

Interdisciplinarity and information literacy: Librarians' competencies in emerging settings of higher education

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ABSTRACT

Our aim with this conceptual analysis is to demonstrate possible expectations put on librarians who are engaged in interdisciplinary courses in higher education programs. We do so by relating views on interdisciplinarity with views on information literacy. We distinguish views on interdisciplinarity by the degree of integration between disciplinary components and views on information literacy by the degree of participation in addressing research problems. The analysis brings forth four cases. The cases entail different professional competencies that range from source-oriented technical skills applicable in multi-disciplinary settings to collaborative negotiations of research problems and information needed to address them in inter-disciplinary fields. This conceptual account has a twofold potential: First, it has a capacity of informing academic libraries about alternative paths in developing or revising activities for interdisciplinary education. Second, it also provides a framework for developing future research problems that address current challenges related to information literacy in interdisciplinary settings.

Keywords

Information literacy, interdisciplinarity, librarians, teaching, competencies, academic libraries.

INTRODUCTION

In this paper, we derive possible views on librarians' competence based on common conceptualizations of *information literacy* and of *interdisciplinarity*. In previous frameworks on teaching activities in libraries, librarians' competencies have often – at least implicitly – been conceived as generic skills pertaining to the utilization of

known information sources, and/or facilitation of patrons' cognitive sense-making and learning processes (e.g., Julien & Williamson, 2011). Parallel research on information literacy has emphasized a more socio-cultural orientation on information seeking activities (e.g., Tuominen et al., 2005). However, these two views seem seldom to meet (Pilerot, 2014). Our aim is to explore how the views on information literacy are further diversified by different views of interdisciplinarity. Furthermore, the combinations of views create varying expectations of the competencies librarians need in order to facilitate their patrons' information related activities.

For purposes of this presentation, we frame information literacy conceptually as *a degree of participation* and interdisciplinarity as *a degree of integration*, accentuating in both cases the role of interaction. We exemplify this two-dimensional interaction in connection to a scenario based on a real-life case where librarians were involved in an interdisciplinary course. We anticipate that this will become an increasingly relevant scenario in Nordic academic libraries given current stress put on interdisciplinary education (e.g., Knight et al., 2013; Thune et al., 2012). The conceptual accounts offer a way to highlight requirements and challenges that the library profession currently faces.

In the next two sections, we present the above mentioned conceptualizations of information literacy and of interdisciplinarity. Thereafter, we present our analytical method and scenario. The results are presented as four stereotypical cases derived by four different combinations of views of information literacy and interdisciplinarity. Expectations concerning librarians' competencies are discussed in relation to each case. In the conclusion, we pinpoint issues for academic libraries to discuss and for future research to address.

VIEWS ON INFORMATION LITERACY

Different conceptualizations of information literacy have resulted in different educational approaches in academic

libraries. One approach has depicted general skills and knowledge as transferable between different contexts and represented them by fixed models and standards (e.g., Gibson et al., 2014; Eisenberg, 2010; Eisenberg et al., 2000). Another approach focuses on socio-culturally embedded practices, which in principle are not transferable out of their original contexts (e.g., Limberg, et al., 2008; Lloyd, 2010). These different views on information literacy can be traced to the different views on learning: the generic approach leaning on the Piagetian view and the practice approach on the Vygotskian school of thought. The approaches lead to different expectations regarding information literacy education. One approach aims at information literate persons, who may take the skills and knowledge of a formal learning environment to be later applied in other contexts. The other means that a person may only become information literate in actual work practice through participation (cf. Moring & Lloyd, 2013). One could thus argue that it is the degree of participation, which constitutes a major distinguishing marker between the two approaches. We will use this assumption in the analysis below.

VIEWS ON INTERDISCIPLINARITY

One central question in the literature on interdisciplinarity deals with the degree of integration between components of two or more disciplinary domains (e.g., Klein, 2010; Knight et al., 2012; Madsen, 2010). Interdisciplinarity presupposes the existence of disciplines stabilized around core components (Aram, 2004; Jones, 2012; Østreng, 2010). According to Augsburg, there are at least fifteen components distinguishing a discipline (Augsburg in Jones, 2012). Among them are components such as: research methods, seminal texts, major thinkers, basic concepts/leading theories, ideals/ethics/objectives, and assumptions and worldviews. The degree of integration of such components depends on the thoroughness of interaction between them. One common distinction is made between *multi*-disciplinarity and *inter*-disciplinarity (Knight et al., 2012; Repko, 2012; Klein, 2010).

