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THE STUDY OF RECORDS MANAGEMENT COMPETENCIES BY APPLYING KAPPA COEFFICIENT IN CODING PROCESS FOR INTER-CODER RELIABILITY

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ABSTRACT

This study was started with the aim of exploring records management competencies for records managers in Malaysian federal ministries. The data collection methods consist of unstructured interviews, content analyses and on-line focus groups discussions. In order to identify themes and pattern of qualitative data from these methods, transcription and categorization process has been addressed by executing manifest and latent coding. The study has used NVivo8 for coding process and the input of inter-coder responses has been converted into specific tables in Microsoft Excel. 852 statements have been examined by two inter-coders by evaluating the degree of reliability and consistency of coding process by using Kappa Coefficient.
Keywords: Content analysis, inter-coder, reliability, records management competencies, Kappa Coefficient.

INTRODUCTION

The evolved of records management field into tremendous changes in controlling recorded information have influence the competencies of records managers in performing their responsibilities. The importance of keeping records effectively and efficiently indicates some levels of deficiency in managing records. In addition, the creation of electronic records which exist in various forms requires very specific procedures and practices, especially in using, storing, maintaining and disposing records. This requires the personnel involved to keep abreast with the latest development in technology. Obviously, governments around the world, especially Australia, Canada, United Kingdom and United States are in the forefront of concerning systematic and efficient guidelines and regulations towards records management perspectives and strategies (Rusnah, 2006). The competencies which comprised knowledge, skills and attitudes will be used as the standard required of the records manager in performing tasks, and to ensure the records management goal and objectives of making records and information processing become more timely, accurate, complete, cost-effective, accessible and usable.

The advancement of Information Communication Technology (ICT) application and the abundance of software and hardware in the market nowadays contributed to the existing and creation of electronic records. Electronic records tend to be used extensively in the government agencies for the administrative purposes, although the paper based records was still considered as the main medium in capturing content of event (Sidek and Irwan, 2007). A study by Umi Asma' and Zawiyah (2009) revealed that not all government departments (only 46 per cent) have a policy on electronic records management. As current practices in Malaysia, individual who manage the records known as Departmental Records Officer was not appointed from the records management professional. These individuals normally relocated from clerical and administration post and some of them was not well trained and possess a sufficient knowledge to manage public records. There was a situation where the responsibility on handling the records was delegated to clerical staff and information system officer (Zawiyah, 2007). In addition, the specific manual guide for managing electronic records needs to be created to enhance the quality and system of electronic records storage in Malaysia. Based on former Chief Secretary of Government, Tan Sri Samsudin Osman (Utusan Malaysia on April 2, 2003) this step should be taken because the information management system in Malaysia was not well satisfied.

The main objective of this study is to develop a competencies profile as guidance for records managers in handling records at Malaysian federal ministries. In order to accomplish the objective of the study, competencies profiles from other developed countries such as Australia, Canada, United Kingdom and United States have been studied and compared with the present state of competencies of records managers in Malaysian federal ministries. Apparently, records manager is an acknowledged profession in

the Malaysia. Wallace, Lee and Schubert (1992) defined a record manager as one who plans, develops and administers records management policies and coordinates these efforts with another personnel, equipment and systems. On the other hand, Robek, Brown and Stephens (1996) defined records manager as individual within an organization who is assigned responsibility for systematic management of recorded information generated and received by the organization in accordance with accepted records management principles and practice. Griffiths and King (1985) define competency as the generic knowledge, skills or attitude of a person, related to effective behavior as demonstrated through performance. This study will explain the requisite skills, knowledge and attitudes necessary for records manager. In addressing consistency of coding process as recommended by Guthrie, J., Johanson, U., Bukh, P.N. & Sa´nchez, P. (2003), Weber (1990) and Krippendorff (1980); and to assure reliability, which consists of stability, reproducibility and accuracy in the content analysis as suggested by Krippendorff (1980), the researcher has applied Kappa Coefficient. Based on this study, the researcher used Kappa Coefficient to determine the degree of agreement between two coders for four manuals used in the content analysis, data collected from on-line focus group discussions and unstructured interviews. Krippendorf (1970) and Cohen (1960) suggested the use of Kappa Coefficient to ensure inter-coder reliability in depicting the degree of correspondence between the coders.

