Exploring information quality dimensions of government agency's information services through social media: a case of the Ministry of Education and Culture in Indonesia

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Abstract: In this digital age, information services have been considered as one vital aspect of modern lives. Along with the dramatic increase of social media users, some government agencies have chosen this new media as information services delivery channel. One important aspect that affects user satisfaction of information services through social media is information quality. Hence, this study aims to investigate information services through media social using a case study of the Ministry of Education and Culture (Kemdikbud) in Indonesia. Thus, data of 150 respondents were collected through a survey towards the agency's social media followers. This study found that intrinsic information quality, namely accuracy, believability, reputation and objectivity, is essential to user satisfaction. In terms of representational quality, ease of understanding and interpretability is considered crucial while in the contextual information quality, completeness, timeliness, informativeness and value-added is deemed important

Keywords: e-government; information quality; information services; social media; user satisfaction; government agency; ministry; Indonesia.

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1 Introduction

Social media technologies have huge potential to transform governance of many countries especially in terms of transparency and interaction with the community (Bertot et al., 2010). This is most likely because the utilisation of social media in public sector could increase public's understanding on government's achievement and thus improve the perception of governance transparency (Picazo-Vela et al., 2012). Although accompanied by some apprehension, e.g., concerning direct interactions between the government and the community and regarding the bureaucracy that might not support the use of social media effectively, the benefits seems to go beyond these concerns.

In the realm of information services by social media, information quality or content quality are important factors affecting user satisfaction (Chai et al., 2009). However, the information quality measurement framework in traditional information systems does not fit the social media context where the property of many-to-many mapping is undoubtedly exhibited (Stvilia et al., 2005). Each social media type has diverse characteristics, which results in different relevant information quality dimensions (Agarwal and Yiliyasi, 2010; Emamjome et al., 2013). Nonetheless, previous studies have not yet specifically addressed the question of what information quality dimensions are important in information services through social media provided by government agencies. Hence, as previously mentioned that a substantial aspect affecting the user satisfaction of information quality dimensions that information quality, it is intriguing to investigate information quality dimensions that influence user satisfaction of information services delivered by government agencies through social media is the information quality.

In recent years, many government agencies in Indonesia have been utilising social media as a channel for information services delivery. The Indonesian government agencies have an obligation to perform information services to the public as stipulated in Law No. 14 of 2008 on Public Information Disclosure Article 7. The Law also regulates the use of electronic instruments as the media in order to improve the efficiency and effectiveness of information services. The use of social media as a channel of information services has received positive feedback from the community, as evidenced by the

ever-increasing number of followers of the social media accounts owned by government agencies, especially agencies that provide direct impact services such as education, health and pilgrimage services, etc., to the community. The community involvement, viz., active participation in the discussion on the social media and public inquiry to the social media manager, is also likely to increase.

Therefore, in order to examine information quality dimensions that influence user satisfaction this study employs a case study of the Ministry of Education and Culture (Kemdikbud) that has the largest number of social media account followers among other government agencies in Indonesia.

2 Information quality

Information quality is one important aspect of information integration in the internet (Naumann and Rolker, 2000). In the last two decades, some researchers have put efforts to define and categorise information quality dimensions. First, Wang and Strong (1996) suggested 16 data quality dimensions that are grouped into four categories as follows:

- 1 Intrinsic data quality, which consists of:
 - a accuracy
 - b objectivity
 - c believability
 - d reputation.
- 2 Contextual data quality, which consists of:
 - a value added
 - b relevancy
 - c timeliness
 - d completeness
 - e appropriate amount of data.
- 3 Representational data quality, which consists of:
 - a interpretability
 - b ease of understanding
 - c consistent representation
 - d concise representation.
- 4 Accessibility data quality, which consists of:
 - a accessibility
 - b access security.

Then, secondly, DeLone and McLean (1992), in the research of information systems success model used 23 information quality dimensions as follows:

- 1 importance
- 2 relevance
- 3 usefulness
- 4 informativeness
- 5 usableness
- 6 understandability
- 7 readability
- 8 clarity
- 9 format
- 10 appearance
- 11 content
- 12 accuracy
- 13 precision
- 14 conciseness
- 15 sufficiency
- 16 completeness
- 17 reliability
- 18 currency
- 19 timeliness
- 20 uniqueness
- 21 comparability
- 22 quantitativeness
- 23 freedom from bias.

