Archives and Manuscripts, 2013
Vol. 41, No. 2, 129–145, http://dx.doi.org/10.1080/01576895.2013.793164

Routledge
Taylor & Francis Group

Finding aids in context: using Records Continuum and Diffusion of Innovations models to interpret descriptive choices

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The Records Continuum model allows the context of records to be examined from a range of views and perspectives. By viewing finding aids as records created by archivists, the Records Continuum model can be used to examine the influences acting on archival finding aids and the archivists creating them. The Diffusion of Innovations model may reveal barriers and motivators for the adoption of new descriptive systems. The Records Continuum model was used together with Rogers' Diffusion of Innovations model to develop a mixed-methods survey and to analyse the results in a study into descriptive practice in New Zealand archival institutions. This paper looks at the effectiveness of the two models for this type of research.

Keywords: mixed-methods survey; record keeping continuum; series system

Introduction

This paper describes and evaluates the use of the Records Continuum model and Rogers' Diffusion of Innovations model in a mixed-methods study, which looks at factors involved in the decision to use particular methods of archival description. The study surveyed archival institutes in New Zealand, using the decision of whether to adopt the Commonwealth Record Series System (CRS System) as a basis for comparison. The main intent of this paper is to describe how the models were used in the development of a questionnaire and analysis of results, and to discuss their effectiveness for this study. It is not intended as a full description of the study and its results, as these have been extensively described elsewhere, together with a copy of the survey instrument.[1]

Many methods of description are currently used in different archival institutions throughout New Zealand, as is the case in many other countries, and this is a cause of difficulty, both in terms of sharing information between institutions and for users of archives wishing to understand and access archival holdings. Archival description needs to meet the challenges and opportunities of the complex context, content and structures of archives in an increasingly electronically connected and culturally diverse society. By better understanding the factors influencing descriptive decisions, it should be possible to improve the ability to share descriptive information between institutions, better target education and enable improved description.

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The CRS System, also known as the Australian Series System (AuSS), was developed by Peter Scott in the mid-1960s at the Australian Commonwealth Archives Office to meet the needs of describing records at a time of rapid administrative change.[2] However, it could also be seen as a reflection of the postmodern and post-structuralist paradigm shift of the same era, where perceived reality was no longer seen as single and fixed, but instead as contingent on context or point of view. In a post-structuralist paradigm, archival items could not be understood by themselves, but must be considered as part of larger structures, in terms of their contextual relationships. Post-structuralists suggested that these relationships could be multiple.[3] The CRS System describes the context of archives through their many relationships and by using their original control records in preference to a single, hierarchical and immutable view, as described by the archivist. By attempting to describe archives in their context through relationships in a way that was complete, virtual, scalable and inheritable, it became possible to allow multiple views of context. Indeed, Barbara Reed[4] suggests that a better name for the CRS could be the Context Relationship System.

As the CRS System reflects a shift to a postmodern, post-structuralist paradigm, this study used a model within the same paradigm to suggest and analyse factors determining its adoption in New Zealand archives. Upward and McKemmish's Records Continuum model,[5] with a stated debt to the CRS System in its development,[6] was used to investigate the context of the development of archival finding aids. The Records Continuum model provides a method of describing records and their creators – in this case, finding aids and archivists – in the context of their creation, maintenance, use and place in wider society, allowing for the examination of a broad range of potential sources of factors which might influence them.

The second theoretical model used was Rogers' Diffusion of Innovations model.[7] As the CRS System heralded a significant change to traditional methods of description, Diffusion of Innovations theory was used to investigate factors which could have influenced its spread throughout New Zealand archival institutions.

In this paper, the background to the study and the theoretical framework and models used are explained, summary results are given, the use of the two models to analyse the results is described and, finally, conclusions are drawn as to the effectiveness of the models for this type of study.

