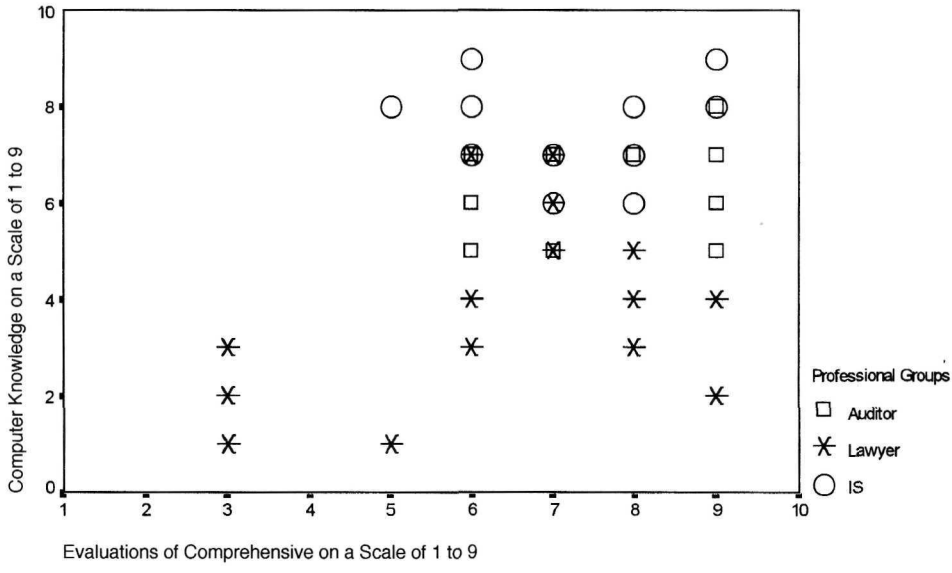

FIGURE 1. Computer Knowledge and Evaluations of *Comprehensive*

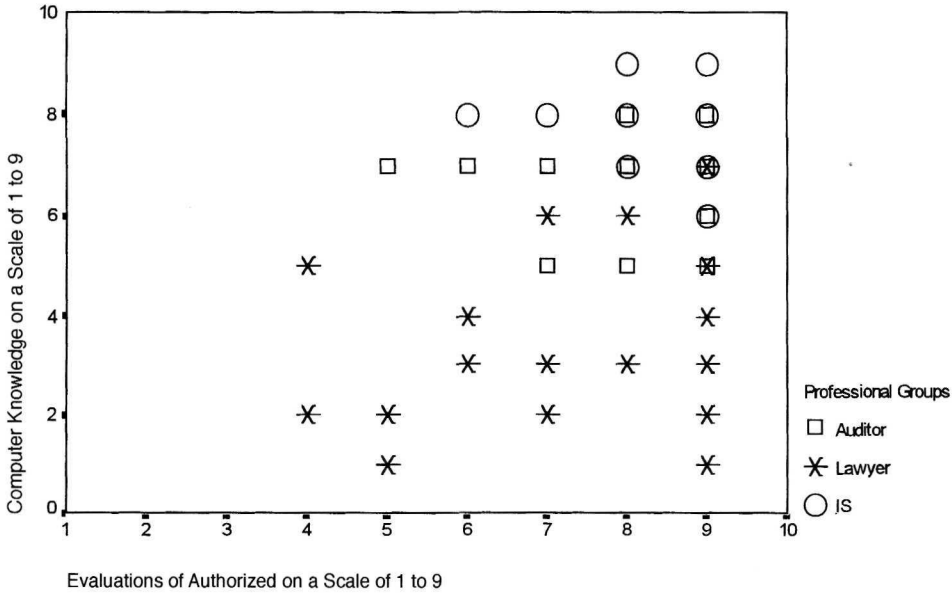

FIGURE 2. Computer Knowledge and Evaluation of *Authorized*

edge of, and experience with, computers than information specialists or auditors. The subjects' professional backgrounds may be confounding the data and causing a mild correlation between the ratings of importance of the functional requirements and the subject's knowledge of, and experience with, computers.