Multi-disciplinarity typically designates a mere juxtaposition of different disciplines in scholars' or students' dealings with a shared problem. In multi-disciplinarity integration is weak. Interdisciplinary research and education is by the term understood as additive rather than integrative (Huutoniemi et al., 2010). This means that knowledge produced within one discipline may be used to contextualize knowledge produced in another or a method developed in one discipline is applicable in another.

Inter-disciplinarity is based in a more active interaction resulting in strong integration as it «is marked by a synthesis of disciplinary knowledge and methods that provides a more holistic understanding» (Knight et al., 2013, p. 144; cf. Aram, 2004; Klein, 2010). Interaction is taking place throughout research processes: formulation of research problems, data collection/construction, and

development of tools, technology, concepts or explicated assumptions.

Multi-disciplinarity and inter-disciplinarity represents different classes in a taxonomy that «construct ways in which we organize knowledge and education» (Klein, 2010, p. 15). One could argue that multi-disciplinarity forms one end of a continuum where completely merged inter-disciplinary view represents the other end. Accordingly, it is the degree of integration that differentiates these two ends. We will use this assumption in the analysis below.

METHOD OF ANALYSIS

Our method may be described as a limited conceptual analysis of information literacy and interdisciplinarity. We operationalize information literacy here as degree of participation and interdisciplinarity as degree of integration. The former consists of two opposites: generic information literacy and practice-oriented information literacy. The latter gives us the end poles of multi-disciplinarity and inter-disciplinarity. To demonstrate possible implications of these measures, we construct four ideal typical approaches. The approaches are described 1) based on two commonly used, but ambiguous concepts in information studies, information need and information source, and 2) in connection to a real-life based scenario for teaching librarians. In our analysis, we settle for a broad definition of information needs and information sources. Information needs are seen as individual or collective formulations on what information is anticipated to be necessary to acquire in a given situation and information sources are seen as any carriers of such information. By addressing these concepts in relation to the measures above, we illustrate different expectations of librarians' competencies.

SCENARIO

Four subject librarians from different branches of an academic library were engaged to design information literacy sessions for an interdisciplinary master's level course. The course involved students from a range of disciplines. Without any further definition of interdisciplinarity, one of the learning objectives was to develop abilities in interdisciplinary teamwork. The means to meet this learning objective was a collaborative written assignment addressing a complex problem. Throughout the course, the students were expected to draw upon their prior disciplinary knowledge, the lectures given on the particular topic, as well as literature of their own choosing together with items on a tentative reading list. Based upon these clues the librarians were to design their sessions in terms of content and teaching methods.

ANALYSIS

The following analysis demonstrates that alternative session designs depend on different possible combinations of the views on information literacy (IL) and interdisciplinarity (ID). We describe four approaches that illustrate stereotypical cases.

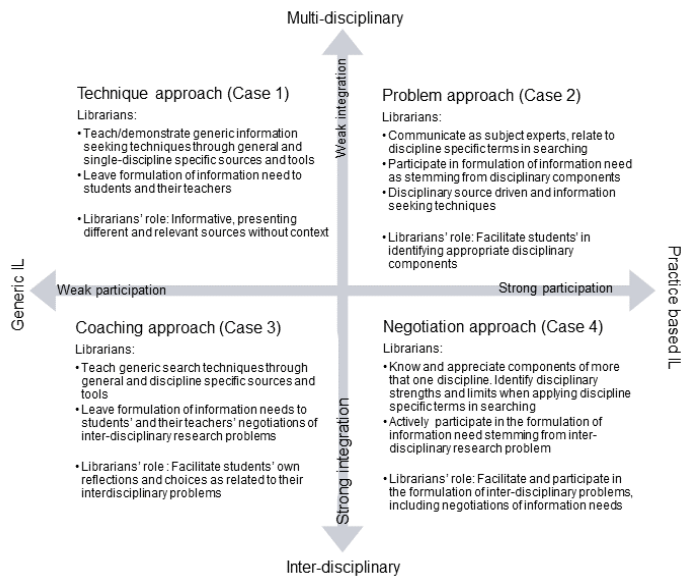


Figure 1 Four approaches on interdisciplinary information literacy

Technique approach

(Case 1: IL participation weak – ID integration weak) Librarians in the scenario are expected to present existing sources well within the boundaries of individual disciplines involved as well as common generic techniques to retrieve information (e.g., Boolean logic). The librarians are not expected to participate in the formulation of information needs; these are viewed as stemming from disciplinary components. Information need is considered as an issue for students and their teachers to negotiate. The librarians' main pedagogical task is to demonstrate techniques for and functionality of suitable information sources.

