以質性引文分析來研究教學情境裡文體、任務、與可信度評鑑之關聯之方法論議題

Employing Qualitative Citation Analysis to Investigate the Associations Among Document Genres, Tasks, and Credibility Assessments in the Context of University Teaching

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【摘要 Abstract】

　　本文探討一個為研究大學教學情境裡，教師所使用之文體、運用不同的文體所執行之任務與可信度之關聯而發展之研究方法，對此方法之優點與限制進行了深度的討論。此方法包含質性引文分析與半結構式訪談，以從下而上之策略來識別出教師們於教授課程時所使用的文體，搜集其於自然真實的狀況下評鑑不同的文件所採取的標準與執行之教學與資訊使用之研究資料，訪談稿則以質性內容分析與共同出現分析來發掘上述三者之關聯。此研究方法成功地將引文分析轉變為提升使用者參與之研究工具，

也確保蒐集到的資料是正確的，逐步與多次的分析則有助於提升研究結果之真確性。未來研究可思考如何運用引文來發掘不同類型之資訊行為與資訊對不同情境裡，使用者所執行之任務之貢獻。

This paper discusses a methodology designed to investigate the associations between credibility assessments and information use tasks with respect to document genres in the context of university teaching. The methodology comprised qualitative citation analysis and semi-structured interviews. It encompassed a bottom-up approach to identifying genres in use and eliciting naturally made credibility assessments and information use. Interviews were fully transcribed for qualitative content analysis and co-occurrence analysis. The methodology successfully transformed citation analysis from bibliographic records to research tools that engaged participants and ensured the accuracy of data. It is important that researchers consider the ways citations can be used to investigate different types of information behaviors and understand the contributions of information to task performance in different contexts.

【關鍵字 Keywords】

INTRODUCTION

As information & communication technologies penetrate into higher education, faculty's reliance on information documents to fulfill their research and teaching responsibilities increases. They use many documents that can be identified as genres in their everyday practices. Previous research on faculty's information needs and scholarly information practices tended to take the top-down approach to explore the contextual factors that shape the ways they perceive different genres (e.g., Brown, 1999; Fry and Talja, 2007; Talja, Savolainen, and Maula, 2004; Talja, Vakkari, Fry, and Wouters, 2007). This has helped us understand disciplinary differences in

compositions and functions of different genres. However, only a few genres were investigated (e.g., journals, preprints and mailing lists), neglecting the wide range of genres faculty actually use. Additionally, these genres were not directly identified from faculty's practices; thus their contributions to faculty's practices were not fully understood. Several researchers have taken the bottom-up approach to identify the genres that different user groups use to achieve their purposes in specific contexts (e.g., Freund, 2008 and 2013; Rosso, 2008; Roussinov, Crowston, Nilan, Kwasnik, Cai and Liu, 2001; Osheroff, Forsythe, Buchanan, Bankowitz, Blumenfeld and Miller, 1991). However, these studies tended to focus on one discipline (e.g., education, government information on health and environment, and engineering). Cross-disciplinary efforts have not been made to identify the genres faculty actually use in their teaching. Our knowledge of how they perceive and use different genres remains limited. There is a need to systematically identify the genres faculty actually use and explore how they perceive and use these genres to support their teaching from their perspectives across disciplinary boundaries.

Citation analysis has been employed to investigate scholars' document use (Meho and Haas, 2001; Herring, 2002) as well as evaluate collections in libraries (e.g., McCain and Bobick, 1981; Sylvia and Lesher, 1995; Sylvia, 1998; Haycock, 2004; Knievel and Kellsey, 2005; Leiding, 2005; Fuchs, Thomsen, Bias and Davis, 2006; Vallmitjana and Sabaté, 2008; Enger, 2009; Edwards, 2013). Analyzing citation in scholars' publications (e.g., journal articles or dissertations) helps uncover patterns of citations and investigate associations between different works (Swygart-Hobaugh, 2004). Mapping out the documents that scholars cite with existing collections inform collection decisions such as which journals to retain or exclude, although this should be done cautiously (Beile and Boote, 2004). Citation analysis has been employed with other methods to investigate how scholars cope with information in the research context (e.g., Palmer and Neumann, 2002). Comparing the documents identified from citations in scholars' publications with the data collected by other methods helps uncover the documents used but not mentioned. It allows researchers to gain a relatively complete picture of the range of documents scholars actually use.

In the past, citations in journal articles were the major target of

citation analysis (Garfield, 1972). Attentions have rarely been paid to citations appear in other written outputs. Additionally, citation analysis was primarily conducted to investigate scholars' information use or scholarly communication using quantitative methods (Smith, 1981). It has rarely been employed to investigate faculty's information activities in the teaching context using qualitative methods. It is important to bridge this gap as citations made in faculty's written output in the teaching context can shed new light on their information behaviors. Hoffmann and Doucette (2012) indicate there is a gap in citation analysis literature in that "there is no consolidated set of guidelines or considerations on the methodology." It is important to detail the methodology and explain decisions made in relation to the study's objectives to enable future research to reproduce, compare, and verify. This paper is written in response to this call. It reports a methodology designed to investigate the associations between how faculty assessed the credibility of document genres they used to support their teaching and the tasks they performed to use information in these genres. The study was conducted in a private university in central New York State, U.S.

Below are the research questions that guided the development of the methodology this paper discusses.

Q1 How do we employ qualitative citation analysis to systematically identify the genres faculty use to support their teaching, the criteria they employ to assess the credibility of these genres, and the tasks they perform to use these genres across disciplinary boundaries?

Q2 How do we uncover the associations among the genres faculty use to support their teaching, the criteria they employ to assess the credibility of these genres, and the tasks they perform to use these genres?

The structure of this paper is described as follows: It will first briefly review literature relevant to the study that drove the methodology. Next, it will describe the methodology, including data collection methods and analysis procedure, in detail. This will answer Q1 and Q2 respectively. It will then discuss advantages and limitations of the methodology. It will conclude with implications of the methodology on future research.