Background

Archival description in New Zealand

Archival description in New Zealand has a relatively brief history,[8] with close ties between libraries and archival collections providing bibliographic influence to much archival description. There were few opportunities for archival training in New Zealand until the 1990s, so professional qualifications were gained either at library school or overseas.[9] Some working in government archives trained in Australia, which exposed them to the CRS System.[10] The first archives Act in New Zealand covering government archives was passed in 1957; the first New Zealand publication relating to archives and manuscripts, *Archifacts*, began in 1974; and the Archives and Records Association of New Zealand was formed in 1976. The first National Register of Archives and Manuscripts was published in 1979, recently being replaced by an online version, The Community Archive,[11] using a descriptive structure based on the record group concept.[12]

Since the 1980s, national and local government has undergone frequent restructuring, while recently, postmodern and bicultural concepts of multiple provenance and parallel provenance have been growing areas of discussion in New Zealand, as well as internationally,[13] as has Records Continuum theory.[14] Evidence of the influence of Australian archival theories on New Zealand archival practice can be seen in the tenure of Australian Chris Hurley as acting Chief Archivist of Archives New Zealand from 1998 to 2000. The Australian Society of Archivists' Descriptive Standards Committee published a guide to the CRS System in 2007,[15] which is described as a guide to Australasian practice in describing records in context. Although the level of impact of this publication in New Zealand is yet to be measured, it has been widely advertised in New Zealand archival circles. Adam Stapleton[16] noted that Archives New Zealand has developed a range of initiatives underpinned by the Records Continuum model – for example, the Continuum Resource Kit, which holds tools, standards and guidelines for recordkeepers.[17] The description of electronic records is another issue facing New Zealand archivists, as in the rest of the world.

Background and objectives to the study into archival description

Janine Delaney's survey of archival description throughout New Zealand, which was undertaken in 2008,[18] found a wide range of practices, which were often developed locally, without reference to external standards and with differing views on the purpose of description. Delaney also found a lack of professional discussion of archival description outside the major archival institutions and a wide range of levels of understanding regarding basic descriptive principles. Delaney's study did not examine the factors determining archivists' decisions to implement a particular method for description. The lack of agreed descriptive standards forms a barrier to online information sharing at a time when users expect online access to the archival resources of multiple institutions. Upward, McKemmish and Reed[19] emphasise the importance of taking a 'multiverse' approach to recorded information in examining the complex varieties of causes of problems facing the world, and the ability to access information across institutional boundaries is essential for this to become a possibility.

As a basis for Delaney's survey, the implementation of the CRS System throughout New Zealand was measured. The study found relatively few archives were using Scott's CRS System, although a modified version has been used since 1986 at Archives New Zealand. In a study into the implementation of the CRS System in Australia, Sigrid McCausland[20] noted that many experienced archivists who had been introduced to the CRS System at the Australian Archives then went on to introduce the system in their new positions, often with adaptations to suit the new situation, which suggests that previous use and awareness may be a significant factor. It is possible that, more recently, changes to international standards and recordkeeping needs have introduced some aspects of the CRS System to many descriptive systems. Adrian Cunningham[21] noted that Scott's CRS System is being used around the world to varying degrees, influencing international descriptive standards, even if this is largely unrealised by many practitioners.

The strengths of Scott's system have been discussed for many years, including allowing the description of multiple creators as functions pass between agencies or people;[22] the web of creation and use of electronic records, particularly in an online environment,[23] for describing complex, interwoven series;[24] and allowing alternative descriptions to allow for differing cultural attitudes to provenance, creation and meaning for different cultural groups.[25]

The aim of the study underpinning this paper was to investigate the current state of description in New Zealand archives and determine the factors influencing descriptive decisions, in order to show the effect of context on descriptive practice. The research was also designed to determine whether decisions are made after careful consideration of the relative benefits of different options or by default. Discovering the factors behind descriptive decisions could allow for better-targeted educational initiatives, improved collaboration between archival institutions and improved practice. It could highlight gaps in knowledge regarding description within the New Zealand archival community. It could also show the extent to which variations in descriptive practice reflect differences in organisational culture and the extent to which descriptive decisions come down to resources or the decisions of managers without archival knowledge.

The broad research questions for the study were based on factors suggested by a literature review, which looked at the development and implementation of the CRS System, later developments in archival theory and technology which might have an influence on its implementation and, finally, differing attitudes to the purposes of description. The initial stages of the review suggested the possible value of using the two theoretical models, which were subsequently used in the study, so the review was expanded to include research relating to barriers and facilitators to the spread of innovation and the development and use of Records Continuum theory. As a result of the review, the research questions were:

- What are the barriers to implementation of the CRS System in New Zealand archives?
- What are the motivators for implementation of the CRS System in New Zealand archives?
- Does the presence of these barriers and motivators consistently predict implementation?

Theoretical framework and paradigm

Overview

The study used two theoretical models as a framework in a mixed-methods approach using both quantitative and qualitative methods. The Diffusion of Innovations model[26] was used to examine attributes influencing the adoption of the CRS System, while the Records Continuum model[27] was used to look at the contexts of creation, management and use of descriptive records. These two models were used both in the development of the survey questions and analysis of the results.