Problem approach

(Case 2: IL participation strong – ID integration weak) Each librarian assumes a role of subject expert in the scenario. They propose and utilize discipline-specific terms to tailor searches according to nuances within disciplines and their subfields. The librarians are also expected to address information needs and actively participate in the formulation of the scope, content and direction of the problems addressed. However, the aim is only to juxtapose disciplinary components, no inter-disciplinary knowledgeability is expected of the librarian. The librarians' main pedagogical task is to facilitate the identification of appropriate disciplinary components.

Coaching approach

(Case 3: IL participation weak – ID integration strong) Librarians in the scenario are – just as in Case 1 – expected to present sources well within the boundaries of individual disciplines involved as well as common techniques to retrieve information (e.g., Boolean logic). In this case, the aim is disciplinary integration. The librarians are not

expected to participate in decisions about what information is needed as related to the development of the inter-disciplinary research problems. Rather, the librarians' main pedagogical task is to prompt students' reflective analysis of retrieved information in relation to their inter-disciplinary problem.

Negotiation approach

(Case 4: IL participation strong / ID integration strong) Each librarian is expected to know and appreciate the problems and concepts of the inter-disciplinary field in question. This implies knowledgeability in more than one discipline. The librarians are expected to participate in discussions of the strengths and limitations of the disciplinary components invoked in face of the problem addressed. The librarians actively participate in the process of developing inter-disciplinary problems, the formulation of those problems and finding possible solution to them, which includes negotiating what information is deemed as necessary and/or relevant.

CONCLUSIONS

Different interdisciplinary approaches together with different understandings of information literacy imply different degree of interactivity by the teaching librarians. Our analysis has described four possible cases with varying prerequisites for librarians' competencies. We see these cases not as normative categories valuing one over the others. They provide a simple illustration on different and heavily stereotypical views that relate to different educational approaches (cf. Knight et al., 2012). Each case implies a different set of expectations on the teaching librarians' competencies. We suggest that the cases provide a useful conceptual platform for contrasting existing and planned information literacy activities.

Academic libraries may adhere to the practice-oriented view on information literacy (strong participation). Depending on the strength of integration stressed by the view of interdisciplinarity taken, Case 2 or Case 4 will emerge. In a Case 2 scenario (weak interdisciplinary integration), the academic library would benefit from drawing upon subject librarians' expertise in different specific disciplines. Information literacy as defined by participation in disciplinary practices would be performable in the educational setting of interdisciplinary courses. If Case 4 (strong interdisciplinary integration) should be the desired scenario, new interdisciplinary competencies would be required on part of the librarians. Libraries would have to reflect on how such competencies could be developed or recruited. Academic libraries employing special librarians (e.g. special librarians of law or medicine) or subject specialist (e.g. librarians holding a degree in the discipline in question) would need to consider how to move from disciplinary to inter-disciplinary expertise. They would also need to consider in how far it is reasonable to put such expectations on individual librarians, or whether it could be

addressed as an interactional competency ensured in the collaborative teaching of librarians working in teams.

Libraries may also draw less on information literacy viewed as socio-culturally embedded practices (weak participation). The courses would be based on generic search techniques that are applicable across many different sources, rather than on disciplinary or inter-disciplinary knowledgeability. Dependent on the strength of the interdisciplinary integration presupposed, Case 1 or Case 3 would emerge. If Case 1 is the aimed scenario (interdisciplinary integration is weak), librarians must simply rely on multi-disciplinary learning as catered for elsewhere in the course-structure. If Case 3 is the case (interdisciplinary integration is strong), inter-disciplinary knowledgeability must be part of the interactions they involve in. As librarians are focusing on disseminating generic search techniques, their ability to facilitate students' negotiations of disciplinary components without being a participant in the discussion become an important pedagogical competency.

The four cases may aid reflection of individual librarians embarking on teaching information literacy in interdisciplinary courses. Perhaps more importantly, they may aid libraries to develop strategies to address interdisciplinary requirements in higher education and research. Before applied to such development, the unidimensional measures on information literacy and interdisciplinarity introduced in this paper need further elaborations to ensure that all relevant aspects of the two phenomena are captured.

As a last concluding comment, we call for empirical studies to test and adjust the proposed measures and approaches in real life settings. Knowledge about the consequences of interdisciplinary research and education for information literacy is necessary to develop teaching practices in academic libraries.

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