Literature Review

Document Genre and Genre Repertoire

Genre is a distinctive type of communicative action emerging from recurrent situations in which social interactions among community members become typified over time. Genre of a document can be identified based on its socially recognized communicative purposes and common aspects of forms and content (Crowston & Kwaśnik, 2003). Some genres are defined primarily based on their communicative purposes, such as editorials and proposals; some are defined primarily based on their forms, such as poems and glossaries; still some are defined based on a fusion of communicative purposes, forms, and content, such as FAQs and law (Crowston, 2010). Genre repertoire refers to the set of document genres faculty rely on to teach a course (Orlikowski & Yates, 1994). Faculty use a set of genres to achieve their teaching goals. Different genres are used together to support their teaching. A genre may be used to achieve a distinct teaching goal, but it may also be used with other genres to achieve another goal and hence form specific inter-relationships.

Previous studies found tasks are associated with document genres used to support these tasks at both the between-document and within-document levels (Freund, 2008; Roussinov, et al., 2011; Zhang, et al., 2011). The user's perception of how useful a document or a specific section of a document is depends on the type of task he performs and the genre or sub-genre of this document. Genres of documents are associated with professional tasks that trigger information seeking and use as well as information tasks users perform to complete these professional tasks. The same applies to leisure tasks. The associations between tasks and genres exist based on functional matching. The genre or sub-genre perceived to be the most useful corresponds to the purpose of performing a task. The more specific a domain is, the stronger the task-genre association is (Freund, 2008; Zhang, et al., 2011). The task-genre associations at the among-document level have been found in the following domains: graduate students' information seeking on the web (Roussinov, et al., 2001), software service consultants' workplace setting (Freund, 2008), and the Internet community's use of Canadian e-government information (Freund, 2012). The task-genre associations at the within-document level have been found in the context of scholars' reading of journal articles.

Crowston and Kwaśnik (2004) argued taking a bottom-up approach to genre is more valid than a top-down approach because genres are socially constructed. They are context carriers (Freund, 2008). Community members may perceive a genre differently from outsiders. Thus, it is important to understand how users recognize genres and the languages they use to describe and label genres. As genres evolve, a top-down approach is insufficient to capture the emerging, dynamic genres that users encounter in their everyday practices (Crowston and Kwaśnik, 2004). Several studies have taken the bottom-up approach to genres. For example, Roussinov and his colleagues (2011) interviewed individuals who searched on the Web in computer labs on campus, public libraries, and workplaces. Interviewees were asked to describe their problems and genres of the webpages containing useful information to their problems. It was found users' purposes in engaging Web searching were related to the genres of documents they retrieved. Additionally, Freund (2008) conducted a multi-phase study that examined the relationships between software engineers' tasks and genres in the collection in a workplace setting. Furthermore, Rosso (2008) conducted a three-phase user study to develop a genre palette that can be used to improve Web searching. This study will extend this line of research by taking a bottom-up approach to identify the genres faculty actually use to support their teaching. However, working with genres faces two challenges, including the complexity and scalability issues (Freund, 2008). To address these issues, Meho and Haas (2001) employed citation analysis along with questionnaires to investigate how frequently social science faculty studying stateless nations used government information and the characteristics of this information. They developed rules to manage the works and citations they were working on because the number of works their participants have published varied substantially. This study developed rules to systematically select genres that each faculty have used because this helped make interviews and the data manageable. Additionally, obtaining a complete set of genres is use is not necessary. Obtaining a representative set of genres in use and understanding how they are assessed and used can be more useful in exploiting the task-genre associations in facilitating searching and information use in practices.

Credibility Assessment

Credibility is defined as the perceived quality of information "instantiated in documents" (Rieh and Danielson, 2007). Credibility is closely related to believability, trust, reliability, accuracy, fairness, objectivity, and so on (Hilligoss and Rieh, 2008). Credibility has two key dimensions: trustworthiness and expertise. Trustworthy information tends to be "reliable, unbiased, and fair" (Hilligoss and Rieh, 2008). Trustworthy person is "honest, careful in choice of words, and disinclined to deceive" (Hilligoss and Rieh, 2008). Expertise is "the perceived knowledge and skill of the source" (Fogg and Tseng, 1999). Information provided by a source with sufficient expertise tends to be accurate and valid because this source is "knowledgeable, experienced, and competent" (Fogg and Tseng, 1999).

Documents that users interact with affect their credibility assessments (Fogg, et al., 2003; Hilligoss and Rieh, 2008; Rieh, 2002; Rieh and Belkin, 2000). However, existing models failed to systematically address the impact of documents because they were developed either from a single medium, a single type of document (e.g., Fogg, et al., 2003; Rieh, 2002; Rieh and Belkin, 2000) or various types of information objects (e.g., Hilligoss and Rieh, 2008). Several studies have explicitly addressed the associations between credibility assessments and genres. For example, Flanagin and Metzger (2007)'s study demonstrates users' perceived credibility of the websites that contained the same news story but varied in genres was different. Francke, Sundin, and Limberg (2011) indicated genre was one of the strategies students in an upper secondary school in Sweden adopted to assess the credibility of sources. Because nowadays users tend to situate in information environments where diverse genres are produced every day and they tend to use multiple genres to support their tasks, unfolding how different genres are assessed and used is necessary to enhance our knowledge of the roles of document genres to different tasks.