The research was carried out using a post-positivist paradigm, which asserts that although reality exists, it is not easy to discover and, to improve understanding, insider views should be sought.[28] This approach suggests that factors affecting decisions are contingent on individual circumstances, but are discoverable. A post-positivist approach uses aspects of both interpretivist and positivist paradigms – a combination supported by Cresswell and Plano Clark[29] – suggesting the use of the paradigms in separate, but complementary, sections of a research project, as was the case with this study. Gilliland and McKemmish[30] also support this view, noting that different phenomena are better understood from different viewpoints.

Gilliland and McKemmish signal the value of interpretivist approaches in: 'developing in-depth understandings of particular instances that assist in understanding other instances, taking into account their particular contexts'.[31] They also note the close ties

between the interpretive paradigm and structuration and postmodernism, on which Records Continuum theory is based.[32] Using the Records Continuum model as a basis for research emphasises the contingent nature of records, with diverse and changing contexts of creation. Thus, it has relevance in researching the formative role played by archivists in creating description about the records that they hold.

In contrast, the use of Rogers' Diffusion of Innovations model could be seen as a more positivist approach, assuming, as it does, that institutions can be placed at a particular stage of adoption and that there are measurable attributes that can influence whether an innovation is adopted.

Diffusion of Innovations

The CRS System represented a significant innovation in archival theory, replacing the record-group concept of a one-to-one relationship between creators and records with the concept of many-to-many relationships between records' creators and record series and items, where the relationships should also be described. In order to discover the factors involved in the adoption or otherwise of this innovation, Everett Rogers' Diffusion of Innovations model might be useful.

Rogers defined diffusion as: 'the process by which an innovation is communicated through certain channels over time among the members of a social system'[33] and innovation as: 'an idea, practice, or object that is perceived as new by an individual or other unit of adoption'.[34] He described the five stages of the adoption process: knowledge, persuasion, decision, implementation and confirmation. He also described five attributes which could influence an individual's decision to implement an innovation: relative advantage, compatibility, complexity, trialability and observability. He noted the need for champions and agents of change, in order for innovations to be adopted, and also divided adopters into categories, including innovators, early adopters and late adopters. These attributes and the concept of the need for champions and agents of change suggested potential factors which could relate to the diffusion of the CRS System. It was thought that they could provide a framework for categorising and analysing the factors influencing implementation decisions. Using the five stages of the adoption process, once the data was collected, an attempt was made to map each institution onto a chart of the five stages of adoption, in order to assess whether any correlation could be found between stated factors and their stage of adoption.

Yakel and Kim[35] used Rogers' five attributes, as well as the five stages of innovation, as a framework in their survey of 399 archives and manuscript repositories to investigate the implementation of Encoded Archival Description (EAD), finding that the model revealed critical factors inhibiting its adoption, including small staff size, lack of standardisation in descriptive practices, lack of institutional infrastructure and difficulties in maintaining expertise.

Further research into innovations in archival description practices used a survey approach, without a stated theoretical framework. Duff[36] described a survey to investigate the acceptance and implementation of the Canadian Rules for Archival Description (RAD), distributing a questionnaire to all 742 members of the Canadian Council of Archives. The survey revealed a strong relationship between the use of RAD, description undertaken at a higher contextual level and the involvement of professionals in descriptive work. She suggested that extensive national training initiatives and compliance requirements had encouraged its use.

Another survey into EAD implementation was reported by Yaco,[37] following up on Yakel and Kim's 2005 survey. Yaco selected 16 archivists at institutions that wanted to implement EAD, but which were experiencing problems. The final question in the survey was an open-ended one, which requested comments on barriers to EAD implementation. Like Yakel and Kim, Yaco found institutions with more archivists were more likely to implement EAD. Technology issues were cited as a barrier, as was attempting to work alone without the assistance of IT staff. Other key barriers included a lack of institutional support and a desire to rewrite the legacy finding aids.

Records Continuum model

Upward and McKemmish's Records Continuum model[38] is a way of looking at the relationship between recordkeeping and accountability, analysing the many different levels of influence on the creation of a record and the different dimensions in which a record simultaneously exists and can have an effect. Records are seen as having: 'complex and dynamic social, functional, provenancial and documentary contexts of creation, management and use through space-time'.[39] The Records Continuum has been well-described in several recent publications, but I will briefly summarise the model used as a basis for this analysis.

