



Examining Subject-Specific Information Literacy Elements on Economics and Business Administration for Use in a MOOC

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Abstract. Recent literature on developing Information Literacy (IL) of students suggests that curricula should not only involve generic skills, but also knowledge about subject-specific content and research practices. While there are already several studies examining subject-specific IL in various contexts, no thorough analysis has been performed so far to identify the main resources that are addressed in various IL teaching materials for economics and business administration. Therefore, this paper presents a qualitative content analysis of several subject-specific teaching materials on IL for economics and business administration, available either as books or as publicly accessible online resources. The results reveal a strong focus of subject-specific IL teaching materials for economics and business administration on fact databases. In an additional step, the results of the analysis are used to suggest the content of a subject-specific extension on economics and business administration for a generic MOOC (Massive Open Online Course).

Keywords: Information Literacy · Subject-specific skills · Economics and business · Content analysis

1 Introduction

Emerging from its early origins in the user training in libraries [1], the concept of Information Literacy has seen constant developments. Today, there are several definitions for the term Information Literacy (IL), which has overlaps with the concepts of Media Literacy, Computer Literacy, Internet Literacy and Digital Literacy [2]. A common definition of IL has been published by the American Association of College and Research Libraries (ACRL), which was last updated in 2016. Accordingly, “Information literacy is the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning” [3, p. 3].

Today, IL can be considered as a necessary skill of white-collar workforce [4–6]. Information is growing to be a key business asset, which leads to employees spending a growing amount of time on searching and organizing information [6, 21]. This is also acknowledged by recent management literature, underpinning the relevance of IL skills [22]. Nevertheless, the challenge remains that managers lack awareness of the very concept of IL [12].

Recent literature on developing IL of students suggests that curricula should not only involve generic skills, but also knowledge about subject-specific content and research practices [7, 8]. Additionally, IL teaching in a subject-specific context is considered beneficial to students [9]. While several studies have examined the IL skills of business students [10, 11], workplace requirements and IL perception by employers [6, 12] or discussed various teaching approaches [13, 14], no thorough analysis has been performed so far to identify the main knowledge areas that are addressed in various IL teaching materials for economics and business administration. Therefore, the aim of this study is to answer the following research question: What are the most common resources emphasized in subject-specific teaching materials on IL for economics and business administration?

When it comes to teaching IL, several recent studies have suggested the use of new digital channels, especially Massive Open Online Courses (MOOCs) [15–17]. MOOCs are freely accessible online courses with no entry barriers aiming at unlimited participation which emerged in 2008 out of the Open Educational Recourses movement and which have, since then, rapidly grown in number [18, 19]. While a growing number of MOOCs on IL has also become available in the meantime, these usually stay on a generic level and do not emphasize subject-specific IL contents [20]. Therefore, the results of the present analysis are also used to suggest the content of a subject-specific extension on economics and business administration for a generic MOOC.

By conducting a qualitative content analysis of several subject-specific teaching materials on IL for economics and business administration in German language, available either as book or as publicly accessible online resource, this article contributes to current literature on subject-specific IL facilitation. First, it reveals a strong focus of subject-specific IL teaching materials for economics and business administration on fact databases. In addition, literature databases, press databases and journal rankings are commonly mentioned in the materials. Second, it shows that there are generally still few teaching materials in the particular context of this study available. Third, it shows that existing teaching materials tend to become outdated quickly due to discontinuation and renaming of sources. Fourth, building on these results, it proposes a potential content framework for future subject-specific extensions on economics and business administration for existing and future IL MOOCs.

2 Literature Review

Recent research on IL in context of economics and business administration has addressed various aspects of the subject area:

First, several studies have evaluated existing IL skills of business students. A study among Austrian business students using a standardized questionnaire revealed that these students only had mediocre IL skills. Compared to students of other subjects, the business students scored worst [10]. Another study among US students used a commercially available IL assessment to investigate the relationship between IL and business writing. The data showed a clear connection, as students with good performances in the IL assessment produced better emails, memos and technical reports [11]. Another paper has provided an introduction to rubrics developed in collaboration between librarians and instructors for assessing the IL of finance students [23].