Teaching Task and Information Use Task

Tasks are goal-oriented activities that people perform to make progress in their work or personal life. Tasks have practical goals that can be achieved in a process, and they may have an observable beginning and end (Byström and Hansen, 2005). Task performance involves physical and cognitive actions leading to a meaningful product(s) (Vakkari, 2001). In information seeking and use, tasks can be first divided into work tasks and information

tasks (Byström and Hansen, 2005; Freund, 2008). Information tasks can further be divided into information seeking tasks and search tasks (Byström and Hansen, 2005; Li and Belkin, 2008). Work tasks refer to activities people perform to fulfill the requirement of their work responsibilities. Work tasks give rise to information needs and problems, which lead to information seeking and use behaviors because people need information to solve their problems. Information seeking tasks refer to activities people perform to gather information (Byström and Hansen, 2005; Freund, 2008). Search tasks refer to task situations in which information seekers rely on retrieval systems, such as search engines and databases, to find information that helps solve their problems and accomplish their information seeking tasks and thereby work tasks (Li and Belkin, 2008; Wilson, 2000).

Differentiating and classifying tasks according to task performers' goals of using information could have great potential for information seeking and retrieval. Unfortunately, task performers' goals had not been seriously considered in previous research (Freund, 2008). Vakkari (2000) argued it is important to identify and classify information users' expected use of information to design document representations that offer clues useful for them to infer the potential contributions of documents to their tasks. As well, previous task research has paid little attention to information use. It is important to investigate how information is used to perform a task because this can increase our knowledge of the role of information in a task and the associations between information and task performance. Information use itself has been conceptualized in a number of different ways, including: information processing, knowledge construction, information production, information application, the effect of information, and so on (Kari, 2010). Conceptualizing information use as information application focuses on the role of information as internalized knowledge used in certain actions that form the basis of practices (Kari, 2010). Information use is interrelated with other information activities that task performers engage in. This study will classify tasks into teaching tasks and information use tasks according to faculty's goals of using information.

METHODOLOGY

Overview of the Methodology

This study employed two methods to collect data, including qualitative citation analysis and semi-structured interviews. It first identified the genres faculty used in the courses they selected based on citations in their teaching materials. Customized genre repertoires that documented genres of the documents they have used were created in Excel format to facilitate interviews. In interviews, participants first answered questions about their courses. They were then instructed to identify genres of the documents they have used and verify the genre repertoires. Ten genres were then selected for in-depth interviews designed to collect data about the tasks they performed to use and the criteria they employed to assess these genres.

Interviews were fully transcribed. Qualitative content analysis (Neuendorf, 2001; Schreier, 2012) and co-occurrence analysis were employed in sequence to analyze interview transcripts. Open coding (Strauss and Corbin, 1998) was first employed to analyze the data about the courses and identify the criteria participants employed to select documents for their courses, the information use tasks they performed to use the selected genres, and the criteria they employed to assess these genres in their use. The information use tasks they performed to use and the criteria they employed to assess the selected genres were then differentiated among different documents that belong to the same genres to reflect the granularity of their information use and document assessments. Finally, co-occurrence analysis was conducted to identify the criteria associated with specific tasks and the associations among tasks, criteria, and genres.

Sampling Principles & Participants Recruitment

This study adopted theoretical sampling (Miles, Huberman and Saldaña, 1994). It attempted to include a variety of courses in the sample to uncover possible variations of task-genre-criteria associations. It assumed courses were crucial contextual factors that shaped faculty's document assessments, tasks they have performed, and genres they have used. Different courses required different sets of genres. Including a variety of courses in the sample helped diversify teaching contexts. Thus, this study attempted to recruit faculty from as broad a range of academic disciplines as possible to ensure a diversity of teaching contexts. These covered social sciences, humanities, and sciences.

This study adopted several strategies to recruit participants, primarily

snowballing and e-mail recruitment. Faculty outside the author's school were recruited by her senior colleague. Recruiting e-mails were sent to faculty who have won the teaching recognition awards in 2011-12 and faculty in several schools and departments. As a result, a total number of 28 courses, which were contributed by 27 participants, were analyzed.

Data Collection

Qualitative citation analysis

A closer examination of a course's records revealed most of the documents faculty used were referenced in their teaching materials (e.g., syllabi, lecture slides, and lab notes). Teaching materials contained rich contextual information regarding the use of genres since faculty tended to organize documents in a specific logical and chronological order. What were required or optional, and when and where specific documents were used were clearly indicated. Analyzing citations in these materials, including both in-text citations and bibliographic references, allowed this study to identify genres of documents in use. It helped capture most of the genres faculty used in their courses. Hence, this study identified the documents faculty used and genres of these documents by analyzing citations in their teaching materials.

To identify the genres participants have used, they were instructed to select a course they were teaching or have taught within the last year when they agreed to participate in this study. They were invited to share their teaching materials with the author or grant her access to their courses on Blackboard, a learning management system. The author downloaded their teaching materials and analyzed their citations to identify the documents they have used. Then, the author created entries in Excel to organize these documents and determined their genres. To reflect the granularity of genres in use, entries were created based on the ways participants used these documents. Each entry represented a document, which was identified as a genre (e.g., the "about page" of a website or a monograph). Entries were created using the following facets: (1) Bibliographic information: Titles, publishing years, authors, and sources (e.g., publishers, conferences, or titles of the books where the identified chapters were published); (2) Genres of the documents, which were determined based on participants' descriptions,

original documents, bibliographic records in WorldCat, or the university library. Genres that were not identifiable were marked in red. These were discussed first when participants were instructed to identify the genres they have used at the beginning of interviews. The facet genre was shaded in yellow to enhance participants' understanding of document genre and facilitate their identification; (3) Purpose, when, and where the documents were used; and (4) Hyperlinks to original documents or bibliographic records.

The above facets were used to capture the contexts in which specific genres were used. These facets were developed based on six structural dimensions of communicative actions that genre invokes, including: purpose (why), content (what), participants (who/m), form (how), time (when), and place (where) (Yates & Orlikowski, 2002). Entries created based on a course's unique teaching materials formed a genre repertoire. A frequency report of genres was created in another spreadsheet. The genre repertoires and frequency reports, which revealed the range of genres and use patterns, were used to facilitate interviews. Each participant received a customized genre repertoire before the interview. Figure 1 illustrates an example.