There are four dimensions in the Records Continuum model:

- Create: the actors carrying out the act, the act itself, documents recording it and the trace or representation of the act;
- Capture: personal and corporate records' systems capturing documents in context;
- Organise: the organisation of recordkeeping processes – the manner in which a corporate body defines its recordkeeping regime; and
- Pluralise: the way that the records are brought into a framework to provide a collective social, historical and cultural memory of institutionalised purposes of people and corporate bodies.

The Records Continuum model also describes four axes representing accountability for records. These are:

- Transactionality: records as products of activities;
- Identity: who made and kept the records;
- Evidentiality: records as evidence, with integrity and continuity; and
- Recordkeeping containers: the objects created in order to store records.[40]

Records potentially exist in multiple dimensions. The centrality of the Records Continuum model to recordkeeping theory is seen in its use as a framework for ISO 15489.1 – 2002 – the international recordkeeping standard.

Finding aids are themselves records, which are created by archives as part of their function of preserving, describing and providing access to archives. At the same time, they capture the archives that they describe, allowing them to be organised within the organisation's recordkeeping regime, however it is defined, and bringing them into a framework to be pluralised. Viewing finding aids through a Records Continuum lens allows them to be examined within their context of creation and use, considering all the different dimensions and axes of the Continuum, when looking at factors influencing decisions on descriptive systems. This requires questions not only about the people creat-

ing the finding aids and systems in which they are maintained, but also about the wider organisational systems, organisational culture and relative place in the wider cultural heritage framework, which the respondents view as the position of their own archives.

Relatively few examples of studies using the Records Continuum model as a theoretical basis have yet been published, although there are some examples using related models. Gillian Oliver used the Information Continuum model, based on the Records Continuum model, together with Hofstede's Dimensions of National Culture, as a framework for analysing the interaction of organisational culture with information and its management in comparative case studies of universities in three different countries, finding it useful for establishing clarity of definition and focus.[41] Similarly, Gibbons used the Cultural Heritage Continuum model, also based on the Records Continuum model, in a content analysis of the websites of three collecting institutions.[42] She used the model to show how cultural memory was created as a process generated through interaction within groups and communities as shared memory, not just as the product of individual action.[43]

More recently, Newman used the Recordkeeping Continuum model to map factors supporting the sustainability of community archives, finding the model useful in highlighting the source of the factors, the impact they have on each other and which factors most need to be addressed.[44] Another recent study used Records Continuum concepts, particularly that of the pluralised 'fourth dimension' – where records can have multiple meanings and multiple stakeholders – as a framework for thinking about the records of people who were affected by having been in institutional 'care'.[45] Using the model to illustrate that the records were mostly still held in the third dimension of institutional control, they called for a reorientation of perspective to recognise the many stakeholders, suggesting that the development of new contextual documentation could improve access, leading to increased trust, dialogue and reconciliation.

Use of the models in developing the research method

The Records Continuum theory suggested the importance of gathering information about the entire context of the finding aids and the archivists making decisions about them. At the same time, the adoption of the Diffusion of Innovations model suggested that stages of implementation should be assessed, barriers and motivators should be searched for and factors reflecting Rogers' five attributes should be measured, if possible. The survey used a mixed-methods approach, combining qualitative and quantitative methods of collecting data using a self-completion survey with both closed and open-ended questions and then correlating the results. Cresswell and Plano Clark argue that qualitative research adds context to quantitative research, while quantitative research adds generalisability and, arguably, less observer bias to qualitative research.[46] The aim was to gain a broad view of the current level of use of concepts of the CRS System in archival institutions in New Zealand, as well as some understanding of the context within which decisions as to descriptive systems were made.

The questions in the survey were developed from a variety of sources. Delaney's survey was used as a source of questions relating to institution type and resources and, for some questions, relating to the type of description used. The author also carried out a literature review, which looked at the background to the development of the CRS System, later developments in archival theory and technology which might have a bearing on the perceived value or ease of implementation of the CRS System, and differing

attitudes to the purposes of archival description, as well as barriers or facilitators to the spread of innovation. The results of this review suggested possible factors, so questions were included in the survey to determine whether these factors had been significant, while the open-ended questions were written to encourage further explanation and suggest factors which may not have been considered.