THE USE OF KAPPA COEFFICIENT

Kappa Coefficient was initiated and published by Jacob Cohen in the Journal of Educational and Psychological Measurement in 1960 (Casey, Altobelli and Pignatelli, 2009). Cohen (1960) determined that Kappa Coefficient is the procedure of having two (or more) judges independently categorize a sample of units and determine the degree, significance, and sampling stability of their agreement. Kappa Coefficient can be used to compute the agreement of the ratings on the experimental units that are provided by numerous raters. It has long been used, especially in content analysis to assess the reliability of tagging. As mentioned by Krippendorf (1970), tagging in content analysis generally involves assigning one judgement per case. In addition, Tinsley and Weiss (2000) noted that the more specific term for the type of consistency required in content analysis is intercoder (or interrater) agreement. Intercoder reliability is the widely used term for the extent to which independent coders evaluate the characteristic of a message or artifact and reach the same conclusion. Tinsley and Weiss (2000) also highlighted that while reliability could be based on correlational (or analysis of variance) indices that assess the degree to which ratings of different judges are the same when expressed as deviations from their means,' intercoder agreement is needed in the content analysis because it measures only the extent to which the different judges tend to assign exactly the same rating to each object. On the other hand, Lombard, Duch & Bracken (2008) state that intercoder reliability is a crucial component of content analysis, and that although it does not insure validity, when it is not established properly, data and interpretations of data cannot be considered valid. As Neuendorf (2002) noted, a goal of content analysis is to identify and record relatively objective characteristics of messages and reliability is paramount. Without the establishment of reliability, content analysis measures are fruitless.

Furthermore, based on Cohen (1960) and Krippendorff (1980), Kappa Coefficient of agreement is a measure of agreement that factors out expected agreement. Besides, Eugenio (2000) highlighted that Kappa Coefficient of agreement has become the de facto standard to evaluate intercoder agreement in the discourse and dialogue processing community. Viera & Garrett (2005) also agreed that Kappa Coefficient measure the agreement between two or more observers, which include a statistic that takes into account the fact that observers will sometimes agree or disagree simply by chance. Kolbe and Burnett (1991) and Cunningham (2009) prefer to use the term reliability instead of agreement. Kolbe and Burnett (1991) highlighted that interjudge reliability is often perceived as the standard measure of research quality while Cunningham (2009) stated that the Kappa Coefficient is a widely used statistic for measuring the degree of reliability between raters.

METHODOLOGY

The exploratory design proposed by Creswell and Plano Clark (2007) was considered most relevant for the study. The design consists of a two stage approach, preceded with qualitative data to explore a phenomenon and followed by quantitative data which instruments are developed based on the findings at the first stage. Based on this study, a researcher used exploratory sequential approach as mixed method design and applied

unstructured interview, content analysis and focus groups discussion by applying thematic analysis (qualitative research method) and followed by survey questionnaire (quantitative research method). As Kappa Coefficient is concerned, the measurement of agreement between coders is only focused on thematic analysis in unstructured interviews, content analyses and focus group discussions. Based on Judith and McNary (1999), there is no accurate value to indicate the level of agreement between raters. In addition, Fleiss (1981) and Gardner (1995) interpreted that the value above 0.75 was the best coefficient value where the expected agreement between raters exceeding 50%. Gardner (1995) also recommended that the Kappa Coefficient exceed 0.70 before the researcher should proceed with additional data analyses. In general, values above 0.7 are considered satisfactory or even good (Bakeman and Gottman, 1986). Furthermore, Wood (2007) explained that for research purposes, general agreement of Kappa Coefficient should be at least 0.60 or 0.70. However, if the ratings or decisions are to be used for making applied decisions, reliability should almost certainly be higher at least 0.80 or 0.90.

During the first stage, unstructured interview or in-depth interview is conducted in order to identify the problem statements and issues pertaining to the topic of study. Interview data is collected from four participants by using the voice recorder is then transferred to the personal computer for the process of transcription and data analysis. Coding process is conducted by examining every sentence of transcription by using NVivo8. Strauss and Corbin (1998) defined code as an abstract representation of an object or phenomenon while Ryan and Bernard (2000) define code as a mnemonic device used to identify themes in a text. Based on this study, a researcher has found 75 statements in 10 themes, which represented by free nodes in NVivo8. The 10 themes found are – less consideration; Medical Records Officer; part time basis; training; technology; clerical staff; lacks of records management practices; electronic records; solution; and profession.