Semi-structured Interviews

Credibility assessments and information use involve mental and physical activities taking place at different time and space. It was challenging to capture faculty's credibility assessments and information use at the time when these activities took place since they tended to accumulate documents from different sources over time. Eliciting confessional accounts can capture activities that were not directly observable. Thus, this study employed semi-structured interviews to collect data about the credibility assessments faculty made and the tasks they performed regarding the genres they have used in their courses.

Interviews started with questions regarding the courses participants selected. Data regarding course development, their teaching experiences, familiarity with the documents they have used, the number of students they have had, student major, and student level were collected. Then, the author presented the genre repertoires to participants. What genre is was explained by providing the definition this study adopted and using textbook as an example. The author told participants she wanted to

understand their perspectives. Participants were then instructed to identify genres marked in red, review other genres, and describe whether they agreed with the genres. Problematic genres were corrected on site. After going through all the genres, participants were instructed to indicate if there were any errors in their genre repertoires. New frequency reports of genres were created and different versions of genre repertoires were saved in the author's laptop.

The numbers of genres participants have used varied substantially. The more documents they have used, the wider the range of genres tended to be. The number of genres used in social sciences and humanities was higher than those used in sciences. To make interviews manageable, it was necessary to consistently select genres across different disciplines for in-depth investigations. In general, ten genres were selected for subsequent interviews: two that were the most heavily used in a course, four that appeared the most frequently, and four that appeared the least frequently. The degree of use was determined based on the facets when and where. If there was only one genre that had been used heavily, it was selected. Because several participants used many documents from multiple sources (e.g., journal articles), no single document was heavily used. In these cases, only the most frequently appeared and the least frequently appeared genres were selected.

Figure 1. An Example of Customized Genre Repertoires

The selection rules were developed to ensure the diversity and comparability of task-genre associations across courses in different disciplines. The frequency of the most heavily used genre was not necessarily high. For example, textbooks tended to be the most heavily used genre. However, the frequency of textbooks tended to be low because faculty usually used one or a few textbooks in a course. If genres were selected solely based on frequency, the most important genre for teaching – such as textbooks – would not have been included. Thus, it was important to consider the degree of use. Genres having the highest frequencies might have been used in different classes of a course over the semester, but sometimes the frequency was high only because faculty used the same genre in numerous instances for a specific purpose in a small section of a lecture. In interviews, the author displayed the selected genres one-by-one and asked participants their purposes in using these genres, how they have used these genres, and the advantages and shortcomings in using these genres, as Figure 2 illustrates.

	A	B	C	D	E	F	G	H	I	J	K
1	Title	Ye	Author	Source	Genr	Purpos	Unit Title	When	Where	Where	Links
26	Poemas de Blas de Otero: Hombre	1950	Blas De Oter	N/A	Poem	Reading	Lecturas para el mi	24-Apr-13	Blackboard	Content	Full text
27	Poemas de Blas de Otero: Pido la ¡	1955	Blas De Oter	N/A	Poem	Reading	Lecturas para el mi	24-Apr-13	Blackboard	Content	Full text
28	Poema Insomnio de Dámaso Alons	1944	Hijos de la ir	N/A	Poem	Reading	Material adicional p	17-Apr-13	Blackboard	Content	Full text
30	Soledades, galerías y otros poema:	1907	Antonio Mac	Soledades	Poem	Reading	Material adicional p	8-Apr-13	Blackboard	Content	Full text
31	Abril florecía	1903	Antonio Mac	Soledades	Poem	Reading	Material adicional p	8-Apr-13	Blackboard	Content	Full text
38	Soneto de Luis de Gongora	N/A	Luis de Góng	N/A	Poem	Reading	Material para la clas	18-Feb-13	Blackboard	Content	Full text
39	Cántico espiritual, Llama de amor \	N/A	San Juan de	N/A	Poem	Reading	Material para la clas	11-Feb-13	Blackboard	Content	Full text
40	Soneto V	N/A	Garcilaso de	N/A	Poem	Reading	Material para la clas	6-Feb-13	Blackboard	Content	Full text
41	Soneto XIII	N/A	Garcilaso de	N/A	Poem	Reading	Material para la clas	6-Feb-13	Blackboard	Content	Full text
42	Madrigal	N/A	Gutierre de (	N/A	Poem	Reading	Material para la clas	6-Feb-13	Blackboard	Content	Full text
46	Romance de Abenámar	N/A	Romancero \	N/A	Poem	Reading	Lecturas para la cla	30-Jan-13	Blackboard	Content	Full text
47	Romance del prisionero	N/A	Romancero \	N/A	Poem	Reading	Lecturas para la cla	30-Jan-13	Blackboard	Content	Full text
48	Romance del enamorado y la muer	N/A	Romancero \	N/A	Poem	Reading	Lecturas para la cla	30-Jan-13	Blackboard	Content	Full text
49	Fonte frida	N/A	Romancero \	N/A	Poem	Reading	Lecturas para la cla	30-Jan-13	Blackboard	Content	Full text
50	Blanca nina	N/A	Romancero \	N/A	Poem	Reading	Lecturas para la cla	30-Jan-13	Blackboard	Content	Full text
52	Fragmento del cantar III	N/A	N/A	N/A	Poem	Reading	LA POESÍA ÉPICA Y	23-Jan-13	Blackboard	Content	Full text

Figure 2. An Example of Displaying the Selected Genres in Interviews

Taking the naturalistic approach, interview questions were designed to capture the inherent complexity of naturally performed tasks and naturally made credibility assessments. Participants' credibility assessments were embedded in the document assessments they made for the selected genres.