Finally, both theoretical models suggested further factors to be measured. In the case of the Diffusion of Innovations model, questions relating to Rogers' stages of implementation, his five attributes likely to encourage the adoption of innovations and his concept of an agent of change were included. The Records Continuum model suggested the need to ask a range of questions relating to the wider context of the archivist: the archives and the archival institutions, including questions about the archivist's views on the neutrality of archivists; their opinions on what influences might be affecting their archives and their description; their opinions on the function of finding aids; the life cycle and Continuum model of recordkeeping and their views about the effect on their description of their resources; level of autonomy; desire to share information with the wider world; their systems; the complexity and type of their archives; the purpose of their archival organisation; their view of the purpose of archives in general; type of organisation, users and wider community.

Method of analysis of the survey data and application of the models

Initial analysis – determining degree of implementation of the CRS System

First, the qualitative and quantitative data from the responses of each institution were used to determine the degree to which they had implemented the CRS system, according to their replies to specific questions. This part of the analysis was carried out before any further qualitative or quantitative analysis was begun to determine whether they fell into one of three predetermined categories: 'yes': full implementation; 'some elements': partial implementation; 'no': CRS System not implemented.

Since its initial development, the CRS System has been modified considerably by many of the institutions implementing it, according to their perceived need and ability to describe different entities and relationships. In addition, aspects of the CRS System have been incorporated into archival and recordkeeping standards, including ISO 15489 recordkeeping standard and ISO 23081-2 metadata standard. Some description software also incorporates aspects of the CRS System. For this reason, it is possible for archivists to implement description in line with some aspects of the CRS System without realising it. Thus, the level of implementation was not measured simply by asking archivists whether it was used. Instead, questions were asked to determine use of descriptive practice in line with the CRS System. For example, were context and content entities separately described? To what extent, if any, were relationships between entities described within and between organisations, agencies and series? Was intellectual control of archives separated from physical control (that is, could archives be shelved without regard to provenance)? Could items be linked to multiple creating or controlling agencies? Could they be independently linked to more than one series, function or controlling/controlled/otherwise related item? Are recordkeeping systems described?

Full implementation of the CRS System was defined as the separate description of agencies and series and, optionally, items, functions or other entities, as well as description of the relationships between those entities, for all or part of an archives' holdings, with the option of linking content entities to more than one context entity where required. Intellectual and physical control of the archives was separate. Relationships

could include, but were not limited to, controlling, controlled, predecessor or successor, and relationship dates or further description of the relationship could also be included. The agency documentation should give a brief overview of the agency's recordkeeping systems.

Partial implementation involved the use of context entities as authority files, allowing linking from one series or item to more than one agency and vice versa, but without explicitly describing relationships, and without explicitly describing relationships between agencies or series.

This categorisation was used in comparing aspects of the remainder of the quantitative and qualitative data (as described below), in order to find possible correlations between suggested factors and the implementation of the CRS System.

Analysis of the quantitative data

The answers to closed questions were coded into an Excel spreadsheet using a coding schedule derived from the questions. As the entire population, rather than a random sample, was surveyed and the response rate was only 35 per cent, the results are not generalisable beyond those institutions participating,[47] thus descriptive statistics were the most appropriate form of analysis, describing the characteristics of the institutions and types of descriptive practice pertaining to each variable. The variables were mainly nominal: these are categories that cannot be ordered in rank, such as type of institution. There were also a few ordinal or interval/ratio variables – these are both categories that can be placed in order – but for ordinal variables, the distances between the categories are not equal. First, totals were calculated for each variable. Where there were a large number of possible options, bar charts were drawn to allow visual analysis.

Bivariate analysis was carried out between assessed use of CRS System and other variables for an explanatory survey, by combining results for individual archives for two variables and then assessing the correlation, both visually, using column charts, and mathematically, using an online contingency table generator.[48] Any apparent correlations were tested for statistical significance and strength of relationship using the Chi-square test and Cramér's V. It was possible to arrive at conclusions – generalisable only to the institutions which responded to the survey – as to which factors might be significant. The results showed relationships between some variables, but they could not show causation,[49] and it is possible that apparent relationships might be due to other variables which were not measured.

Analysis of the qualitative data

As many of the respondents commented extensively, it was possible to carry out content analysis of the answers, first reading through them as they arrived, so as to get a general impression of concepts. Next, the responses were read line-by-line and remarks pertinent to choice of description were coded. After all of the responses had been coded, the codes were reviewed and analysed for emerging themes and possible connections or causation suggested by the respondents. While coding the answers to the research questions, new ideas emerging from the data were also noted.[50] Emerging themes were analysed to see whether they appeared more often in specific contexts.