Thirdly, Kahn et al. (2002) proposed an information quality model known as the product and service performance for information quality model (PSP/IQ). This model views information quality as product quality and service quality thus it maps 16 information quality dimensions into two categories accordingly, as follows:

- 1 Product quality, which consists of:
 - a Sound information, which comprises the following dimensions:
 - free-of-error
 - concise representation
 - completeness
 - consistent representation.

- b Useful information, which comprises the following dimensions:
 - appropriate amount
 - relevancy
 - understandability
 - interpretability
 - objectivity.
- 2 Service quality, which consists of:
- a Dependable information, which comprises the following dimensions:
 - timeliness
 - security.
- b Usable information, which comprises the following dimensions:
 - believability
 - accessibility
 - ease of manipulation
 - reputation
 - value-added.

Next, fourthly, Lee et al. (2002) introduced a methodology for assessing information quality, namely aim quality (AIMQ) that adopts 16 information quality dimensions of the PSP/IQ model. Then, fifth, Shanks and Corbitt (1999) suggested that information quality consists of four goals (i.e., consistent, complete and accurate, usable and useful, shared understanding of meaning) from which the following 11 dimensions are derived:

- a well-defined (formal) syntax
- b comprehensive
- c unambiguous
- d meaningful
- e correct
- f timely
- g concise
- h easily accessed
- i reputable
- j understood
- k awareness of bias.

Exploring information quality dimensions

Next, sixthly, Dedeke (2000) developed a conceptual framework for measuring information quality using 5 categories and 28 dimensions as follows:

- 1 Ergonomic quality, includes the following dimensions:
 - a ease of navigation
 - b comfortability
 - c learnability
 - d visual signals
 - e audio signals
- 2 Accessibility quality, includes the following dimensions:
 - a technical access
 - b system availability
 - c technical security
 - d data accessibility
 - e data sharing
 - f data convertibility.
- 3 Transactional quality, includes the following dimensions:
 - a controllability
 - b error tolerance
 - c adaptability
 - d system feedback
 - e efficiency
 - f responsiveness.
- 4 Contextual quality, includes the following dimensions:
 - a value added
 - b relevancy
 - c timeliness
 - d completeness
 - e appropriate data.
- 5 Representation quality, includes the following dimensions:
 - a interpretability
 - b consistency

- c conciseness
- d structure
- e readability
- f contrast.

Then, seventhly, Naumann and Rolker (2000) suggested a method for assessing organisation information quality using IQ-criterion classes, namely subject, object and process criteria. The assessment involves the following dimensions:

- a believability
- b concise representation
- c interpretability
- d relevancy
- e reputation
- f understandability
- g value-added
- h completeness
- i customer support
- j documentation
- k objectivity
- 1 price
- m reliability
- n security
- o timeliness
- p verifiability
- q accuracy
- r amount of data
- s availability
- t consistent representation
- u latency
- v response time.

Next, eighthly, Eppler (2001) proposed a generic framework for information quality in which information quality dimensions are categorised into content quality and media quality using the following mapping:

- 1 Content quality includes:
 - a comprehensive
 - b accurate
 - c clear
 - d applicable
 - e concise
 - f consistent
 - g correct
 - h current.
- 2 Media quality includes:
 - a convenient
 - b timely
 - c traceable
 - d interactive
 - e accessible
 - f secure
 - g maintainable
 - h fast.

Then, ninthly, McGilvray (2008) suggested the following data quality dimensions which are also applicable as information quality:

- a data specifications
- b data integrity fundamentals
- c duplication
- d accuracy
- e consistency and synchronisation
- f timeliness and availability
- g ease of use and maintainability
- h data coverage
- i presentation quality
- j perception, relevance and trust
- k data decay
- l transactability.