Data Analysis

Classifying the Selected Genres

Interviews were fully transcribed for data analysis. Genres selected

for in-depth interviews were first classified according to participants' identification. Table 1 provides a snapshot of the full classification. The selected genres were classified to give an overview and illustrate the diversity of genres participants have used. Genres could be identified from either the author or participants' perspectives, and this study preserved both. This helped uncover similarities and differences in the genres used to perform a task. For example, two participants used the books they wrote as textbooks viewed their books as scholarly books. As one of them described,

> *"I think of a textbook as more by its apparatus. That's the MIT's word... When I think about textbook, I go back to high school and I think it's got the questions from the chapters and review topics and that wasn't the intention of [title of his book]."*

The author asked him what he meant by a scholarly book. Was it because his target audience was the academic people? He responded,

> *"Partly the audience and partly the treatment of the material. I would say a practitioner book is a one that is written very much for do this, do this, do this. It's much more of how, as opposed to a scholarly book, which is much more about why."*

His book was used in a MOOC course in which approximately 2000 practitioners enrolled. It was his intention to shift these practitioners' thinking from how to why. He wanted to advocate his perspectives about why, and he viewed advocacy as an integral part of scholarship. Thus, he identified his book as a scholarly book. However, this study wished to uncover similarities and differences in assessing genres used to perform the same tasks, regardless of participants' perspectives. In this case, this study wished to know whether participants employed the same criteria to assess genres they have used to provide foundational text. Did this scholarly book share common characteristics with the standard textbooks used in other courses? Thus, participants' identification of and perspectives about the selected genres were preserved for the author's analysis and interpretation.

Table 1

An Overview of the Selected Genres

Major Genre Categories	Genres	Sub-types
Textbook genres	Textbook	
	Textbook chapter	
Academic, research genres	Book	
	Book chapter	
	Non-fiction book	
	Scholarly book	
	Academic publication	
	Monograph	
	Journal article	
	Conference paper	
	Law review article	
	Unpublished doctoral thesis	
	Masters thesis	
Professional publications	Practitioner journal article	
	Magazine article	
	Journal/Magazine article	
	Essay	
Opinion-based genres	Editorial	
	Book review	
	Blog post	
Instructional, multimodal genres	Educational video, instructive video, video	
	Training video	
	Video lecture, Video lesson	
	Online training course	
	Comedy	

	Talk	General
		Interview
		Keynote speech
Audio genres	Song	Contemporary song
		Traditional song
	Podcast	
Procedural genres	Demonstration	
	Tutorial	General
		Chapter overview tutorial
	Guide, online guide	
	Manual	
	Handbook	

Note. Developed by the Author

Identifying and Classifying Information Use Tasks into Teaching Tasks

One interview question asked participants their purposes in using the selected genres. Another asked how they have used these genres. Their responses were analyzed to identify the information use tasks they performed, which were further classified into teaching tasks according to their common goals because this study took the goal-based approach (Freund, 2008). For example, "to present reality", "provide multimodal information", "connect with the real world/make a connection", and "help students visualize the goals" were grouped together and called the teaching task make the learning content real and concrete because their goal was to present real objects, events, or problems, and make the learning content concrete and tangible. Table 2 presents the coding scheme of teaching tasks and information use tasks. A complete codebook detailing the definitions of different tasks with examples was developed.

Table 2

Teaching Tasks and Information Use Tasks

Teaching Tasks	Information Use Tasks
Prepare the course	Structure the course
	Prepare lectures
Teach about the field	Provide foundational text
	Enable students to understand an area/a topic
	Complement/Supplement other resources
	Enable students to explore interests
	Provide learning content
	Expose students to influential thinkers
	Expose students to important perspectives
	Introduce a professional organization
	Teach the highest expectations
	Highlight a topic(s)
	Prepare students for the job
	Draw on scholarship
	Develop students' conceptual vocabulary/ terminology
	Walk students through the process
	Facilitate lab practices
	Balance research and practices
Enhance students' understanding	Provide an example(s)
	Explain/Illustrate/Demonstrate
	Improve students' understanding
	Provide theoretical/contextual information
	Present different authorities

Make the learning content real and concrete	To present reality
	Provide multimodal information
	Connect with the real world/make a connection(s)
	Help students visualize the goals
Obtain reference information	Look up/Provide references
	Look for examples/problems
	Help students find jobs
	Enable students to get citation information
	Provide guidelines for writing
Develop students' advanced learning skills	Help students apply the learning content
	Develop students' critical thinking skills
Enhance students' participation	Trigger discussion
	To engage students
	Have fun
Point students to resources	Provide authoritative references
	Provide original sources
	Provide access
Improve teaching immediately	Get timely feedback
	Understand students' learning situation
Encourage students to read	Motivate reading
	Enable students to reflect on self-learning
Continue to learn	Provide suggested readings/more information
	Keep up

Note. Developed by the Author

Identifying and Classifying General and Evaluative Criteria

One interview question asked participants the advantages and shortcomings in using the selected genres. Their responses were analyzed to identify the criteria they naturally employed to assess the documents belong to the selected genres. A number of previous studies on credibility and relevance assessments were consulted to facilitate the analysis, including: (1) The unifying framework of credibility assessments (Hilligoss and Rieh, 2008); (2) The criteria participants of an Internet

discussion forum employed to assess the information quality of messages and the credibility of authors (Savolainen, 2011); (3) The criteria scholars employed to assess information quality and cognitive authority on the Web (Rieh, 2002); (4) The relevance criteria users employed in different contexts (Barry and Schamber, 1998); and (5) Topics of users' comments when they assessed the credibility of e-commerce websites (Fogg, et al., 2003). Additional criteria were inductively identified from transcripts. These criteria were then abstracted to higher levels and classified into several evaluative criteria according to the definitions of document genres and credibility this study adopted and participants' descriptions. Table 3 presents the coding scheme of evaluative criteria and assessment criteria. A complete codebook detailing the definitions of different criteria with examples was developed.