In the second stage, content analysis is conducted for gathering data and involves codifying qualitative information into pre-defined categories in order to derive patterns in the presentation and reporting of information. Weber (1990) claimed that content analysis is a research methodology that utilizes a set of procedures to make valid inferences from text. As far as qualitative content analysis is concerned, the researcher has practiced relational analysis, which is one of the categories in the content analysis. Based on Busch, C., De Maret, P.S., Flynn, T., Kellum, R., Le, S., Meyers, B., Saunders, M., White, R., & Palmquist, M. (2005), relational analysis is conducted by inspecting the relationship among a concept in text. Due to this, some of the sub-themes were excluded and integrated to ensure the meaningful connection and mutual relationship. In addition, new sub-themes were also developed in order to group different sub-themes in one significant connection. Based on this study, there are 692 statements (Table 1) associated with 13 main themes and 101 sub-themes, which are found in 4 manuals / guidelines as following:

- Records & Information Management Core Competencies (United States)
- Records Management Competency Profile (Canada)
- Government Recordkeeping Manual (Australia)
- Records Management Code: Under Section 46 – Implementation Guide for Records Manager (United Kingdom)

Focus groups are a form of a group interview (Merton, Fiske & Kendall 1990; Puchta & Potter 2004) where the conversations generated in focus groups can be considered as research conversations. Based on this study, online focus group interview using blogs were conducted to obtain information related to the work of the Departmental Records Officer (DRO) in managing records. The roles and responsibility based on their experiences have been investigated and elicited. The population of respondents for Focus Groups was focused on individuals who are most directly involved in managing public records in federal ministries, which are distributed into three sectors (Administration & Social, Economic and Security). There are four Focus Groups involved in this study as below:

- Focus Group 1 – consists of six Heads of Department representing three sectors in federal ministries.
- Focus Group 2 – consists of six Departmental Records Officers representing three sectors in federal ministries.

- Focus Group 3 – consists of two Cadre Officers and three Archive Officers from the National Archive of Malaysia.
- Focus Group 4 – consists of three representatives from Focus Group 3 (this group is created in order to revise the data collection from Focus Group 1, 2, 3 and discuss the conclusion).

Table 1 shows the main themes and sub-themes which comprised technical and general competencies in records management.

Table 1: Main Themes and Sub-Themes from Content Analysis

	Main Themes	Sub-Themes
1.	Creation	Format, medium, receipt, collect, capture and create.
2.	Distribution	Deliver and e-mail.
3.	Control	Access, registration, tracking, review and returned.
4.	Maintenance	Classification, thesaurus, indexing, storage, retrieval, filing and documentation.
5.	Use	Values and decision making
6.	Protection	Secure, disaster recovery plan, vital records, back-up, content preservation, prevention, natural agents, chemical agents, physical agents, biological agents and human factors.
7.	Disposition	Disposal, appraisal, archive, preservation, transfer, retain, determination, destruction, permanent, retention, disposal schedule and records centre.
8.	Records Management Program	Policy, monitored, objectives, measure, collecting data, review, planning, implemented and staff.
9.	Outsourcing	Responsibilities, monitoring, contract, activities, contractor, requirement, access direction, arrangement and returned.
10.	Information Technology	Recordkeeping system, information system, e-mail, electronic records, information communication technology, format, preserve, standards, software, imaging and basic computer skills.
11.	Business Management Skills	Strategic thinking, planning, financial management, organizational, people management, policy management skills, problem solving skills, decision making, project management, contract management.
12.	Personal	Time management, computer skills, innovation, thoroughness, professional development, analytical skills, conceptual skills, dare to change, teamwork and leadership.
13.	Interpersonal	Communication skills, concern for user, leadership, negotiation skills, interviewing skills and teamwork.