Second, studies have also examined the information behaviour of business students. A study among Canadian business students found that they prefer electronic sources over print, have mainly acquired their IL skills through self-study and are reluctant to consult a librarian during the research process [24].

Third, several studies have focused on evaluating IL teaching for business students. Interviews with librarians at US business schools have been conducted to assess the progress with IL instruction of business students, which revealed widespread, but still developing efforts [25]. An exploratory study among librarians and teaching faculties of three business schools in Canada investigated the factors affecting student IL learning outcomes by means of interviews. It revealed that learning outcomes are influenced by a combination of IL program components, the learning environment and student demographics [26].

Fourth, several studies discuss various teaching approaches and present experience reports of integrating IL instruction into curricula. A survey conducted before and after a training module jointly conducted by a US business librarian and a faculty showed a significant learning gain of the students compared to a control group [13]. A similar study describes the collaboration of business professors and librarians in an introductory business course in the US. A survey conducted before and after the project showed a significant gain in IL skills of the students [14]. Another study conducted in the US uses various case studies to find how business education experimental learning initiatives serve to develop and reinforce key IL competencies [27]. Another paper describes how IL skills have been adopted as learning outcomes into a business curriculum and suggests a suitable assessment instrument [28].

Fifth, there are studies focusing on workplace requirements in the business world. A content analysis of 21 job profiles of business and finance occupations in the US Department of Labour O*Net database found IL skills to be demanded by 19 job profiles [6].

Sixth, there are studies that examine the perception of IL in the business world and by teachers. Interviews with US recruiters and employers showed that they are not in general familiar with the term IL, but when they are informed about its components, they recognize and value it [12]. A study among Austrian business school scholars showed that they are mainly familiar with the concept of IL and find additional IL training of their students necessary [29].

These examples show that there are already several studies examining various subject-specific aspects of IL. Nevertheless, no thorough analysis has been performed so far to identify the main knowledge areas that are addressed in various IL teaching materials for economics and business administration.

3 Analysis of Subject-Specific IL Teaching Material

The following analysis focuses on subject-specific teaching materials on IL for economics and business administration in German language that are publicly available either in print or online. Public availability is understood here either as a book that is available for borrowing through libraries or as online materials that can be found through search engines and that are available for download free of charge. The research

of available teaching materials was conducted in March 2018 using the search engine of the Austrian Library Network (ALN) [30], which features 8 million records of more than 80 academic libraries, and Google web search engine. The search terms used included the German terms for *Information Literacy* in combination with either *economics* or *business*. Depending on the combination of the search terms, the search revealed between 2 and 82 results in the database of the ALN and 17,000 results in Google web search. As a next step, the search results were checked for public availability. Due to the vast amount of results, only the first 200 results of the Google web search were examined. The search eventually yielded five teaching materials that matched to the criteria (Table 1).

Table 1. Analysed subject-specific teaching materials

Title (English translation)	Media type	Publisher, Year	Source
Successful Literature Research	Book	Books on Demand, 2011	ALN, Google
Information Literacy – Business	Book	De Gruyter, 2014	ALN, Google
Information Literacy for Business	Slides in PDF format	University of Hagen, n.d.	Google
How do I find information about the economy and business research?	Script in PDF format	European University Viadrina, 2018	Google
Retrieve – Cite – Record: Research Data in the Social- and Economic sciences	Folder in PDF format	Leibniz Information Centre for Economics, German Data Forum and Leibniz-Institute for the Social Sciences, 2014	Google

Two of the teaching materials are available as books through libraries and three of them online, whereby one consists of slides from a lecture, one is a script for students and one is a professionally published folder. This folder has a strong focus on research data, but also introduces subject-specific information sources. Beside these publicly available teaching materials, the Google web search revealed several further courses on subject-specific skills for economics and business offered at higher education institutions, mainly through libraries. These offers are generally intended for students and staff members and not as publicly accessible teaching materials available for download.