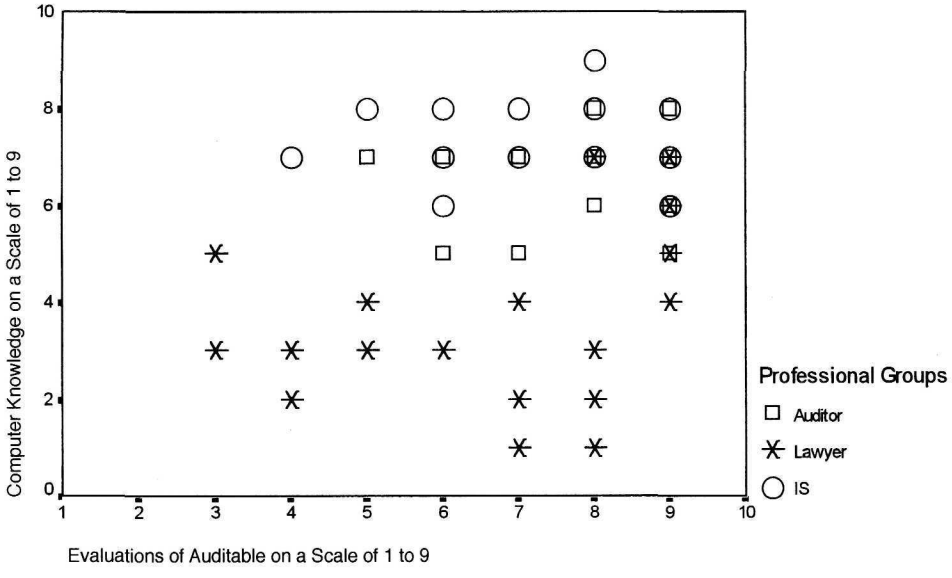

FIGURE 3. Computer Knowledge and Evaluations of *Auditable*

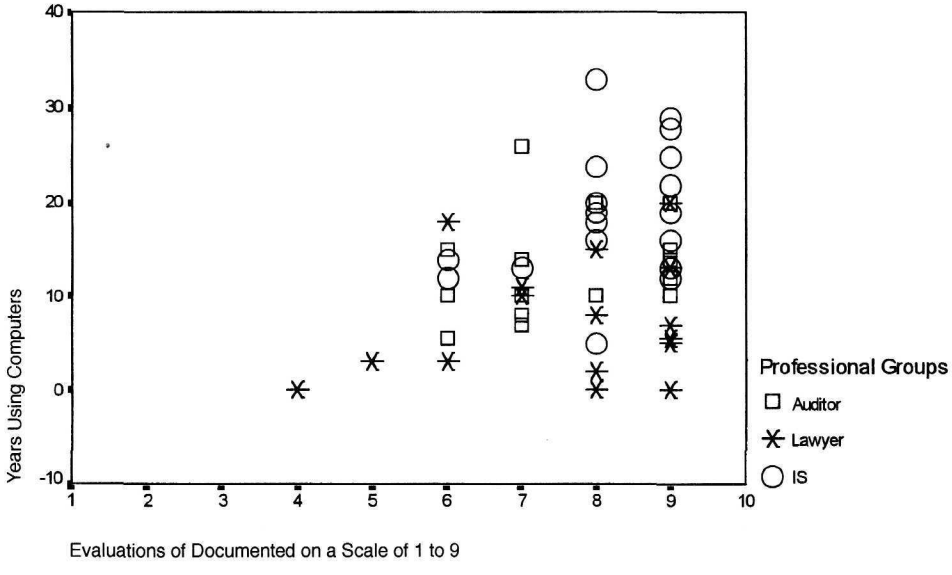

FIGURE 4. Computer Experience and Evaluations of *Documented*

The number of questions the subjects asked during the interview was analyzed, but there was no correlation between the number of questions asked and the scores given to any of the functional requirements.

This study indicates that the warrant or authority in these sources has the potential to serve as a powerful persuasion tool that could help archivists

convince other stakeholders, in particular, lawyers, that archival concerns are important.[16]

Persuasion Research

Persuasion has been defined as "a process of communication designed to influence receivers by modifying their attitudes in intended directions."[17] The art of persuasion is perhaps one of the oldest of all human arts and has classically been known as rhetoric or rhetorical communication. In 330 B.C. Plato, in his classic text *Rhetoric*, identified the three important components of persuasion: ethos (or the nature of the source), pathos (the emotion of the audiences), and logos (the nature of the message). Individuals can increase the impact and influence of a message by developing a well thought out argument, by appealing to the audience's emotions, or by increasing the authority of the source of the message.