The codes were then ranked according to how many respondents had made comments relating to them, and it was assumed that those most frequently commented upon were likely to be significant factors to more respondents than was the case for those with fewer comments.

Respondents might not have commented in a particular category, despite this being a factor in their descriptive decisions, but it was assumed that respondents were more likely to have commented on factors that were of most significance to them.

Combined analysis using the theoretical models

Results from the quantitative and qualitative analyses were compared and contrasted in several ways for consistency and to gain a more comprehensive picture of factors involved – a design described by Creswell and Plano Clark as a Convergence model,[51] designed to improve validity and well-substantiated conclusions and to better describe complex situations.[52]

The factors found to be significant in the quantitative data were matched against the codes arising from the qualitative data, and it was noted where these results reinforced each other and where new factors were suggested by the different data.

Rogers' Diffusion of Innovations model was used for further analysis of the factors drawn out from the combined data. The five stages of innovation were used to attempt to group institutions according to where they stand in relation to the use of the CRS System. The factors suggested by the analyses were grouped according to Rogers' five attributes and his concept of agents of change to discover whether this could add to the understanding of the effect of the factors on decisions as to descriptive practice.

The Records Continuum model was used to map the factors across the four dimensions of the model and its four axes of accountability, in order to find where in the Continuum major influences on descriptive practices lie and how they might influence each other.

Survey results

From the 245 questionnaires sent out, there were 86 usable responses, which were broken down into 76 out of 210 online questionnaires and 10 out of 35 postal questionnaires. The responses provided a very large quantity of data. Many took the opportunity to comment on their answers or on description in general, and this was useful for clarification and also suggested additional factors. These results are described in another paper and in the full report.[53]

Summarised very briefly, the quantitative results suggested many possible factors in the adoption of the CRS System. These could include archival holdings, which the archivist believed had more than one original order; a complex administrative background (more likely to adopt); or a simple administrative background (less likely to adopt). Whether the archivist had studied all available systems and decided this was the best, had heard of the CRS System or had used it elsewhere and found it effective could also be significant. Level of training and whether they kept up-to-date through reading and discussion groups also had an effect. Size of collection (a large collection meant the archivist was more likely to adopt it); availability of resources; and number of staff (although this was not a reliable predictor, it was often cited) were also factors. Other factors included whether it met external descriptive standards and the type of institution (strongly related to whether they had heard of CRS System). Another factor was a more postmodern, Continuum view of archives, records and archivists – for example, the belief that archivists cannot be neutral. The format of the finding aids and how compatible they were with the CRS System (often related to the type of institution, whether the finding aids shared a system with a library or museum catalogue or over-

seas institution and who provided advice when setting up the system) also showed an influence, as did whether the institution was open to the public.

The qualitative results suggested that possible factors included the effect of knowledge received from networking, advice received from experts from elsewhere and the knowledge, skills and views of the archivist, including their understanding and knowledge of archival standards and conventions. One respondent with no training believed that it was better and easier for users to list by subject, while those using the CRS System were more likely to mention the significance of context. Other factors included the archivist's view on what level of description was appropriate, desirable or possible, according to available resources. Some said they could not make changes to description or could not describe as well as they would like, due to the lack of resources. Technology was either a limiting factor or an enabler, and comments in the qualitative data suggested that the type of technology used was strongly influenced by the level of autonomy of the archivist, the type of institution and the experts consulted when setting up systems. Type of access, use, user and the community in which the institution was operating were also factors, as was the amount of information available to the archivist, their perception of the information within their holdings, its likely value to the wider community and the risk of providing access and their desire (or otherwise) to share information within and between institutions.

Combining the quantitative and qualitative results showed many consistencies across the data, providing a fuller picture of factors going into decision-making and also revealing a few additional factors. The results showed that a very large number of factors could potentially be involved, with no one factor being decisive. Sometimes the same factors in different circumstances had opposite outcomes. A simple list did not provide a clear enough view to understand the results, so the factors were mapped to the two models to try to improve clarity.