Tenthly, other researchers, Alexander and Tate (1999) stated, there are eight information quality dimensions, namely authority, accuracy, objectivity, currency, intended audience, interaction and transaction features, navigational aids and non-text features. Eleventh, Katerattanakul and Siau (1999) mentioned seven information quality dimensions in website context which can be mapped into the following categories:

- 1 Intrinsic quality consists of two-dimensional information qualities:
 - a accuracy of the content
 - b relevancy of the hyperlink.
- 2 Contextual quality consists of one dimension namely the provision of author's information.
- 3 Representational quality consists of three dimensions, namely:
 - a visual consistency
 - b vividness and attractiveness
 - c the level of confusion of the content.
- 4 Accessibility quality consists of one dimension namely the existence of navigational tools.

Kargar et al. (2008) designed a framework to evaluate the information quality in weblog. Based on this framework, there are nine dimensions of information quality in weblog context, i.e.,

- a cohesiveness
- b concise
- c believability
- d understandability
- e completeness
- f objectiveness
- g accuracy
- h informativeness
- i presentation.

Meanwhile, Zhu et al. (2009) mentioned a number of information quality dimension specific for social question and answer sites (Q&A sites). There are 11 dimensions of information quality to assess the content quality of Q&A of sites as follows:

- a informativeness
- b politeness
- c completeness

- d readability
- e relevance
- f conciseness (brevity)
- g truthfulness (credible/feasible/convincing)
- h level of detail
- i originality
- j objectivity
- k novelty.

In the social media context, Agarwal and Yiliyasi (2010) stated that there are differences between information quality dimensions in social media and information systems. For micro-blogging social media sites such as Twitter, there are three unique dimensions namely:

- a timeliness
- b conciseness
- c ease of understanding.

As for social network services (SNS), there are eight information quality dimensions:

- a conciseness
- b accessibility
- c believability
- d reputation
- e value-added
- f timeliness
- g ease of understanding
- h consistency.

According to Emamjome et al. (2013), the information quality dimensions for Q&A sites, forum, and social network sites, consist of 17 dimensions namely:

- a amount of data
- b description
- c discrimination
- d semantic content
- e user relationship
- f usage statistic

- g accuracy
- h believability
- i objectivity
- j reputation
- k value-added
- 1 relevancy
- m timeliness
- n completeness
- o interpretability
- p ease of understanding
- q manipulability.

Table 1 summarises the information quality dimensions based on the discussed literature. The information quality dimensions supported by more than four literatures are employed in this research. Those are

- a timeliness
- b accuracy
- c ease of understanding
- d believability
- e concise
- f accessibility
- g completeness
- h relevancy
- i consistency
- j objectivity
- k reputation
- 1 interpretability
- m value-added
- n amount of data
- o security
- p informativeness
- q manipulability.

Meanwhile, several dimensions supported by less than four literatures are still used if those dimensions have correlation with the social network service context. Politeness and novelty dimension are considered having correlation with SNS context; hence, they are employed as instrument in this research. Originality dimension only fits within the Q&A sites context and have less correlation in SNS context; hence, it is not used. From 20 information quality dimensions in Table 1, only one dimension is excluded in this research namely originality.

These dimensions are grouped based on categories proposed by Wang and Strong (1996) and Katerattanakul and Siau (1999).

- 1 Intrinsic quality consists of four dimensions:
 - a accuracy
 - b objectivity
 - c believability
 - d reputation.
- 2 Contextual quality consists of seven dimensions:
 - a value-added
 - b relevancy
 - c timeliness
 - d completeness
 - e amount of data
 - f informativeness
 - g novelty.
- 3 Representational quality consists of six dimensions:
 - a ease of understanding
 - b interpretability
 - c consistency
 - d concise
 - e manipulability
 - f politeness.

Accessibility quality consists of two dimensions:

- a accessibility
- b security.