In a next step, a summarizing content analysis [31] of the materials was conducted. The coding scheme was developed following an inductive approach, focusing on the resources suggested to the students in the teaching materials. Beyond describing subject-specific resources, the teaching materials also address generic skills (e.g. how to formulate good search terms). This study did not aim to analyse these generic contents in detail. In addition, generic information sources were excluded (e.g. *Google Scholar*).

Table 2 shows the aggregated results of the content analysis. For each of the categories of considered resources, it states in how many of the analysed teaching materials they are addressed. Additionally, the number of subject-specific sources is given that was named throughout the analysed teaching materials and it is indicated how many of them are mentioned in more than one teaching material (in percent).

Table 2. Aggregated results of the content analysis

Category	Teaching materials including category (%)	No. of sources within category	Multiple mentioning (%)
Fact databases	1	29	0.21
Literature databases	0.8	8	0.5
Encyclopaedias, dictionaries	0.6	23	0.05
Rankings of journals	0.6	9	0.45
Web portals	0.6	8	0.25
Press databases	0.6	5	0.2
Public and research institutions	0.4	8	0.5
Repositories and data archives	0.4	7	0
Specialized libraries	0.4	7	0.14
Open access databases	0.4	4	0
Thesauri	0.4	1	0.1
Scientific journals	0.2	13	0
Journals for practitioners and business newspapers	0.2	8	0
Publisher	0.2	7	0
Rankings of researchers	0.2	6	0
Classification systems	0.2	5	0
Conference calendars	0.2	4	0

All of the analysed teaching materials include fact databases like *Eurostat*. This was also the category with the most frequently mentioned sources – 29 different fact databases are named in the teaching materials, out of which 21% are mentioned in more than one of the teaching materials. 80% of the analysed teaching materials include subject-specific literature databases like *EBSCOhost Business Source Premier*. Eight different literature databases are mentioned, out of which 50% are stated in more than one of the teaching materials. Encyclopedias and dictionaries (like *The Concise Encyclopedia of Economics*), rankings of journals (like *VHB-JOURQUAL*), web portals (like *INOMICS*) and press databases (like *Factiva*) are named in 60% of the teaching materials. For each of these categories 23, nine, eight and five different sources are named, respectively. Out of these, rankings of journals are those with most multiple mentions with 45% of the resources named in more than one of the teaching materials.

40% of the analysed teaching materials name public and research institutions as possible sources for subject-specific data (like the *Federal Employment Agency*), repositories and data archives (like the *Social Science Open Access Repository*), specialized libraries (like the *Leibniz Information Centre for Economics*), open access databases (like *EconStor*) and thesauri (like *WISO Thesaurus*). 20% of the analysed teaching materials name scientific journals (like *Management Review Quarterly*), journals for practitioners and business newspapers (like *The Financial Times*), publishers (like *Springer Gabler*), rankings of researchers (like *RePEc/IDEAS rankings*), classification systems (like *JEL Codes*) and conference calendars (like *SSRN Conference Announcements*).

In all categories, the highest number of sources is mentioned for fact databases (29), encyclopedias and dictionaries (23), and scientific journals (13). There is great diversity among the teaching materials regarding the mentioned sources. The highest rate of one source being mentioned in more than one teaching material is 50%, which applies to literature databases and public and research institutions. Journal rankings, too, reached a rate of 45%. With all other sources, the rate was below 25%. Several sources are named in just one of the teaching materials.

The teaching materials address a considerable number of aspects of generic basic knowledge such as how to use truncations, and include generic sources like *Google Scholar* or the web catalogue of the Austrian Library Network. Although these resources are generic themselves, in some cases they are presented in a subject-specific context like by searching for a book on economics.

4 Discussion

The search for subject-specific teaching materials on IL for economics and business administration showed that there are still few explicit teaching materials in German accessible to the public either as book available through a library or as online resource. Overall, the search identified just five teaching materials meeting these requirements. All of these materials were prepared by librarians or information scientists, which reflects that these professions are highly committed to IL teaching [32].