As NVivo8 was applied, the researcher has developed 'Free Node' to elicit the ideas and themes from the on-line focus group discussions. Identifying some initial themes or patterns was the first step to organize the data (Kalof & Dietz, 2008). Then, a researcher commenced to sort and connect both existing and new free nodes into a branching system of the 'Tree Node'. According to Bazeley (2007), the tree structure in NVivo8 works as a filing or classification system or catalogue for nodes. As a deductive approach (latent) was addressed in Content Analysis where the themes were developed from theory of Life Cycle of Records (Wallace, Lee & Schubert, 1992; Read-Smith, Ginn & Kallaus, 2002; Robek, Brown & Stephens, 2002; Rusnah, 2002; Stewart & Melesco, 2002; Shepherd & Yeo, 2005), the researcher has decided to apply the inductive approach (manifest) in examining data from on-line focus groups discussion which the coding process was made through data collected. At the end of coding process, a researcher has found 85 statements in 11 main themes and 40 sub-themes as shown in Table 2.

Table 2: Main Themes and Sub-Themes from On-line Focus Groups

	Main Themes	Sub-Themes
1.	Competencies	Acceptance by JPA, knowledge, skills and attitudes.
2.	Element of Records Management	Creation, use, maintenance, security, storage, disposition and preservation.
3.	Training and Education	Involvement by Head of Department, contents, frequencies, sufficiency, others training and possibilities.
4.	Electronic Records	Roles of National Archive, issues, used, challenges and ability.
5.	Records Management Practices	Current practices and good practices.
6.	Departmental Records Officer	Qualification, criteria for appointment, General Circular 1997, competencies level assessment and roles.
7.	Head of Department	Cabinet meeting, appraisal of records and roles.
8.	Archive Officer	Conflict of cadre officer, involvement and cabinet meeting.
9.	National Archive	Improvement, roles, effort, promotion and differentiation.
10.	Problem in Managing Records	
11.	Conclusion	

KAPPA COEFFICIENT STATISTIC

In order to measure the agreement by using Kappa Coefficient, a researcher has selected two professionals to become an inter-coder or independent coder (Tinsley and Weiss, 2000) for this study. Both coders were involved in determining the degree of agreement in the coding process for content analysis, unstructured interview and online focus group discussion. Based on their academic credentials, both coders obtained a Degree in Information Studies majoring in records management and in addition had masters degree in Library and Information Science. Coder A has 10 years of experience as a lecturer while Coder B has 4 years practiced as a document controller and 6 years experience as a lecturer. Both coders were taught record management and archival subject in diploma and degree level, offered by the Faculty of Information Studies. For this reason, the researcher strongly believed that the consistency, reliability and validity in the coding process would be addressed and established based on their qualification and experience in records management.

Three coding manuals have been prepared, which represent three different data collection methods (content analyses, unstructured interviews and online focus group discussions) for the coders. Each coding manual consists of the statements which researchers felt was related with certain main themes and sub themes. The coders need to respond YES (agree with researcher's statement) or NO (disagree with researcher's statement). Upon receiving the responded coding manuals from the coders as suggested by Cunningham (2009), the researcher has transformed the results into Microsoft Excel by creating two specific tables. The first table (Table 3) consists of statements and agreement from both coders while the second table (Table 4) includes the number of times that both coders agree and disagree.

Table 3: Agreement from Coder A and Coder B.

Statement	Coder A		Coder B		Cell
	YES	NO	YES	NO	
1	/		/		a
2	/		/		a
3	/		/		a
4		/		/	d
5	/		/		a
6	/		/		a
7		/		/	d

Based on Table 3 for example, for Statement 1, 2, 3, 5 and 6, both Coder A and B responded YES. Table 4 exhibits the cell where both ratings indicate YES in cell 'a'. Moreover, according to Statement 4 and 7 (Table 3), both coders A and B indicated NO, represented by cell 'd'. Based on Table 4, 'a' and 'd' represent the number of times the 2 coders agree, while 'b' and 'c' represent the number of times the two coders disagree.