	ı I									
literature Number of supporting	12	11	11	11	11	10	10	10	6	6
Emamjome et al. (2013)	~		\mathbf{r}	7	7		7	7		7
Zhu et al. (2009)	~		7	7	7		7	7	7	7
(0102) isoviiiY bao lowadsh	~		\mathbf{k}	\mathbf{F}	\mathbf{k}	\mathbf{i}			\mathbf{k}	
(6661) stat and Tate (999)	~	\mathbf{r}		7						7
(6661) עמופגמונסטסעחן סטק צוסח		7				7		7	7	
Kargar et al. (2008)		?	~	\mathbf{i}	\mathbf{i}		\mathbf{i}			>
(2008) (2008) MeGilving	>	?	~	7		>	\mathbf{i}	\mathbf{r}	\mathbf{i}	
Lee et al. (2002)	~	7	~	\mathbf{i}	\mathbf{i}	7	\mathbf{i}	\mathbf{i}	\mathbf{i}	7
Eppler (2001)	~	\mathbf{i}			\mathbf{k}	7		\mathbf{i}	\mathbf{i}	
(0007) אפאןפא קטע מעששה N	~	\mathbf{i}	\mathbf{i}	\mathbf{i}	\mathbf{i}	7	\mathbf{i}	\mathbf{i}	\mathbf{i}	7
Kahn et al. (2002)	~	7	7	~	7	7	~	7	7	7
Dедеке, (2000)	~	\mathbf{i}	\mathbf{i}		\mathbf{i}	7	\mathbf{i}	\mathbf{i}	\mathbf{i}	
(9991) tidro and Corbit (1999)	~	\mathbf{i}	\mathbf{i}	\mathbf{i}	\mathbf{i}	7	\mathbf{i}			~
(2661) прэдэм рир эподэЦ	~	\mathbf{i}	\mathbf{i}	\mathbf{i}	\mathbf{i}	\mathbf{i}	\mathbf{i}	\mathbf{i}		\mathbf{i}
Dimensions	Timeliness	Accuracy	Ease of understanding	Believability	Concise	Accessibility	Completeness	Relevancy	Consistency	Objectivity
No.	-	7	ŝ	4	5	9	2	8	6	10

Table 1 Information quality dimensions summary

interveture מוזריסקער איז	8	8	7	9	5	5	4	2	2	2
Emamjome et al. (2013)	~	7	7	7		7	7	\mathbf{i}	7	\checkmark
Zhu et al. (2009)	~		\mathbf{r}			7		\mathbf{r}	\mathbf{r}	\checkmark
(0102) ispyiliY bnp lowrogA	~		7							
(6661) staT bna rsbnaxslA	~									
(16661) Katerattanakul and Siau						7				
Kargar et al. (2008)						7				
McGilvray (2008)		\mathbf{i}			\mathbf{i}		~			
Lee et al. (2002)	~	~	7	7	7		7			
Eppler (2001)					\mathbf{i}					
(0007) vəyloy pub uubunb $_N$	~	\mathbf{i}	\mathbf{r}	\mathbf{r}	\mathbf{i}					
Kahn et al. (2002)	~	\mathbf{i}	7	7	\mathbf{i}		7			
Dedeke, (2000)		7	7	7						
(9991) tidroJ bank and Rorbit (1999)	~	7								
(2661) прэдэМ рар эподэЦ		7		\mathbf{r}		7				
Dimensions	Reputation	Interpretability	Value-added	Amount of data	Security	Informativeness	Manipulability	Politeness	Originality	Novelty
No.	1	12	13	14	15	16	17	18	19	20

 Table 1
 Information quality dimensions summary (continued)

3 Entropy method

One of the methods that can be used to sort dimensions is the Entropy method. Entropy is usually applied in information theory measurement. It is able to show the purity of a collection of data based on personal selection criteria. Hsu and Hsu (2008) defined a technique to determine the relative weight for each criterion from a collection of criteria using Entropy. The steps to determine the weight using Entropy are:

Step 1: Normalising matrix from the questionnaire result.

Matrix normalisation is performed by subtracting the highest score from each criterion.

Step 2: The score obtained from Step 1 is divided by the total score from all criteria. The following formula is used:

$$a_{ij} = \frac{k_{ij}}{\sum_{i=1}^{m} \sum_{j=1}^{n} k_{ij}}.$$
 (1)

For m > 1, i = 1, ..., n, j = 1, ..., m, where *n* is the number of decision maker and *m* is the number of criteria.

Step 3: Determining the value of entropy, dispersion and weight for each criterion based on the result from Step 2.