Mapping of the survey results to the models

Mapping to the Diffusion of Innovations model

Although Rogers' Diffusion of Innovations model was useful in the initial stages of this study in suggesting possible factors to test, particularly the concept of an 'agent of change', once the survey was completed, the model was less useful. Attempting to map the level of implementation according to Rogers' suggested stages of the adoption process (knowledge, persuasion, decision, implementation and confirmation) was not very successful. The intent was to note where those with knowledge were, according to his stages, and to discover what the barriers were for those with knowledge of the CRS System who had decided against implementation. However, the majority of respondents had not reached the first stage, while some had adopted many aspects of the Innovations model, without any stated knowledge at all. Sometimes this was because they were using systems suggested or developed by others – some because they saw a need to describe their records in this way and so developed their own related system; some because the software that they were using incorporated aspects of it.

Very few were in the intermediate stages, instead implementing some aspects fully and others not at all. Those who had fully implemented the CRS System had not necessarily done so over all of their collections. Many of those with knowledge of the CRS System who said they had not adopted it – stating as barriers a lack of perceived relative advantage, incompatibility or lack of resources – had often, in fact, implemented some aspects.

Of the six who had heard of it and were not using it at all, none had used it in the past or knew of any others in their institution who had previously used it, so it is possible that although they were aware of the CRS System, they may not have any great depth of knowledge about it.

Looking at the barriers stated by those who had not adopted the CRS System, despite awareness of it, did highlight some factors, in that four of the six stated that it was not compatible with their existing system and four stated that they saw no need with their existing collections, either due to small size or a belief that their archives only have single creators and original order.

Many of the results did not map usefully to Rogers' suggested attributes (relative advantage, compatibility, complexity, trialability and observability), as many fitted under several headings and some did not fit easily into any of his categories. Perceived relative advantage was a category into which many of the factors did fit, and the wish to reflect a complex administrative background was one, as was the type of access, use and user. Trialability was also a useful concept, as the CRS System was very popular with those who had used it before and was unpopular with those who believed it was difficult to implement, although this would also fit into the category of complexity. Compatibility was another attribute in which many of the factors could fit, especially relating to available technology, beliefs about ideal description, type of use and user and the wish to describe complex relationships.

Rogers' concept of an 'agent of change' to introduce an innovation was well supported by the results, with previous use of the CRS System by the person responsible for the development of the respondents' descriptive system as a strong predictor of its current use.

However, separating the factors into categories in this way disguised the strong interrelationships between them.

Mapping to the Records Continuum model

Using the Records Continuum to map the results provided a way to describe the interrelationships of influences between the factors affecting the adoption of the CRS System and made the consistencies behind the apparent anomalies much clearer when trying to understand the factors in isolation.

At the centre of the Continuum, in the 'create' dimension, the records that make up the finding aids are created by the archivist in the descriptive system chosen by them or another. The views and knowledge of the archivist, including training, previous experience of the CRS System, ideas as to the best methods of description, archival conventions and standards, understanding of the needs of their users, choice of descriptive technology, ways they can use the systems available to them and beliefs relating to the nature and relative complexity of their archival collection all act on the archivist in this dimension. From here, they have an impact on the way that their finding aids are captured, organised and pluralised in the outer dimensions. The individual records that make up the archives, including their format and content, also sit in this dimension, influencing decisions on their description. At the same time, influences come in from all parts of the Continuum on the archivist and archives that they are describing.

From the 'pluralise' dimension, the archivist can be affected by types of training received, archival literature, networks in the wider community and sources of expert advice. The types of use and users, with perceived and stated needs affecting choices, come from this dimension, as do societal expectations regarding the type of description

found in particular institutions, archival concepts, conventions and standards, initiatives to share information between institutions, and ideas, such as postmodernism.

In the 'organise' dimension lies the institution within which the collection is held. Here the description and archivist is affected by the level of support or autonomy provided to them, the type of organisation and its policies, the resources available and the technology and other systems within which they may have been told that they must operate. The archivist may also influence the organisation and its system, according to their views and knowledge and the level of influence that they hold.

In the 'capture' dimension – closest to the archivist, the archives and elements of the finding aids – lies the finding aid system itself and the archival collection that it describes, including its relative size and complexity of relationships. The level of complexity is open to interpretation by the archivist sitting in the 'create' dimension.

The finding aids as a whole must operate from the capture to the organise and pluralise dimension, and these multiple purposes are reflected in the multiple influences acting on them.

Moments of opportunity or transition can come from any of the dimensions, from natural disasters in the outermost dimension to the arrival of a new archivist with new ideas and from ideas received in training in the 'pluralise' dimension and acted upon by the archivist to organisational decisions to change descriptive systems.