Table 4: N ratings for Coder A and B

		Coder A		
		YES	NO	Total
Coder B	YES	a	b	m1
	NO	c	d	m0
	Total	n1	n0	N

In order to have a meaningful and useful conversion between two coding systems, there has to be agreement, or consistency in the judgments of the coders or raters (Stein, Devore & Wojcik, 2005). Two methods are commonly used to measure rater agreement where outcomes are nominal: percent agreement and Cohen's chance-corrected Kappa Coefficient statistic (Cohen, 1960). In general, percent agreement ratio is the number of times two raters agree divided by the total number of ratings. The Kappa Coefficient statistic estimates the proportion of agreement among raters after removing the proportion of agreements which would occur by chance.
The equation for κ is:

$$\kappa = \frac{Pr(a) - Pr(e)}{1 - Pr(e)}$$

where Pr(a) is the relative observed agreement among raters, and Pr(e) is the hypothetical probability of chance agreement, using the observed data to calculate the probabilities of each observer randomly by each category. If the raters are in complete agreement then κ = 1. If there is no agreement among the raters (other than what would be expected by chance) then κ ≤ 0.
Or
The Kappa Coefficient is defined by

$$K = \frac{(Po - Pe)}{(1 - Pe)}$$

where Po is the observed proportion of agreement and Pe is the proportion of agreement expected if the classifications by different raters are independent. By definition, the range of K is in (-1, 1]. K =1 indicates perfect agreement among the raters. The stronger the agreement, the higher the value. K = 0 indicates no agreement among the raters. Negative values take place when the agreement is weaker than estimated by chance, but this seldom happens. According to Krippendorff (1980), high levels of disagreement among judges recommend weaknesses in research methods, including the possibility of poor operational definitions, categories, and judge training. Cohen's Kappa Coefficient measures agreement between two raters only (Cohen, 1960). Perfect agreement would equate to a kappa of 1, chance agreement would equate to 0 and negative values indicate agreement less than chance (Cohen, 1960; Krippendorff, 1980; Viera & Garrett, 2005; Stein, Devore & Wojcik, 2005; Eugenio, 2000; Landis & Koch, 1977; Cunningham, 2009). Landis and Koch's (1977) categorization was widely referenced and has been applied in this study, as shown in Table 5 and the K value interpreted by Altman (1991) in Table 6.

Table 5: Landis and Koch's (1997) Categorization

Kappa Statistic	Agreement
< 0.00	Poor Agreement / No Agreement
0.00-0.20	Slight Agreement
0.21-0.40	Fair Agreement
0.41-0.60	Moderate Agreement
0.61-0.80	Substantial Agreement
0.81-1.00	Almost Perfect Agreement

Table 6: The *K* value interpreted by Altman (1991)

Value of *K*	Strength of Agreement
< 0.20	Poor
0.21-0.40	Fair
0.41-0.60	Moderate
0.61-0.80	Good
0.81-1.00	Very Good

CALCULATION BY USING KAPPA COEFFICIENT AND FINDINGS

According to Viera & Garrett (2005) and Cunningham (2009), the formula for observed agreement, expected agreement and Kappa Coefficient are:

- Observed Agreement is :

$$Po = \frac{a + d}{N}$$

- Expected Agreement :

$$Pe = \left(\left(\frac{n1}{N} \right) \left(\frac{m1}{N} \right) + \left(\frac{n0}{N} \right) \left(\frac{m0}{N} \right) \right)$$

- Kappa :

$$K = \frac{(Po - Pe)}{(1 - Pe)}$$

In addition, Viera & Garrett (2005) emphasized that the calculation is based on the difference between how much agreement is actually present (observed agreement or 'Po') compared to how much agreement would be expected to be present by chance alone (expected agreement or 'Pe'). Similarly, Cunningham (2009) defined 'Po' as observed proportion of agreement and 'Pe' as expected proportion of agreement. Kappa Coefficient is a measure of this difference, standardized to lie on a -1 to 1 scale, where 1 is perfect agreement, 0 is exactly what would be expected by chance and negative values indicate agreement less than chance. On the other hand, a researcher also found one formula, which was different from what is stated by Viera & Garrett (2005) and Cunningham (2009). According to the study conducted by Zamri and Mohamed (2005), Tam (1999), Noriah (1999) and Zahrah (2002), most researchers were using this formula:

$$\text{Cohen Kappa} = \frac{fa - fc}{N - fc}$$

where (fa) is the frequency of agreement; (fc) is the frequency of chance and (N) is the total of unit analysis. Based on Noriah (personal communication, June 20, 2009) this formula was used to determine the consistency of coding process. As a result, a researcher found that the first formula as proposed by Viera & Garrett (2005) and Cunningham (2009) is suitable to measure the degree of reliability between multiple

raters (coders) while the second formula as proposed by Zamri and Mohamed (2005), Tam (1999), Noriah (1999), Zahrah (2002), Zamri and Noriah (2003) is suitable to measure consistency between both coder and researcher.