Research in communication and persuasion has tested Plato's theory of rhetoric. Since the 1930s experiments have examined different factors that increase or decrease the acceptance of a message and its ability to influence an audience. Numerous experiments have demonstrated that messages from highly credible sources are more influential than messages from less credible sources. An NHPRC study suggested that archivists have not been involved in the process of meeting the challenges of electronic records because they are undervalued by their colleagues, or, in other words, are not viewed as a credible source.[18] The findings of studies on persuasion research suggest that archivists could increase their credibility by highlighting the strong connection between archival requirements and specifications for recordkeeping delineated in the law, professional standards, and best practices. For example, in a number of related experiments, McCroskey studied how the inclusion of evidence or factual statements emanating from sources other than the communicator affects the impact of a message. He hypothesized that supplementing a message with supporting evidence would not increase the impact of a message delivered by speakers who were highly credible, but speakers who were not highly credible could use evidence to increase their credibility. He found that including evidence in a message increased both an attitude change and perceived credibility of speakers who initially were viewed as low-credible sources. However, evidence had little impact on attitude change if

[16] Wendy M. Duff, "The Influence of Literary Warrant on the Acceptance and Credibility of the Functional Requirements for Recordkeeping" (Ph.D. diss., University of Pittsburgh, 1996).

[17] Herbert W. Simon, "Persuasion and Attitude Change," in *Speech Communication Behavior: Perspectives and Principles*, edited by Larry L. Barker and Robert J. Kibler (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1971).

[18] National Historical Publications and Records Commission, *Electronic Records: A Report to the Commission*, Reports and Papers, no. 4 (Washington, D.C.: 1990).

the audience already knew about the evidence. McCroskey provides the following explanation of the outcome:

> The initially low-credible source, on the other hand, has much to gain in credibility by demonstrating that high-credible sources agree with him. As his credibility increases the inconsistency between the audience's attitude toward him and toward the concept he favors is increased. Thus, while the initially high-credible source has little to gain from evidence, the low-credible source may increase his credibility by citing evidence and, in turn, increase the amount of attitude change produced in his audience.[19]

Cognitive theory of persuasion postulates that authoritative sources are more influential because when individuals are presented with a message from an authoritative source they are less likely to develop counterarguments. If the message comes from a less credible or suspect source the message is carefully scrutinized, counterarguments are developed and the message often rejected.[20]

Experiments have also demonstrated that messages from individuals who exhibit characteristics similar to the receiver of a message are more persuasive than individuals who are perceived as different. Simons, Berkowitz and Moyer point out that "the 'ideal' communicator may embody and/or emphasize (through 'common ground' techniques) a combination of similarities and dissimilarities which create an image of 'super-representativeness.'"[21] Individuals believe other individuals who speak the same language and display similar traits. Experiments have demonstrated that expertise, trustworthiness, and similarity to a receiver affect the degree to which a message influences or changes someone's attitude. The effect however is not universal, and individuals who have a strong involvement with a subject or a strong knowledge base about a topic are less likely to be affected by peripheral or external cues to a message such as source credibility or similarity.[22]

Conclusion

In 1991 Lisa Weber noted that "if you ask for a seat at the table, you better have something to say."[23] Electronic records research has provided

[19] James C. McCroskey, "A Summary of Experimental Research on the Effects of Evidence in Persuasive Communication," *Quarterly Journal of Speech* 55 (April 1969): 171.

[20] William L. Benoit, "A Cognitive Response Analysis of Source Credibility," *Progress in Communication Sciences* 10 (1991): 1–19.

[21] H.W. Simons, N.N. Berkowitz and R.J. Moyer, "Similarity, Credibility and Attitude Change," *Psychological Bulletin* 73 (Jan. 1970): 13.

[22] Wendy Wood and Brian Stagner, "Why Are Some People Easier to Influence Than Others," in *Persuasion: Psychological Insights and Perspectives*, edited by Sharon Shavitt and Timothy C. Brook (Boston: Allyn and Bacon, 1994), 162.

[23] Lisa Weber, "The Working Meeting on Research Issues in Electronic Records: A Report to SAA," unpublished, 28 September 1991.

archivists with something to say. Archivists now have detailed requirements for electronic recordkeeping and, as previously noted, agreement has emerged on the fundamental nature of records and the essential components of a complete record. Communication research demonstrates that acceptance or rejection of a message depends upon the source of a message and the individual who is receiving the message, as well as the content of the message. Warrant provides a mechanism for increasing the authority of the source of a message, so others will listen when archivists articulate the needs for recordkeeping.

By highlighting the similarity between recordkeeping requirements and the requirements delineated in authoritative statements in the law, auditing standards, and professional best practices, archivists will increase the power of their message. By connecting recordkeeping requirements to warrant, archivists can demonstrate the strong links that their profession has with related professions, such as the law and auditing. If archivists are to take their rightful place as regulators of an organization's documentary requirements, they will have to reach beyond their own professional literature and understand the requirements for recordkeeping imposed by other professions and society in general. Furthermore, they will have to study methods of increasing the acceptance of their message and the impact and power of warrant.