Table 3
Evaluative Criteria and Assessment Criteria

Evaluative Criteria	Dimensions	Assessment Criteria	Value
Suitability		Student/Course level match	
		Applicability	
		Emphasis	
		Specificity	
		Coverage	
		Content orientation	Overview
			Technical

				Theoretical
				Scholarly
				Conceptual
				Practical
				Business
		Originality		Primary
				Secondary
		Length/Amount	Length/Amount of information	
			Intensity of information	
		Usefulness		
		Contain important sub-genres/ information elements		
		Whether it provides supplementary information		
		Contain important/unusual perspectives		
		Whether the instructor's and author's perspectives were aligned		
		Relevance		
		Readability		
Credibility	Trustworthiness of information	Tangibility		
		Accuracy		
		Objectivity		
		Factuality		
		Validity		
		Being reviewed and edited		
		Degree of formal		
		Recency		

		Truthfulness	
		Association with authoritative knowledge	
	Trustworthiness of a source	Honesty	
		Intent	
		Interaction with authors	
		Investment	
		Stability	
		Functionality	
		Writing style	
	Expertise	Source	
		Authorship	Collective
			Single
		Breadth of Perspectives	Multiple
			Narrow
		Research effort	
		Position	
Information quality	Form	Organization	
		Presentation	
	Content	Clarity	
		Coherence	
		Completeness	
		Depth	
		Whether it's informative	
		Quality of sub-genres/information elements	
		Quality of supplementary materials	
Personal preference		Topic importance	

		Topic variety	
		Topic interestingness	
Cost effectiveness		Cost	
		Availability	
		Copyright concerns	
Others		Affect	
		Public acceptance/Endorsed usage	

Note. Developed by the Author

Differentiating Information Use Tasks and Document Assessments at Different Levels of Granularity

Participants' responses to questions asking their purposes in using the selected genres, how they used these genres, and the advantages and shortcomings in using these genres varied in their levels of granularity. Sometimes all of the documents belong to the same genres were used to perform the same tasks. As a participant described, "*All the photographs are just illustrations of real objects that exemplify some of the principles we're studying.*" Sometimes documents belong to the same genres were used for several distinct purposes. For example, a participant classified the journal articles he has used into three categories, including: about methods or methodology, about trends, and examples. As he described,

> "*A lot of those articles are actually either methods articles or about methodology or they're about trends. You can see something fashion waves and ISR, to talk about where the field is going and what's happening. And the other ones are just examples.*"

Sometimes different documents were used for different purposes, although they belonged to the same genre. As a participant described,

> "*Each one has a different purpose. Two of them are on professional development. Well, actually this is professional development, national award certification. Grant money is certainly professional development. This reflective practice is goals for professional growth. It's a self-reflective piece for them to use, looking at their own growth. And the others are guides that*

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librarians can use as they are developing their programs."

It was important to differentiate information use tasks and document assessments at different levels of granularity because sometimes different documents were used to perform different tasks and different criteria were employed to assess documents used to perform different tasks, although they belong to the same genre. For example, a participant described his purposes in using textbooks,

> *"The first book was basically a text for the course. The chapters in the book lined up with the teaching modules for each week. It had built-in exercises. So it was – in terms of the student building this portfolio with their own topic. There were some exercises in the book, some I made up separately and they are there too, but the [author] book was really the structure of the class to a large extent. The other book was an optional book. People who wanted to focus more on mixed methods could use that. I would give optional readings out of that but I didn't require those readings."*

This snippet indicates he used two textbooks. One was the major text used to structure the course. The other was optional. Three information use tasks were applied to this snippet, including "provide foundational text", "structure the course", and "provide suggested readings/more information." Two criteria were applied to this snippet. The criterion "contain important sub-genres/information elements" was applied to "*It had built-in exercises*." The criterion "emphasis" was applied to "*People who wanted to focus more on mixed methods could use that*." Additionally, it was important to differentiate different types of assessments participants made. Sometimes they described their perceptions of a genre generally. They did not make their assessments based on specific documents. For example, the above participant described,

> *"They're not like textbooks that you just unthinkingly say, Oh, there is a methods paper. They said to do it this way, so that's okay. Somebody else may say, well, no, this is the way it should be. What's theorizing? There's a whole debate over like what theory is not theorizing. That kind of thing goes on back and forth. So if you just read one article and think that's the truth rather than*

understanding that's part of discussion within the field. That in methodology, they're different points of view, different approaches, different school…"

The criterion "truthfulness" was applied to this snippet because he was describing the danger of treating journal articles as the ultimate truth. He was not describing a particular journal article. Later he said regardless of what genre a document was, it was important to critically think about it. It was important to differentiate among his general assessments and the assessments he made for specific documents. Therefore, interview transcripts were re-analyzed to differentiate the information use tasks participants performed to use and the criteria they employed to assess different documents belong to the same genres at different levels of granularity. The general assessments they made for specific genres were also differentiated from the assessments they made for specific documents.

Co-occurrence Analysis

Finally, co-occurrence analysis was conducted to identify the associations among tasks, criteria, and the selected genres and abstract the associations to higher-levels. The associations were identified primarily based on co-occurrences of tasks and criteria and participants' rationale. A document or a set of documents belong to the same genre was used to perform one or more information use tasks, and multiple criteria were usually employed to assess this document or genre. However, not all of the criteria were associated with all of the tasks performed to use this document or genre. Certain criteria were particularly associated with a task. For example, a set of tutorials that a participant found on YouTube was used to provide real-world examples that explained the concepts in the textbooks. These tutorials were also used to let students have fun because they were interesting and entertaining. In this case, the criterion "tangibility" co-occurred and was associated with the tasks "provide an example(s)" and "explain/illustrate/demonstrate." The criterion "affect" co-occurred and was associated with the task "have fun." It was important to identify the criteria associated with the task performed to use a document or genre. Thus, transcripts were re-analyzed to identify the associations among tasks, criteria, and the selected genres.