Use of the Continuum model, in its ability to clarify the interaction between factors, helps to explain the anomalies in the results. For example, most respondents who had not heard of the CRS System were not using it. However, two respondents said they had not heard of the CRS System, but their finding aid systems had fully implemented it. Looking at the views of these archivists responsible for creating the records and structures that make up their finding aids ('create' dimension), both believed that their archives had a complex administrative background, and they wished to reflect this in their description. Their understanding of the complexity of the relationships and their wish to reflect it came from their archival knowledge, received from their experiences and training in the archival and wider world (the 'pluralise' dimension). The perceived complexity also arose from the archives themselves, whose source was influenced by the institution they were in, sitting in the 'organise' dimension, but itself influenced by the wider societal conventions for the type of institution it was (the 'pluralise' dimension). The archivists' previous exposure to the CRS System would also have been influenced by conventions, with regard to their type of institution, as well as the views of earlier archivists in their institution and expectations regarding the type of training expected of archivists for the particular institution – these expectations would be situated in both the 'pluralise' (society-wide) and 'organise' (institution-specific) dimensions. One of the two archivists in this example said that their predecessor had chosen their system, while the other had used a similar system before, without realising its relationship with the CRS System. This archivist was working within a museum, whose conventions (in the 'pluralise' dimension) supported the idea of the significance of context. This meant that the organisation's wider cataloguing systems ('organise' dimension), within which the finding aids system was placed ('capture' dimension), supported the creation of relationships between context entities and thus also supported the CRS System.

Terry Cook noted five factors on which the critical importance of the Continuum rests. These are the interaction of the dimensions and axes; its insight that these complex relationships are fluid, multiple and simultaneous in both time and space; its reconciliation of evidence and memory; its potential for incorporating private sector

manuscripts with institutional archives; and its assertion that through pluralisation, societal values will influence all aspects of recordkeeping.[54]

Using the Records Continuum model to map the factors affecting decisions as to the adoption or otherwise of the CRS System demonstrates that descriptive decisions and finding aids are influenced by the interactions of factors at all levels of the Continuum. It shows that the views and knowledge of the archivists at the centre of the Continuum are key factors, while working within the values and expectations placed on them and the resources provided from all other dimensions, thus reflecting the archives and communities within which they are working.

Conclusion

The Records Continuum model and Rogers' Diffusion of Innovations model proved to be useful tools in developing a survey to identify factors influencing decisions on description in New Zealand archives, while the Records Continuum model was also effective for the analysis and interpretation of the results.

The Records Continuum model was useful in developing the survey questions, in that it suggested that the study should look at the interaction of the wider context of the archivist, archives, finding aids and institution. Once the survey results were statistically analysed and coded, mapping the factors discovered in the study using the Records Continuum model revealed the way that they interact with one another across all dimensions of the Continuum. The factors included the resources available; types of access; use and users of the collection; the nature of the archives themselves; type of collection; complexity of the relationships within the collection; inherited or imposed systems of description, including the software used; knowledge and background of those with whom archivists network and from whom they ask advice; archival conventions; the nature of the organisation itself; and a desire to share information and search across collections within or between institutions. Perhaps the strongest influence, interacting with all of the others, was the knowledge, experience and views of the archivist responsible for the decision-making. Viewing the influences using the Records Continuum model, the interconnections described by the respondents were retained and highlighted; thus, they could be examined more readily. Mapping to the Continuum model also helped to explain apparent anomalies in the results, where two institutions with some factors in common came to opposite decisions, due to the action of other factors.

Rogers' Diffusion of Innovations model was useful for suggesting some possible additional factors for investigation in the survey, including the concept of an agent of change, which proved to be significant. His concept of searching for barriers to adoption was also a useful one. However, when analysing the results, the model proved less useful, due to the difficulties in assigning institutions to particular stages of implementation. Attempting to categorise factors into his suggested attributes also proved difficult and seemed to disguise the many interactions between the factors, which had been described in the comments of the respondents.

In conclusion, both models proved useful in developing the research method and formulating survey questions. However, in analysing the results, the Records Continuum model proved to be of far greater utility, enabling the analysis of the interaction of many factors, whereas Rogers' more linear model concealed this interaction. In answering the final research question of the survey – does the presence or absence of

any one of these barriers or motivators consistently predict the implementation of the CRS System? – the answer was no. None of the identified factors individually predicted implementation of the CRS System. Instead, they worked together to make implementation more or less probable. By using the Records Continuum model to map the factors affecting the creation of archival description, the interrelationships between those influences were revealed.

Endnotes

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