The analysis further showed that teaching materials on IL for economics and business put great emphasis on various subject-specific literature sources, especially on fact databases, literature databases and press databases. In addition, various subject-specific rankings are emphasized, especially journal rankings. One of the teaching materials also provides information on how to find various relevant conferences through subject-specific conference calendars. Knowledge of how to obtain data is of special relevance in the business world [21]. For example, identifying economic trends by scrutinizing economic data can be a competitive advantage for enterprises [6]. This might be one of the reasons, why different fact databases are the most frequently named resources and are the only category that is mentioned in all of the examined teaching materials. One of the teaching materials even had a special focus on how to retrieve research data.

Several of the sources named in the teaching materials had a language- and country-specific focus. This is in accordance with literature that emphasizes the language- and country-specific dimension of IL skills [8, 33].

The analysis of the teaching materials revealed that the field is highly dynamic. With the oldest teaching material being from 2011, several of the named sources have not been continued or have been renamed at the time of analysis. This highlights the relevance of constantly updating teaching resources in this field, which is a challenge especially for teaching materials provided as printed books. The possibility of regularly updating teaching materials is one of the advantages of electronic materials like MOOCs.

The results of the content analysis allow to create a possible framework for the content of a subject-specific extension of a generic MOOC on IL, which are available in rising numbers [20]. Accordingly, such a MOOC should include subject-specific information resources, thesauri and rankings. In addition, classification systems, web portals and conference calendars could be included. Additionally, a MOOC could also include information about specialized publishers, libraries and institutions. In accordance with the day-to-day tasks the workforce is facing in the business world [6, 21], especially fact databases should be acknowledged.

In addition to the special resources discussed by this study, such a MOOC could also address specific additional skills. In a business environment, employees have to be able to critically assess financial and economic information in an ethically sound way, a skill which is referred to as *Critical Business Information Literacy* [34]. Also, relatively new skills like working with social media data [25, 26] could be addressed. Additionally, studies have shown that among students of all disciplines, students of economics tend to be most likely to show unethical academic behaviour [35]. This might indicate the need for a more thorough focus on ethical information use and behaviour in IL learning contents for business students.

As this analysis revealed, several of the sources in the analysed teaching materials are country- or language-specific. This emphasizes the importance of considering the target group of the MOOC when defining the content and selecting examples accordingly. The low awareness of the term IL in the business world remains to be an additional challenge [12]. This emphasizes the importance of a careful and thorough introduction to the concept and its relevance for everyday business tasks.

5 Conclusion, Limitations and Outlook

The aim of this study was to examine the most common resources emphasized in subject-specific teaching materials on IL for economics and business administration. This paper presented a qualitative content analysis of several subject-specific teaching materials on IL for economics and business administration in German, available either as books or as publicly accessible online resources. Thus, this article makes the following contributions to current literature on subject-specific IL facilitation: First, it reveals a strong focus of subject-specific IL teaching materials for economics and

business administration on fact databases. In addition, literature databases, press databases and journal rankings are commonly mentioned in the materials. Second, it shows that there are generally still few teaching materials in the particular context of this study available. Third, it shows that existing teaching materials tend to become outdated quickly due to discontinuation and renaming of sources. Fourth, building on these results, it proposes a potential content framework for future subject-specific extensions on economics and business administration for existing and future IL MOOCs.

This study has several limitations, which in turn open up paths into further research. First, the sample in this study was limited to German teaching materials and books available through the Austrian Library Network. Looking further on English language materials would allow to see if there are country-, language- and culture-specific differences. Second, the search focused exclusively on the concept of IL and not on related concepts. This potentially also resulted in the relatively small sample of five teaching materials examined. Third, only publicly accessible materials were analysed. Further research could include teaching materials used by various subject-specific trainings from libraries.

The implications for a possible subject-specific MOOC extension on economics and business administration can lay the foundation for an additional unit of a MOOC on generic IL skills for higher education students, which is currently being developed within an Erasmus+Strategic Partnership project [20]. Further research seeks to evaluate the application of these materials among students of economics and business administration.

Acknowledgements. This work has been supported by the Erasmus+Program of the European Commission (Grant Agreement No. 2016-1-AT01-KA203-016762). The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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