The entropy value for each criterion is calculated using the following formula:

$$E_{i} = \left[\frac{-1}{\ln(n)}\right] \sum_{j=1}^{n} [a_{ij} \ln(a_{ij})].$$
(2)

The dispersion value is calculated using the following formula:

$$D_i = 1 - E_i. \tag{3}$$

Weight of each criterion is calculated using the following formula:

$$W_i = \frac{D_i}{\sum D_i}.$$
(4)

4 Methodology

4.1 Information services profile in Kemdikbud

Kemdikbud, the Ministry of Education and Culture in Indonesia, provides a number of services related to education and culture to the public. Information Services of Kemdikbud, as one of the services provided by Kemdikbud, is run by a 2nd rank government officer unit (two levels below the Minister) namely the Information Center and Public Relations unit (Pusat Informasi dan Hubungan Masyarakat or PIH Kemdikbud). The unit provides information services via various channels such as telephone, short message service (SMS), email and on-office services. Information services using social media, which was launched in 2012, is relatively new compared with other types of service channel provided by the PIH Kemdikbud. The social media

used are limited to two media, i.e., Facebook (facebook.com/kemdikbud.ri) and Twitter (@Kemdikbud_RI). The information published via those media is about announcement related to education and culture, and information that provides clarification concerning controversy emerging in public. Figure 1 depicts the various channel used by Kemdikbud.





Kemdikbud uses social media as one of the communication channels to improve its information services quality, considering social media is used by many Indonesian citizens. In Indonesia, Facebook and Twitter is the most popular social media application (Lukman, 2015; Rowlands et al., 2011); therefore, PIH Kemdikbud chose these particular social media applications as its new information channel. The number of followers of Kemdikbud social media account has been increasing in a good rate, indicating that citizens has started utilising these channels. Based on an observation between July and September 2014, the number of followers increased at the rate of 6000 followers per month. In 5 September, 2014, the number of followers of @Kemdikbud_RI (Kemdikbud Twitter account) was more than 150,000, while the number of followers of Kemdikbud Facebook Page was more than 850,000. Even though this number is still low compared with the total number of social media user in Indonesia, it is likely that the number of followers will grow rapidly in the future based on the current trend of increment.

4.2 Data collection method

The data required in this research is collected using survey. Survey is targeted to all followers of Kemdikbud social media account. This survey aims to identify that information quality dimensions affecting public satisfaction and how their perception towards the information quality dimensions. The sampling technique used in this research is convenience sampling, considering the short-time duration of the research. Survey was conducted by first asking for target's willingness to participate in this research and then they will be directly visited to be interviewed and surveyed.

4.3 Research instrument

Questionnaire is used as instrument in this research in order to determine that information quality dimension is deemed important by public and to assess public perception towards information quality provided by Kemdikbud. The questionnaire consists of a set of questions related to information quality dimension provided in Table 1. The respondent's assessment is asked for each question/statement in the corresponding expectation and perception column by giving score in Likert scale of 1–5. In the expectation column, the score for Likert scale means the followings: 1 = not important at all; 2 = not important; 3 = moderately important; 4 = important; and 5 = very important. In the perception column, the score for Likert scale means the followings: 1 = very poor; 2 = poor; 3 = acceptable; 4 = good; and 5 = very good.

Respondent's answers related to information quality dimensions are used to calculate the weight for each dimension. The technique used in the calculation is the Entropy method based on Hsu and Hsu (2008) research. The result of the weight calculation for each dimension is presented in a table and then sorted in descending order. To indicate current information quality, a gap between expectation and perception is calculated by subtracting perception from expectation score.

5 Results and discussions

5.1 Respondent demographics

There were 150 followers of Kemdikbud social media account as respondents in this research. The demographic is presented in Table 2. It shows that male and female respondents are distributed evenly. As for age, most respondents are between 20 and 50 years old. In term of occupation, it varies fairly among students, academicians, corporate employees and government employees and only few is homemaker. The respondents had been following Kemdikbud social media account for $\sim 2-12$ months.

5.2 The priority of information quality dimensions of social media services in the government agency (Kemdikbud)

Research data are processed to rank the information quality dimensions using the Entropy technique based on Hsu and Hsu (2008). The result of the weight calculation to determine the rank is presented in Table 3.

The result presented in Table 3 shows that intrinsic information quality is the most important among other type of information quality. The intrinsic information quality dimensions ordered based on the ranks are accuracy (1), believability (2), reputation (3) and objectivity (5). As for the representational quality, the interpretability dimension and understandability dimension are considered the most important compared with other representational quality dimensions. Politeness, concise and manipulability dimension are considered less important compared with interpretability and understandability dimension.