Co-occurrence analysis was conducted based on information use tasks

because tasks initiated document/genre use and assessments. The criteria associated with a task were abstracted to corresponding evaluative criteria and dimensions according to the coding scheme of evaluative criteria and assessment criteria. The criteria associated with a task in different instances were then added up to calculate how frequently different task-criterion associations took place. Genres used to perform the same task were also grouped together and added up to identify their associations with this task and the associated criteria. For example, in answering the question that asked her purposes in using demonstrations/comedies in her course, a participant responded, "It was good to present real thing, real comparison, just see the real variation that exist in real life." The information use task – to present reality – was applied to this snippet. In answering the advantages and shortcomings in using demonstrations/comedies in her course, she responded,

> *"The advantages is that we know you always want to present something that is more concrete to students, and that can be tangible to them so they can be able to really have a grasp of the idea we are talking about in class."*

The criterion "tangibility" has been applied to this snippet. This co-occurrence indicates the information use tasks "to present reality" was associated with the criterion "tangibility." According to the coding scheme of evaluative criteria and assessment criteria, "tangibility" was classified under one of the dimensions of credibility, that is, trustworthiness of information. Thus, the criterion "tangibility" was transformed to trustworthiness of information. The frequency of the criterion "tangibility" and the frequency of trustworthiness of information were calculated.

All the criteria associated with a task were added up to calculate how frequently a criterion was associated with a task. The corresponding evaluative criteria and/or dimensions were also added up to calculate how frequently an evaluative criterion and/or its dimensions were associated with a task. In this way, the criteria associated with a task were systematically abstracted to corresponding evaluative criteria and/or dimensions. Such abstraction allowed this study to identify patterns of task-criterion associations at different levels of granularity. This study was able to find out the evaluative criteria, the dimensions of evaluative criteria, and the

assessment criteria associated with a task. The abstraction also allowed this study to identify the assessment criteria and/or dimensions more frequently associated with a task. All of the genres used to perform a task were also added up to calculate frequencies of different genres and identify similarities and differences in the genres used to perform a task. This study then created summary results based on the frequencies of genres and criterion-task associations for each task. The summary results for different tasks were then organized in a table to calculate how frequently different evaluative criteria were employed to assess genres used to perform a task and identify the dimensions and/or assessment criteria frequently associated with this task. Table 4 presents a snapshot of the summary result.

DISCUSSION

Advantages of the Methodology

The data collection methods this study employed had three advantages. First, employing qualitative citation analysis and semi-structured interviews in sequence provided methodological and data triangulation (Tashakkori & Teddlie, 1998). The explicit and implicit aspects of document assessments and information use were respectively captured by qualitative citation analysis and semi-structured interviews. Citations in teaching materials entailed participants' document assessments and information use because the documents they cited have been assessed and used. The descriptions accompanied by citations revealed participants' assessments and information use because they often commented on the documents or guided students to use these documents. Thus, identifying the genres participants have used based on citations in their teaching materials captured the explicit aspect of their document assessments and information use. Semi-structured interviews, which collected data about participants' rationale and cognitive decisions, captured the implicit aspect of their document assessments and information use. Participants verified the data collected by qualitative citation analysis in interviews. Presenting customized genre repertoires and giving them a chance to review the genres they have used at the beginning of interviews enhanced the accuracy and completeness of customized genre repertoires. Because customized genre repertoires contained most but not all of the documents participants have used, four participants indicated

there were documents they have used but have not been included. These documents were not uploaded to the Blackboard, so they were not identified. The missing documents were added and genres of these documents were included in the frequency reports. Several participants indicated certain documents were not actually used and hence should be deleted. This occurred in instances where participants used lectures with citations made by other instructors and where they forgot to remove the documents they have used in the past. Additionally, there were occasional documents participants had cited in error. Going through customized genre repertoires with participants helped correct these errors.

Second, since the methodology took a naturalistic, bottom-up approach, it preserved the socially constructed nature of genre assessments and use. Genres were defined based on how participants used them to support teaching. Participants' awareness, perception, and understanding of genres were captured in their own words. This is similar to Roussinov and his colleagues (2001)'s research in that both were situated in real task performance. Thus, the results could be exploited to improve retrieval systems and facilitate easier genre identification and information access for task completion. Although Rosso (2008) also took the bottom-up approach to genres, users' classification of genres was not based on authentic user tasks. This probably could partially explain why later the agreements on the genres of webpages among users were not high. This study also captured document assessments and information use *in vivo*. The naturalistic approach elicited participants' documents assessments in which their credibility assessments were embedded. This helped uncover the role of different criteria and the relative importance of credibility in different tasks. Third, identifying genres in use based on citations in participants' teaching materials allowed the author to become familiar with the documents they have used. Such familiarity facilitated interviews. The author was able to ask questions about genres of different documents when participants identified the genres they have used. As well, the author was able to ask questions to probe their credibility assessments and information use. For example, a participant stated, "*The textbook is authoritative and also challenging*" in his syllabus. The author instructed him to elaborate this statement in the interview.