UNSTRUCTURED INTERVIEW

Degree of Reliability between Raters (Coder A and B)

Table 7 shows the figure of agreement between Coder A and Coder B for unstructured interview. According to this table, both coders agree for YES in 69 statements, and agree for NO in 3 statements.

Table 7: Agreement of Coder A and B for unstructured interview

		Coder A		
		YES	NO	Total
Coder B	YES	69	0	69
	NO	3	3	6
	Total	72	3	75

Observed Agreement (Po)
Po = a + d / N
= 69 + 3 / 75
= 0.96
Expected Agreement (Pe)
Pe = [(n1 / N) * (m1 / N)] + [(n0 / N) * (m0 / N)]
= [(72 / 75) * (69 / 75)] + [(3 / 75) * (6 / 75)]
= 0.8864
Kappa (K)
K = (Po – Pe) / (1 – Pe)
= (0.96 – 0.8864) / (1 – 0.8864)
= 0.65
Result = Substantial Agreement (Landis & Koch, 1977); Good Agreement (Altman, 1991).

Consistency of Coding

Table 8 shows the data from coding process by two coders.

Table 8: Data from coding process in unstructured interview

Coder	Total of Unit Analysis (N)	Frequency of Agreement (fa)	Frequency of Chance (fc) *(50% of N)*
A	75	72	37.5
B	75	69	37.5

Formula for Kappa Coefficient : K = fa – fc / N – fc
Where (fa) is the frequency of agreement; (fc) is the frequency of chance and (N) is the total of unit analysis.

Consistency of Coding Between Coder A and Researcher

K = 72 – 37.5 / 75 – 37.5
= 0.92
Result = Almost Perfect Agreement (Landis & Koch, 1977); Very Good Agreement (Altman, 1991).

Consistency of Coding Between Coder B and Researcher

K = 69 – 37.5 / 75 – 37.5
= 0.84
Result = Almost Perfect Agreement (Landis & Koch, 1977); Very Good Agreement (Altman, 1991).

CONTENT ANALYSIS

Degree of Reliability between Raters (Coder A and B)

Table 9 shows the figure of agreement between Coder A and Coder B for content analysis. According to this table, both coders agree for YES in 664 statements, and agree for NO in 19 statements.

Table 9: Agreement of Coder A and B for Content Analysis

		Coder A		
		YES	NO	Total
Coder B	YES	664	1	665
	NO	8	19	27
	Total	672	20	692

Observed Agreement (Po)
Po = a + d / N
= 664 + 19 / 692
= 0.987
Expected Agreement (Pe)
Pe = [(n1 / N) * (m1 / N)] + [(n0 / N) * (m0 / N)]
= [(672 / 692) * (664 / 692)] + [(19 / 692) * (27 / 692)]
= 0.9329
Kappa (K)
K = (Po – Pe) / (1 – Pe)
= (0.987 – 0.9329) / (1 – 0.9329)
= 0.81
Result = Almost Perfect Agreement (Landis & Koch, 1977); Very Good Agreement (Altman, 1991).

Consistency of Coding

Table 10 shows the data from coding process by two coders.

Table 10: Data from coding process in content analysis

Coder	Total of Unit Analysis (N)	Frequency of Agreement (fa)	Frequency of Chance (fc) *(50% of N)*
A	692	672	346
B	692	665	346

Formula for Kappa Coefficient is : K = fa – fc / N – fc
Where (fa) is the frequency of agreement; (fc) is the frequency of chance and (N) is the total of unit analysis.

Consistency of Coding Between Coder A and Researcher

K = 672 – 346 / 692 – 346
= 0.94
Result = Almost Perfect Agreement (Landis & Koch, 1977); Very Good Agreement (Altman, 1991).