Regarding the contextual information quality, timeliness dimension and completeness dimension are the most important within this group of contextual information quality. Informativeness dimension and value-added dimension are more important compared with relevancy, amount of data and novelty dimension. As for accessibility group, accessibility dimension is perceived more important than security dimension.

Table 2Respondent demographics

Demographic variables	Attributes	Percentage (%)
Gender	Male	48
	Female	52
Age (years)	≤ 20	10
	21-30	29
	31–40	33
	41–50	20
	>50	8
Occupation	Students	22
	Academicians	23
	Government employees	26
	Corporate employees	22
	Housewife	7
Has been a follower for (months)	≤1	15
	2-6	47
	7–12	28
	>12	10

This research result, which found that intrinsic information quality dimensions are important in social media context, aligns with the previous research of Kargar et al. (2008). They stated that the intrinsic information quality dimensions, viz., accuracy, objectivity and believability are considered important in weblog context. Meanwhile, in representational aspect, Kargar et al. (2008) stated that understandability, completeness, concise, and informativeness are also considered important which is also aligned with the result of this research.

The research by Agarwal and Yiliyasi (2010) found that in micro-blogging context, there are three unique dimensions, namely timeliness, concise and understandability dimension. The dimension mentioned by Agarwal and Yiliyasi (2010) are aligned with this research result. However, Agarwal and Yiliyasi (2010) did not consider that intrinsic information quality dimensions are important in mico-blogging context as they only considered the intrinsic information quality dimension for social media services such as Facebook while this research found otherwise.

The research result also corresponds with the work of Emamjome et al. (2013) in terms of intrinsic, representational and contextual categorisation. The dimensions in the Q&A website described by Emamjome et al. (2013) are mostly similar to dimensions in government information services through social media. The intrinsic dimensions are considered important by Emamjome et al. (2013) and it corresponds to this research result. Other dimensions such as understandability, interpretability, timeliness, value-added and completeness are relevant in the social media context according to both Emamjome et al. (2013) and this research result. Meanwhile, the dimensions that are

considered important by Emamjome et al. (2013) but considered less important in this research are amount of data and manipulability dimension. Similar to Emamjome et al. (2013), security dimension is considered less important for information services using social media.

No.	Information quality dimension	Category	Weight
1	Accuracy	Intrinsic	0.06588331
2	Believability	Intrinsic	0.06575331
3	Reputation	Intrinsic	0.06573676
4	Timeliness	Contextual	0.06467676
5	Completeness	Contextual	0.06400123
6	Objectivity	Intrinsic	0.06323232
7	Accessibility	Accessibility	0.06291255
8	Informativeness	Contextual	0.06259575
9	Value-added	Contextual	0.06213152
10	Interpretability	Representational	0.06078987
11	Understandability	Representational	0.05832157
12	Security	Accessibility	0.05736736
13	Politeness	Representational	0.05759900
14	Relevancy	Contextual	0.05500121
15	Concise	Representational	0.05323523
16	Consistency	Representational	0.05201988
17	Amount of data	Contextual	0.05213513
18	Novelty	Contextual	0.05190755
19	Manipulability	Representational	0.05087988

 Table 3
 Information quality dimension ranking based on user satisfaction

5.3 Information services quality gap in Kemdikbud

This section explains the assessment result of Kemdikbud information services via social media. In addition to weight calculation, the gap between expectation and perception is also evaluated. The gap is obtained by subtracting the perception score from expectation score. The gap score for each information quality dimension is then ranked in descending order. The evaluation result is presented in Table 4.

Table 4 exhibits that respondents perceive the quality of objectivity and accessibility of Kemdikbud information services is far below their expectation (the gap score > 1.0). On the other hand, respondents consider the quality of timeliness, informativeness and reputation has closely met their expectation (the gap score < 0.1). Those qualities reflect the strength of Kemdikbud information services. Especially for reputation, a Kemdikbud social media account administrator had previously stated that reputation is the strength point of government information services. Next, for the other 14 information quality dimensions we could state that those dimensions have not met the expectation, indicated by a relatively significant gap (0.1-1.0). Among the 14 information quality dimensions,

we consider six dimensions are important (expectation score > 4.0), namely accuracy, believability, completeness, value-added, interpretability and understandability.