Table 4
A Snapshot of the Summary Result

Teaching Tasks	Information Use Tasks	The Selected Genres (N)	Evaluative Criteria (N)	Dimensions or Criteria that Stood Out (N)
Prepare the course	Structure the course	Textbooks*8 (including one scholarly book)	Suitability*7 Information quality*4 Credibility*1	Suitability*7(Coverage*5) Information quality: Form*4(Organization*4)
	Prepare lectures	Textbooks*2, Books*2, Book chapters*1, Conference papers*1, Lecture slides*1	Suitability*3 Credibility*2 Information quality*2	
Teach about the field	Provide foundational text	Textbooks*20, Scholarly book*1, Law*1, Charts and graphs*1, Poems*1	Suitability*47 Information quality*29 Credibility*24 Cost effectiveness*5 Public acceptance/Endorsed usage*4	Suitability*47(Coverage*11)
	Enable students to understand an area/a topic	Mainly articles, individual pieces, including; Journal articles*4, Book chapters*4, Magazine articles*2, Review article*1, Law review article*1, Blog post*1, Website*1, Monograph*1	Suitability*11 Credibility*7 Information quality*4, Personal preferences*2 Cost effectiveness*1	Suitability*10(Content orientation: Overview*6)

Note. Developed by the Author

Using customized genre repertoires to facilitate interviews had the following advantages: (1) Engaging participants: Customized genre repertoires documented the genres participants have used and their use contexts. They were able to discuss and elaborate the genres they have used in interviews. Several participants were very interested in reflecting their document use from the genre perspective; (2) Facilitating participants' understanding and identification of genres: Shading the facet of genre in yellow helped them understand what document genre was immediately. Genres that the author identified also provided examples that enhanced their understanding. They were able to identify the genres they have used or came up with their own labels (e.g., survey articles); (3) Collecting context-specific data: Customized genre repertoires helped participants concentrate on their genre assessments and use in the courses they selected but not in other courses they were teaching; (4) Enhancing the accuracy of interview data: Because customized genre repertoires documented the bibliographic information and use contexts of different documents, it helped participants recall their purposes in using different genres and the associated advantages and shortcomings; (5) Providing a self-verification mechanism: The information provided by customized genre repertoires allowed participants to verify their responses, which helped collect accurate data. For example, when asking a participant her purposes in using conference papers, she responded intuitively, "*Conference papers tend to be the most cutting-edge research*", but she stopped to examine the conference papers she have used in her genre repertoire. She went on to say, "*I'm looking at the dates, these are not like 2012, 2013 things.*" The conference papers she used were actually older than she intuitively thought. This is similar to the methods that Meho and Haas (2001) employed to investigate the use of government information by social science faculty who studied Kurds. They compared citations and survey data and found some participants claiming using government information did not cite it, while some cited more government information than they claimed; (6) Accessing to the documents on site: The facets of *when* and where allowed the author to locate the teaching material from which a specific document was identified quickly, which assisted participants in recalling. The facet of hyperlink allowed the author to present documents to participants quickly when they needed to see the documents

to retrieve their memories; and (7) Differences in use and use contexts of the selected genres became more obvious as the author displayed them one by one: Whether instances of a selected genre were used in the same way and whether different genres were used in the same way were detected and probed because customized genre repertoires displayed patterns of genre use.

Differentiating the information use tasks participants performed to use and the criteria they employed to assess the documents belong to the selected genres at different levels of granularity helped identify variations in genre use and assessments. Co-occurrence analysis helped identify salient criteria that mattered in a task and further uncover the associations among tasks, genres, and criteria. Additionally, conducting the above differentiation and co-occurrence analysis helped identify errors made in the previous analyses and correct these errors. The results were confirmed and corroborated.

Limitations of the Methodology

There were several limitations in implementing the methodology and employing citation analysis to identify genres in use based on faculty's teaching materials. First, in a few cases, participants indicated genres of certain documents should be revised when interviews were nearly over. Changing genre labels changed the frequency distribution, so the author had to re-select genres to conduct in-depth interviews. This tended to affect the lowest frequently appeared genres as the most heavily used and the highest frequently appeared genres remained the same. Second, the genre selection rules resulted in displaying documents used in different degrees of heaviness. For example, textbooks were the most heavily used genre in most of the courses, but only one or two textbooks were heavily used in a course. However, slightly used textbooks or those used as optional readings were also displayed with the heavily used ones. This did not affect data collection though because participants were able to specify their purposes for using different documents.

The limitations of relying on citations in faculty's teaching materials to identify and characterize genres in use include: (1) Not all of the documents used were referenced because some were omitted by participants or because some were internalized. Either way, genres of these documents could not be identified; (2) Citation analysis cannot detect implicit purposes. The

facet purpose was coded as required, review, skim, example, links (to the documents), or (use) images, according to what was explicitly manifested in faculty's teaching materials. Although there were common purposes across syllabi (e.g., required and optional readings), it was difficult to determine purposes of using documents according to teaching materials; (3) It was difficult to create entries for image genres (e.g., photos, logos, and signs) as several participants used a large number of images in their lecture slides. To create entries for all of these images would generate a massive dataset, which would affect interviews as it would take too long for participants to review these genres. In these cases, only a few lectures were analyzed along with other important teaching materials (e.g., syllabi). The author ensured image genres had the highest frequency so that these genres were selected for in-depth interviews. Additionally, where the title of an image was difficult to determine, textual information in lectures was used to assign a title.

CONCLUSIONS

Customized genre repertoires re-arranged the documents participants have used in different classes in a course based on genres. Documents in use were classified and displayed according to genres when they were selected for in-depth interviews. In this way, this study assumed documents belong to the same genre shared common purposes and perceived advantages and disadvantages, although sometimes participants indicated they used different documents belong to the same genre for different purposes. Selecting documents and asking interview questions based on genres helped investigate how different genres were used and perceived. However, genre was not always the best way to classify and display documents and investigate how different documents were used and perceived. Sometimes documents belong to different genres but used in a specific place (e.g., a list of resources used for professional development in a slide offered at the end of a course) were used to perform the same tasks. It might be relatively effective to display these documents together to investigate how these were used and perceived. Nevertheless, genre was still an effective means to systematically investigate how documents that scattered in different classes in a course were used and perceived.

This study made several methodological contributions. Coupled with semi-structured interviews, the methodology transformed citation analysis from an unobtrusive data collection method to an active research tool that engaged participants and ensured the accuracy of data collected by different methods. The methodology expanded the context of citation analysis from research to teaching. It also extended the target of citation analysis from research publications to faculty's teaching materials. It is important that researchers consider the ways citations can be used to investigate different types of information behaviors and understand the contributions that information makes to task performance in different contexts.

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