Consistency of Coding Between Coder B and Researcher

K = 665 – 346 / 692 – 346
= 0.92
Result = Almost Perfect Agreement (Landis & Koch, 1977); Very Good Agreement (Altman, 1991).

ON-LINE FOCUS GROUP DISCUSSION

Degree of Reliability between Raters (Coder A and B)

Table 11 shows the agreement across Coder A and Coder B for on-line focus group discussion. According to this table, both coders agree for YES in 69 statements, and agree for NO in 3 statements.

Table 11: Agreement of Coder A and B for on-line focus group discussion

		Coder A		
Coder B		YES	NO	Total
	YES	79	0	79
	NO	1	2	3
	Total	80	2	82

Observed Agreement (Po)
Po = a + d / N
= 79 + 2 / 82
= 0.9878
Expected Agreement (Pe)
Pe = [(n1 / N) * (m1 / N)] + [(n0 / N) * (m0 / N)]
= [(80 / 82) * (79 / 82)] + [(2 / 82) * (3 / 82)]
= 0.9408
Kappa (K)
K = (Po – Pe) / (1 – Pe)
= (0.9878 – 0.9408) / (1 – 0. 9408)
= 0.79
Result = Substantial Agreement (Landis & Koch, 1977); Good Agreement (Altman, 1991).

Consistency of Coding

Table 12 shows the data from coding process by two coders.

Table12: Data from coding process in on-line focus group discussion

Coder	Total of Unit Analysis (N)	Frequency of Agreement (fa)	Frequency of Chance (fc) *(50% of N)*
A	82	80	41
B	82	79	41

Formula for Kappa Coefficient is : K = fa – fc / N – fc
Where (fa) is the frequency of agreement; (fc) is the frequency of chance and (N) is the total of unit analysis.

Consistency of Coding Between Coder A and Researcher

K = 80 – 41 / 82 – 41
= 0.95
Result = Almost Perfect Agreement (Landis & Koch, 1977); Very Good Agreement (Altman, 1991).

Consistency of Coding Between Coder B and Researcher

K = 79 – 41 / 82 – 41
= 0.93

Result = Almost Perfect Agreement (Landis & Koch, 1977); Very Good Agreement (Altman, 1991).

CONCLUSION

According to Landis and Koch's (1977) categorization, the value of agreement on coding process by using Kappa Coefficient for unstructured interview, content analysis and on-line focus groups discussion were at least 'Substantial Agreement'. Based on Table 13, degree of reliability between raters (Coder A and B) showed the value of 'Almost Perfect Agreement' in content analysis (0.81) and 'Substantial Agreement' in unstructured interview (0.65) and on-line focus group discussion (0.79). Based on consistency of coding between both coders and researcher, it was found that all the values showed 'Almost Perfect Agreement' ranging from 0.84 to 0.95.

Table 13: Kappa Coefficient statistics and value of agreement

Kappa Coefficient		Unstructured Interview	Content Analysis	On-Line Focus Group Discussion
Degree Of Reliability Between Raters	Observed Agreement (Po)	0.96	0.99	0.99
	Expected Agreement (Pe)	0.88	0.93	0.94
	Kappa (K)	0.65	0.81	0.79
Consistency of Coding	Between Coder A and Researcher	0.92	0.94	0.95
	Between Coder B and Researcher	0.84	0.92	0.93

Upon testing the 13 main themes and 90 sub-themes to the Malaysian case, only 12 main themes perceived as core competencies required by the surveyed Malaysian records managers namely Creation, Distribution, Use, Maintenance, Protection, Disposition, Records Management Program, Outsourcing, IT Capabilities, Business Management Skills, Interpersonal and Personal. In this case 'Control' as one of distinct main themes (core elements) of the best practice competencies profile, was not perceived as required competencies by the Malaysian records managers. But knowledge and skills on 'Control' which is directly related to electronic records management, the researcher has make a decision to include 'Control' in the competencies profiles for the Malaysian records keepers. Therefore it is essential that records managers in the Malaysian federal ministries to have Technical Competencies consisting of Creation, Distribution, Use, Maintenance, Protection, Disposition, Records Management Program, Outsourcing; and General Competencies consisting of IT Capabilities, Business Management Skills, Interpersonal and Personal.

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