N	Information quality	Catalan	Mean of expectation	Mean of perception	Company
INO.	aimension	Calegory	score	score	Gap score
1	Objectivity	Intrinsic	4.21	2.01	1.20
2	Accessibility	Accessibility	4.17	3.03	1.14
3	Security	Accessibility	3.57	2.59	0.98
4	Value-added	Contextual	4.05	3.09	0.96
5	Completeness	Contextual	4.22	3.29	0.93
6	Interpretability	Representational	4.03	3.13	0.90
7	Amount of Data	Contextual	2.95	2.17	0.78
8	Relevancy	Contextual	3.25	2.56	0.69
9	Accuracy	Intrinsic	4.36	3.72	0.64
10	Novelty	Contextual	2.77	2.18	0.59
11	Understandability	Representational	4.03	3.45	0.58
12	Consistency	Representational	2.75	2.35	0.40
13	Politeness	Representational	3.51	3.22	0.29
14	Manipulability	Representational	3.25	3.00	0.25
15	Concise	Representational	3.22	3.01	0.21
16	Believability	Intrinsic	4.31	4.01	0.20
17	Timeliness	Contextual	4.25	4.22	0.03
18	Informativeness	Contextual	4.07	4.05	0.02
19	Reputation	Intrinsic	4.31	4.29	0.02

 Table 4
 Rank of information quality dimension gap

6 Managerial implications

The managerial implications of this research for the Indonesian government agencies, which provide information services via social media, are:

a In the context of education and culture, information plays a great role as a medium to achieve the learning outcomes and goals predetermined by the government and constitutions. Therefore, it is important to improve the quality of the information provided by Kemdikbud as the education and culture agencies in Indonesia. To improve services satisfaction, the agencies should improve the objectivity and accuracy of the information that affects people's trust towards government. Moreover, in terms of information presentation, the understandability, interpretability and conciseness should be prioritised. Considering these qualities, an editor role, which is currently not existing, is deemed necessary to manage

Kemdikbud social media account in order to ensure that information quality meet the established standard. Considering the similarity of the nature of government agencies in Indonesia, these lessons learned can be applied to other agencies as well such as in ministry of Finance (Kemenkeu), ministry of Law and human Rights (Kemenhukam) and many others.

As all Indonesia citizens should have equal access towards education, the Ministry of b Education and Culture ought to provide accessibility to each citizens. Also to preserve and foster the culture development in Indonesia which is genuinely very rich and diverse, the Ministry of Education and Culture should also provide accessibility towards each culture so that existing cultures would not be abandoned and the nurturing process could go well. Thus, in terms of government information services, the Ministry of Education and Culture must be able to provide high accessibility so that all citizens could access information related to education and culture from the Ministry of Education and Culture. Then, in turn, the citizens would expect high accessibility from the Ministry of Education and Culture. Accessibility aspect is necessary to improve people satisfaction towards government information services. However, not all social media services provide detailed information for each conversation history, which means less accessibility of the information. For example, Facebook provides searching feature to find any information but only within the last 28 days. Therefore, it is necessary that the administrator of the government social media account integrate social media with other existing information systems to improve accessibility. In the case of Kemdikbud, its official website should further improved and integrated with social media account to improve information accessibility.

7 Conclusions and future works

The result of this study shows that in the context of social media information services provided by a government agency, the intrinsic information quality dimension is considered more important than other dimension categories. In terms of the contextual information quality, timeliness and completeness is deemed more important than the other five dimensions in this group. Next, in terms of accessibility information quality, accessibility is more important than the other dimension (security) in this category. Associated with the quality of information representation in social media, interpretability and understandability is considered more important than the other dimensions (politeness, concise, consistency, manipulability) in this group.

The specific result concerning the case study in this research (Kemdikbud) reveals that the information quality in general still does not meet the expectation as shown by the gap. This suggests for a better management for the information services based on social media.

A further research could investigate social media in government agencies for multimedia-content sharing such as video, images, presentations, etc. Another future research option is to examine dimensions that are unique towards specific social networking sites such as Facebook, Twitter, etc.

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